

Opportunities for the Private Sector



Thomas A. Cellucci, Ph.D., MBA
Chief Commercialization Officer
Department of Homeland Security
Science and Technology
Email: Thomas.Cellucci@dhs.gov



Discussion Guide

- Overview of Department of Homeland Security
- Reasons to Partner with DHS-S&T
- Integrated Product Teams: IPTs
- Market Potential is Catalyst for Rapid New Product Development
- Safety Act Protection
- Tech Clearing House
- SBIR Opportunities
- Getting Involved
- Summary



**Homeland
Security**

Homeland Security Mission

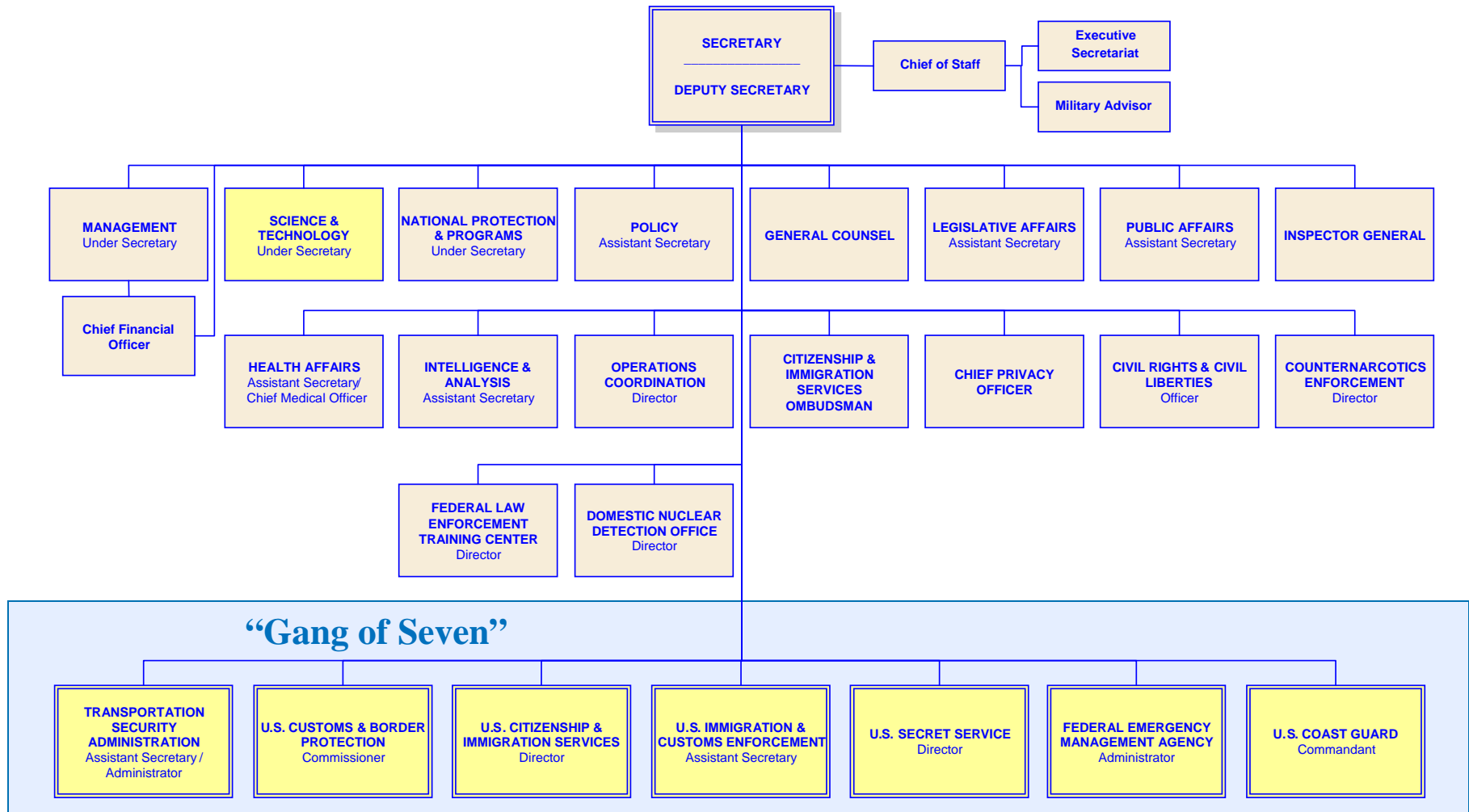


- Lead Unified National Effort to Secure America
- Prevent Terrorist Attacks Within the U.S.
- Respond to Threats and Hazards to the Nation
- Ensure Safe and Secure Borders
- Welcome Lawful Immigrants and Visitors
- Promote Free Flow of Commerce



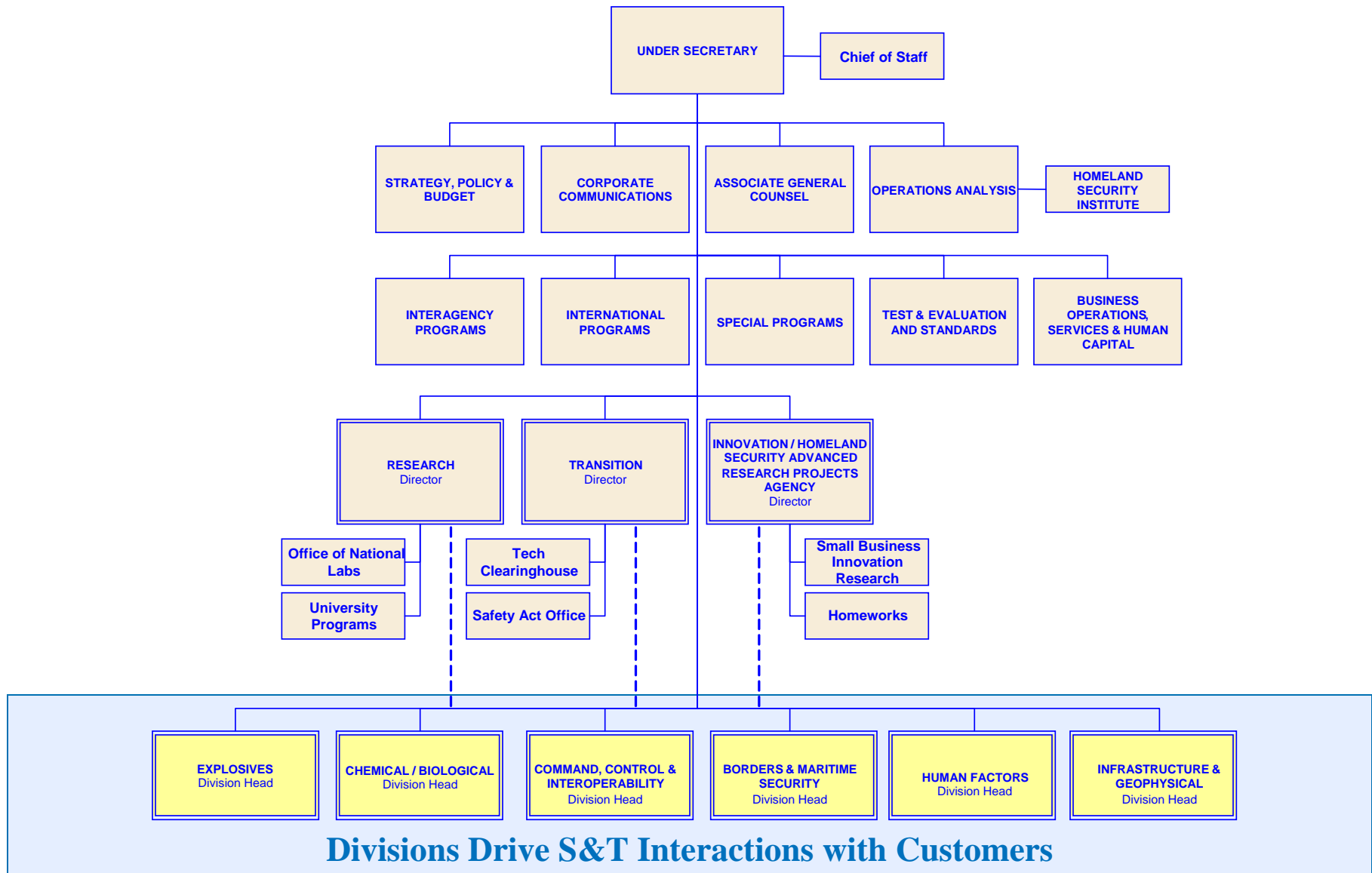
**Homeland
Security**

U.S. Department of Homeland Security



Homeland Security

Office of the Under Secretary for Science and Technology



S&T Goals

Consistent with the Homeland Security Act of 2002

- **Accelerate the delivery of enhanced technological capabilities** to meet the requirements and fill capability gaps to support DHS agencies in accomplishing their mission.
- Establish a lean and agile world-class S&T management team to deliver the technological advantage necessary to ensure DHS Agency mission success and prevent technological 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.



**Homeland
Security**

DHS S&T Investment Portfolio

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

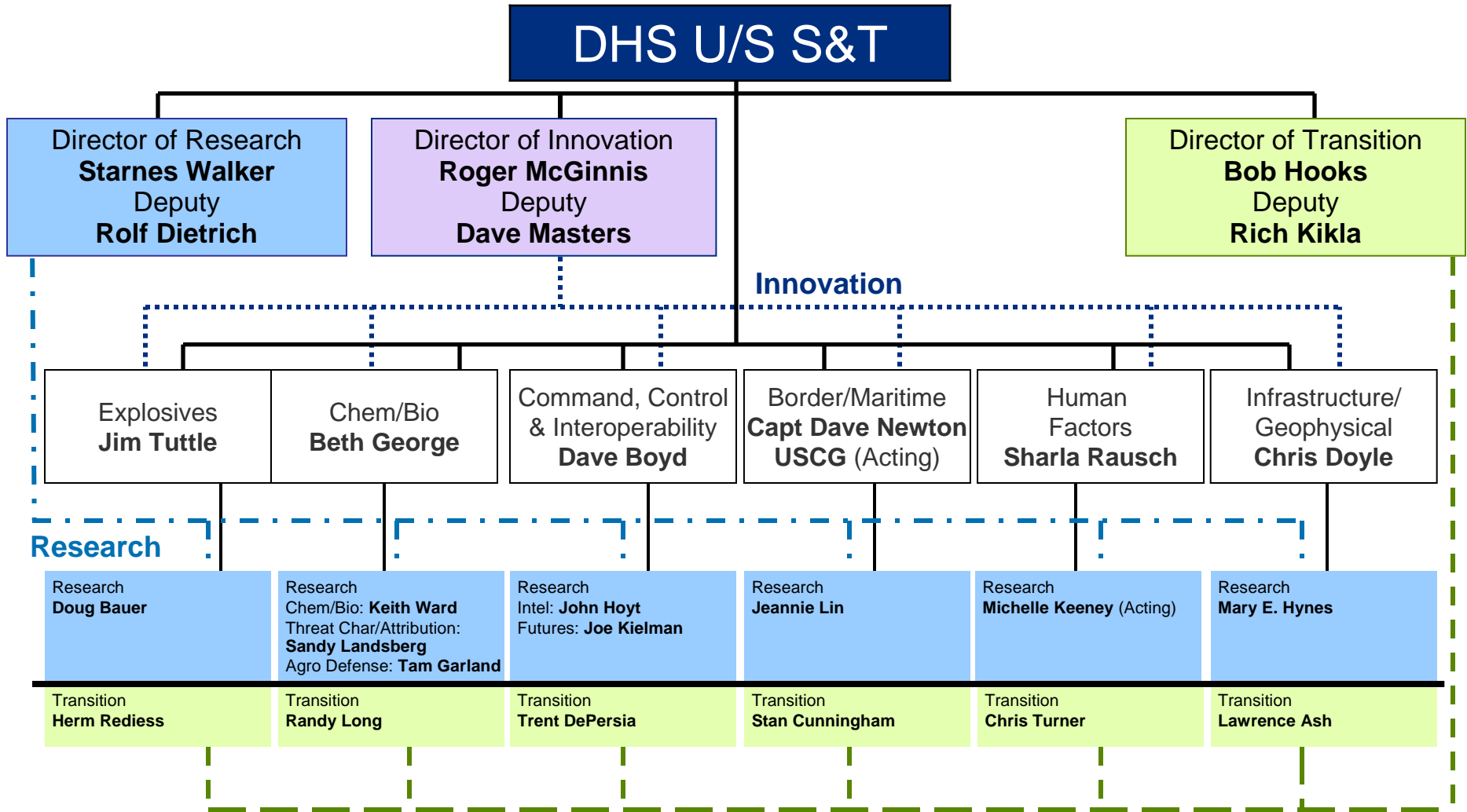
Product Transition (0-3 yrs) <ul style="list-style-type: none">• Focused on delivering near-term products/enhancements to acquisition• Customer IPT controlled• Cost, schedule, capability metrics	Innovative Capabilities (1-5 yrs) <ul style="list-style-type: none">• High-risk/High payoff• “Game changer/Leap ahead”• Prototype, Test and Deploy• HSARPA
Basic Research (>8 yrs) <ul style="list-style-type: none">• Enables future paradigm changes• University fundamental research• Gov’t lab discovery and invention	Other (0-8+ yrs) <ul style="list-style-type: none">• Test & Evaluation and Standards• Laboratory Operations & Construction• Required by Administration (HSPDs)• Congressional direction/law

Customer Focused, Output Oriented



**Homeland
Security**

S&T Organization



Research

Innovation

Applications



Homeland Security

Three Step Approach: Keep it Simple and Make it Easy

1 Develop Detailed Requirements
And Relay Conservative Market Potential

2 Establish Strategic Partnerships

- Business Case Information
- Open Competition
- Detailed Mutual Responsibilities

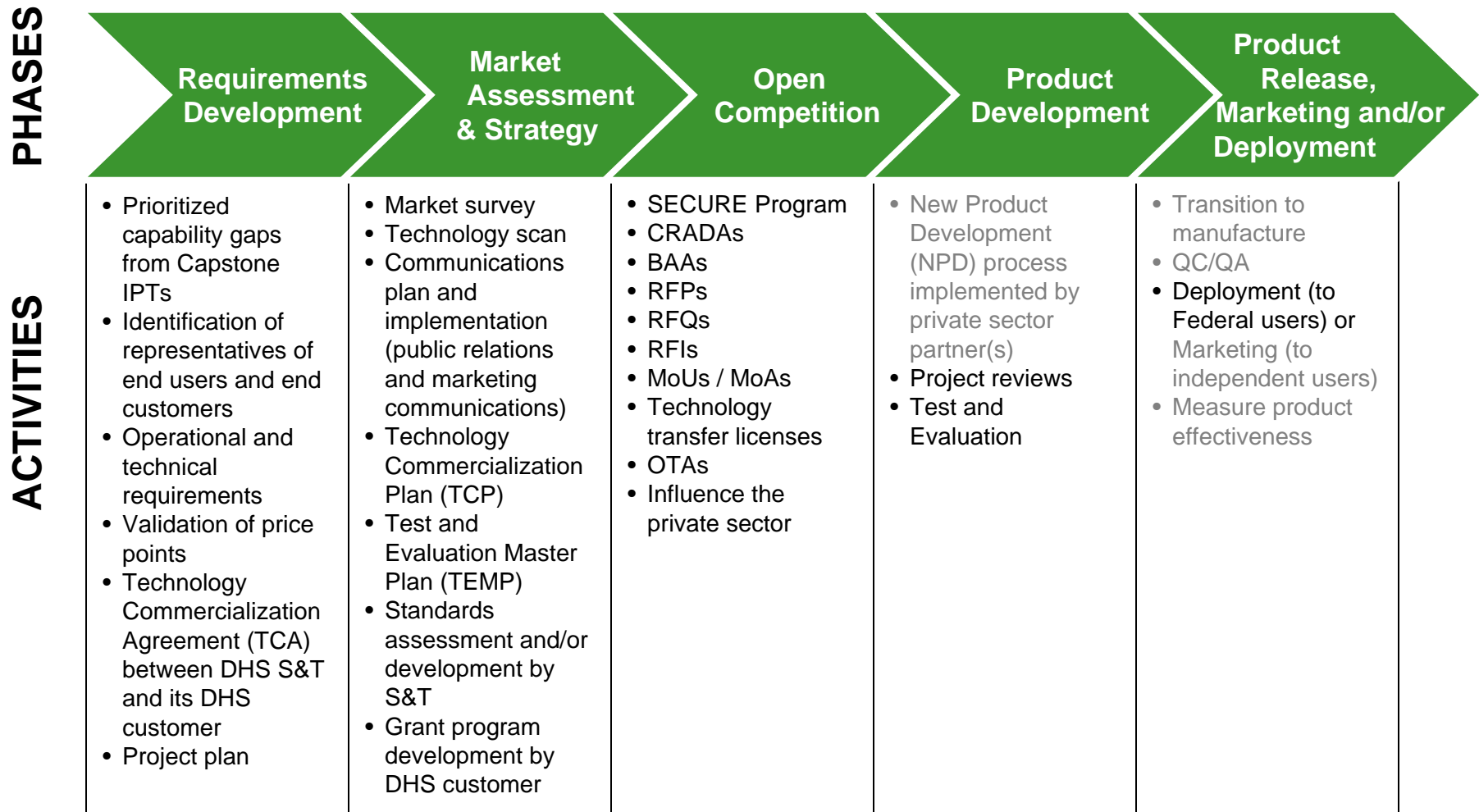
3 Deliver Products!



**Homeland
Security**

Private Sector Outreach Process

Requirements Development through Product Release



Homeland Security

Legend: Black text = Government activities
 Grey text = Private-sector activities

10 Reasons to Partner with DHS Science & Technology

Reasons:

Economics-based

Public Relations-based

Business Development-based

Strategic Marketing-based

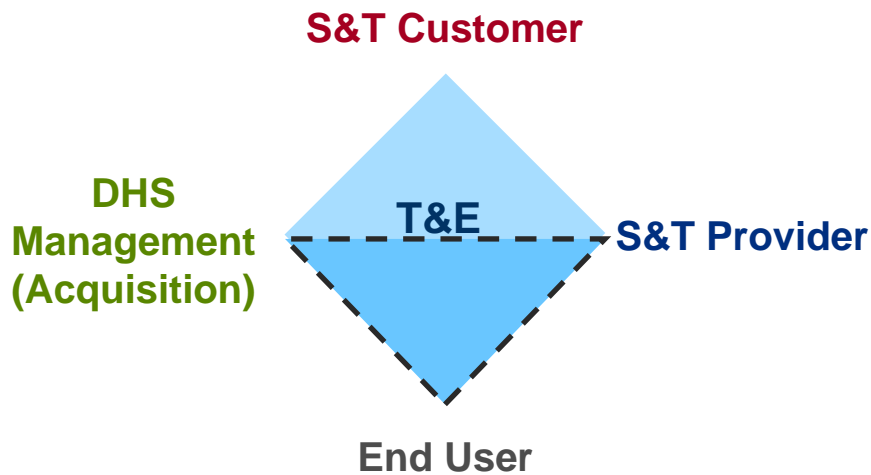
Technical Resources-based

1. Access the Sizeable DHS Market and Ancillary Markets
2. Leverage the Financial Strength/Stability of DHS and off-set R&D costs through participation in mutually beneficial cost-sharing Programs
3. Utilize the SAFETY Act to gain liability protection and access DHS' array of PR and Market Communications services
4. Effectively reach the First Responders Market through FEMA-sponsored grant programs, the AEL (Approved Equipment List), other sponsored equipment lists and fast-track programs
5. Team with Science & Technology Personnel to leverage a vast Network of Laboratory Facilities for Technology and Product Development
6. Gain access to Test and Evaluation (T&E) Facilities for Product Development and actively participate in the generation of Standards, T&E methods and Regulations used at the tribal, local, state, and federal levels
7. Meet and establish Partnerships with others in the University, Business, and National Lab Communities
8. Potentially generate Licensing revenue and capture potential Derivative Product revenue
9. Leverage SBIRs, HITS and HIPS to gain experience with homeland security applications
10. Make a Real Difference by Developing Products to Defend the Homeland for Generations to come as well as gain recognition as a Corporate Citizen contributing to the Security of our Homeland

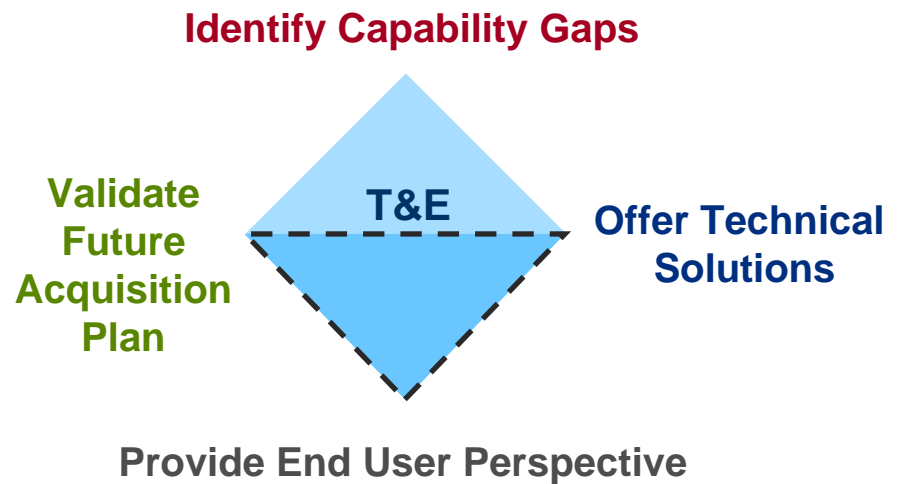


**Homeland
Security**

S&T Transition IPT Members and Function



- Industry Board of Directors Model
- Consensus-driven Process



End Result :
Prioritized Investments in S&T

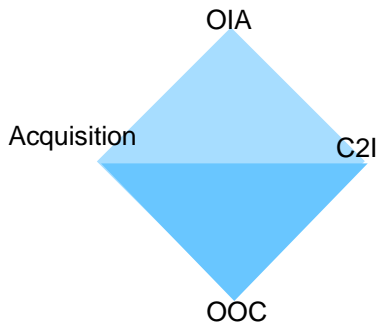


**Homeland
Security**

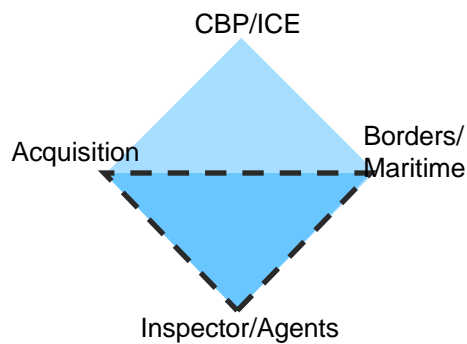
DHS Requirements/Capability Capstone IPTs

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

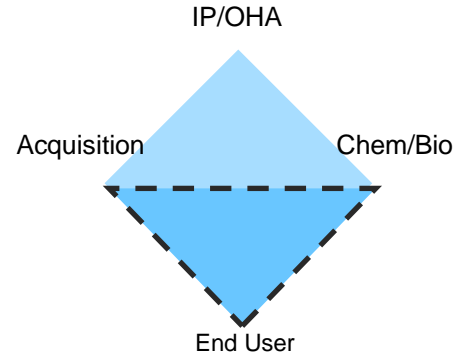
Information Sharing/Mgmt



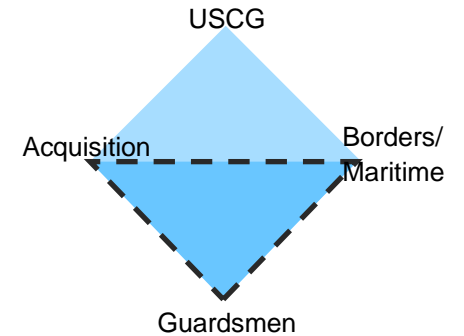
Border Security



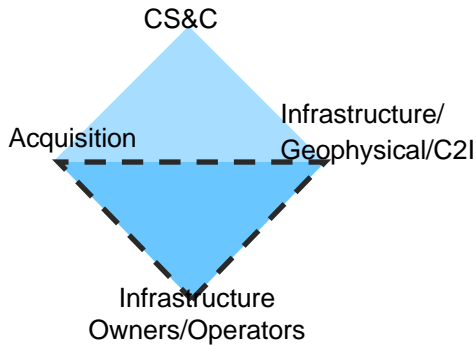
Chem/Bio



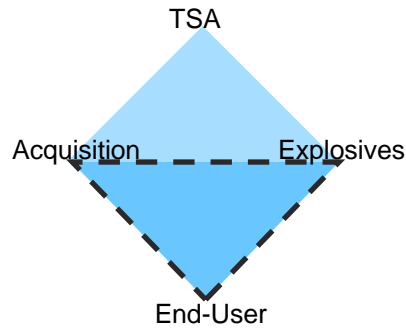
Maritime Security



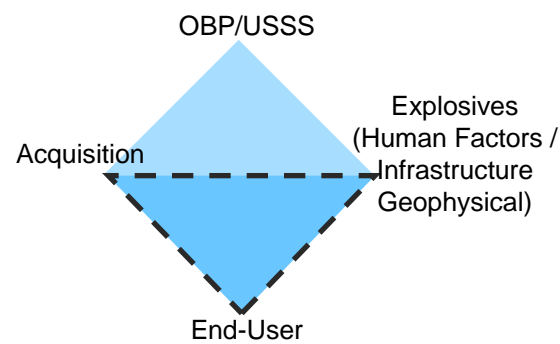
Cyber Security



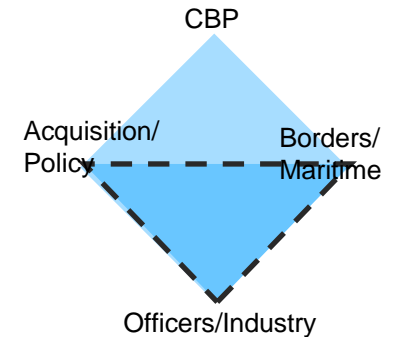
Transportation Security



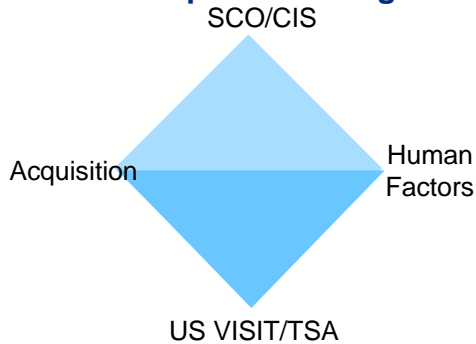
Counter IED



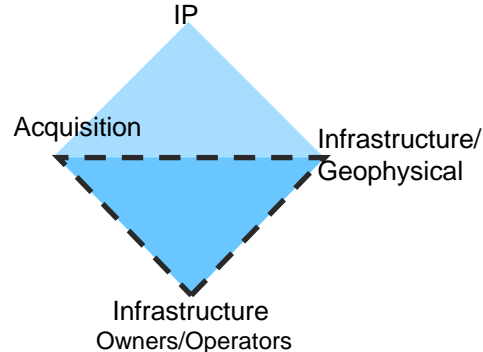
Cargo Security



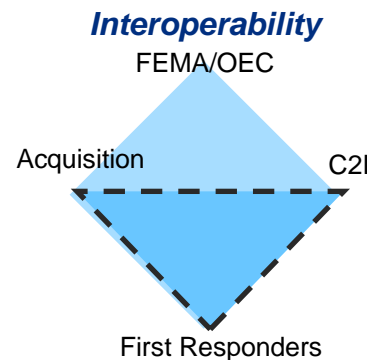
People Screening



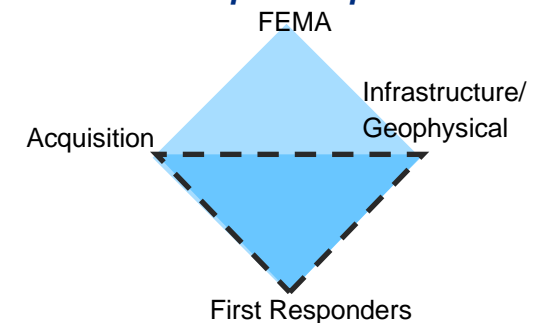
Infrastructure Protection



Incident Management

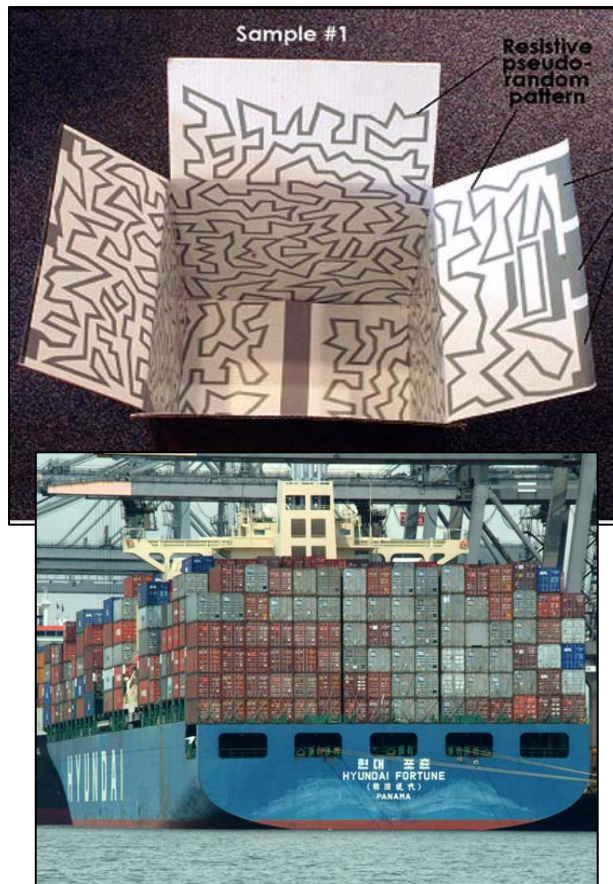


Prep & Response



Cargo Security

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



**Homeland
Security**

Source: S&T High Priority Technology Needs, May 2007

Maritime Security

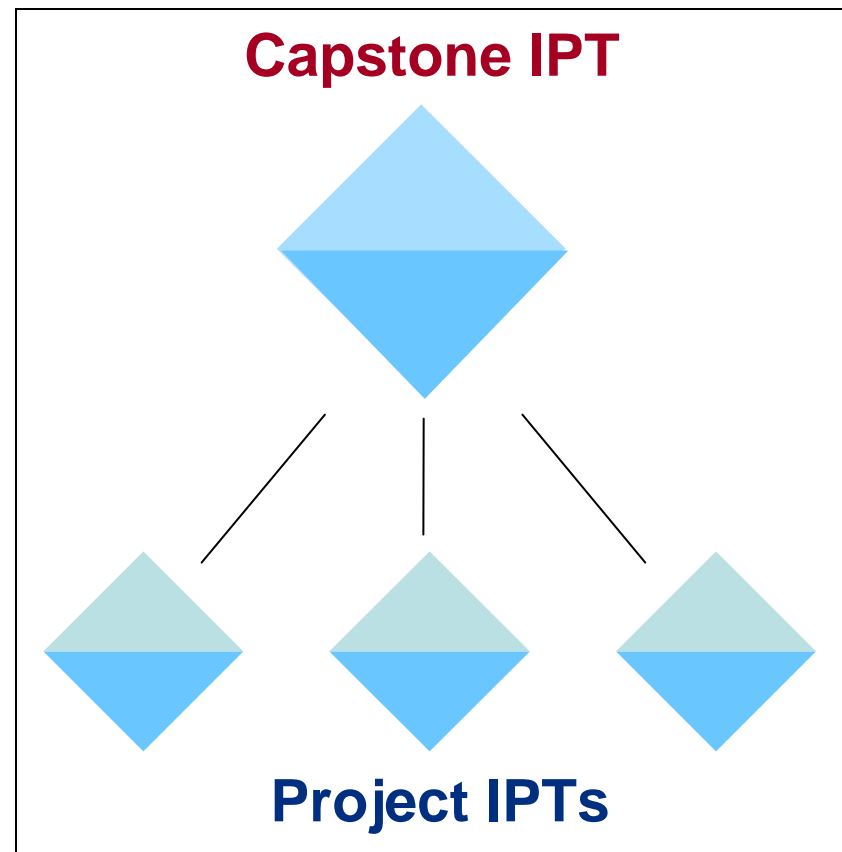
Representative Technology Needs



- Wide-area surveillance from the coast to beyond the horizon; port and inland waterways region – detect, ID, and track
- Data fusion and automated tool 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

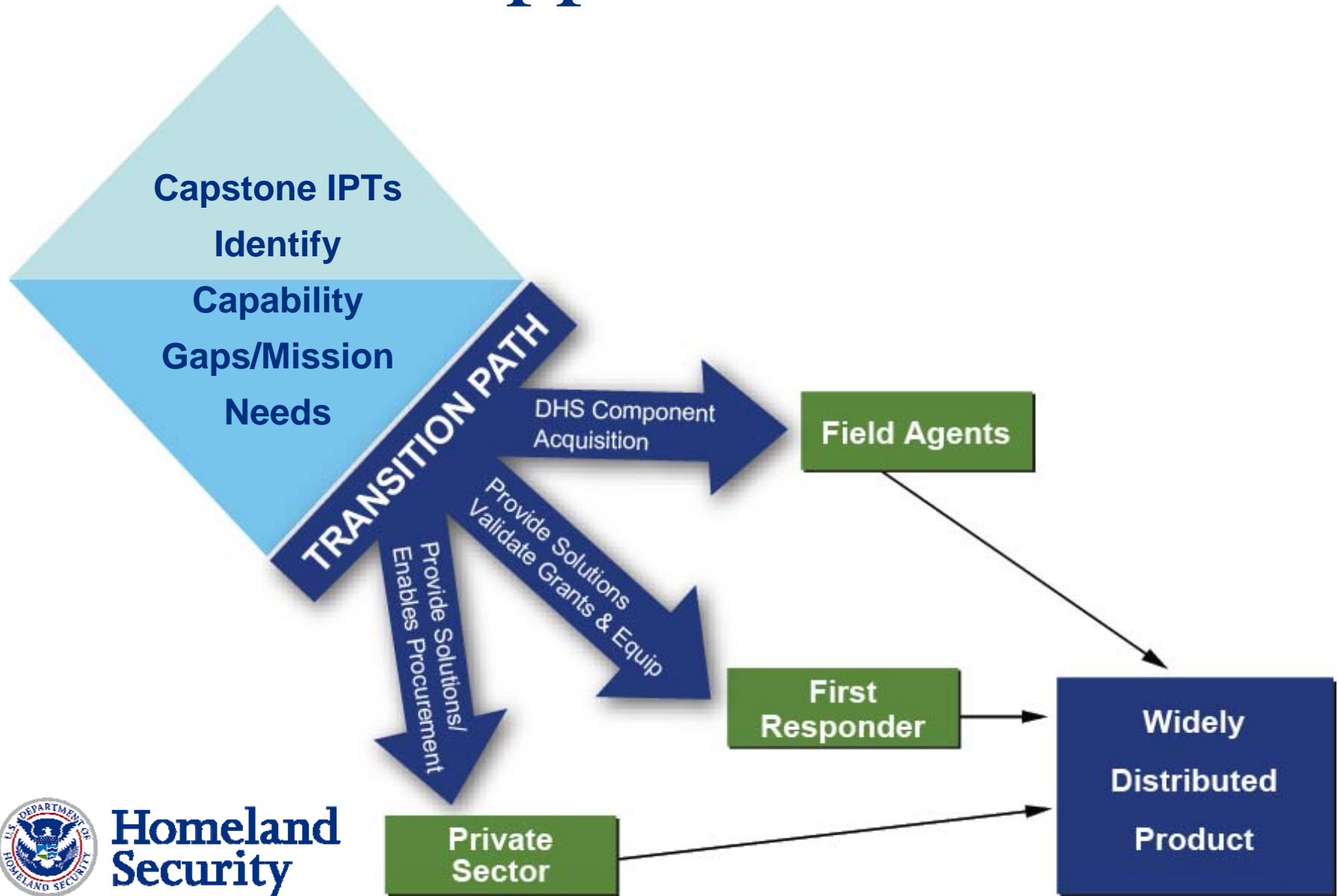
Establishment of Project IPTs: Detailed Specifications/Requirements

- Members:
 - S&T Program Manager(s)
 - Operating Component's Program Manager(s)
 - End-User
 - Supplier/Provider
- Meet at Least Monthly
- Report to Capstone IPT Quarterly



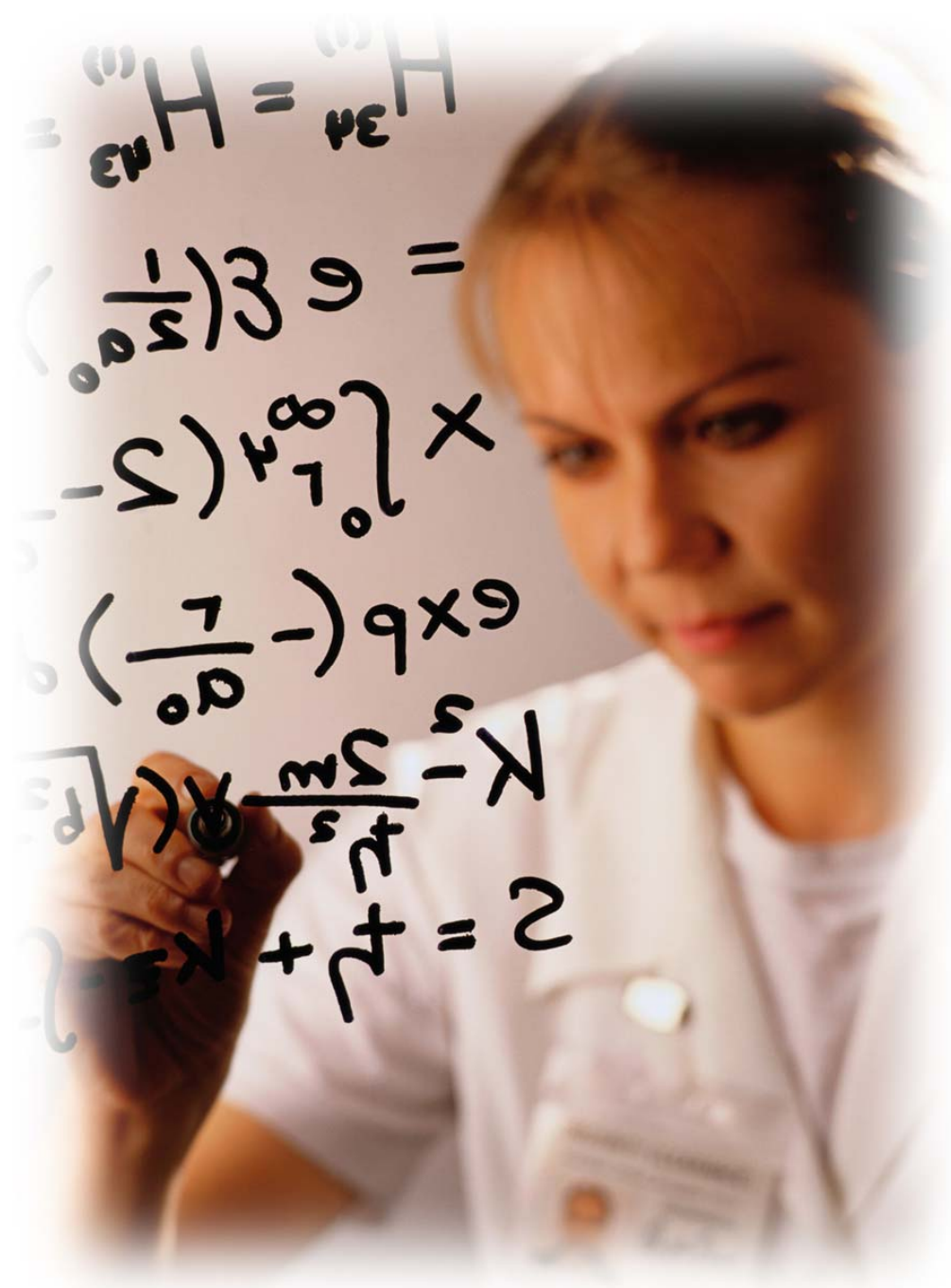
**Homeland
Security**

Transition Approaches



Getting on the “Same Page”

- Historical Perspective
- Language is Key
- Communication is Paramount

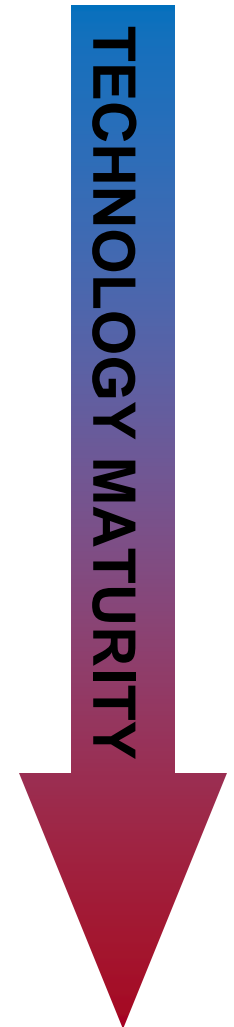


**Homeland
Security**

Technology Readiness Levels (TRLs): Overview

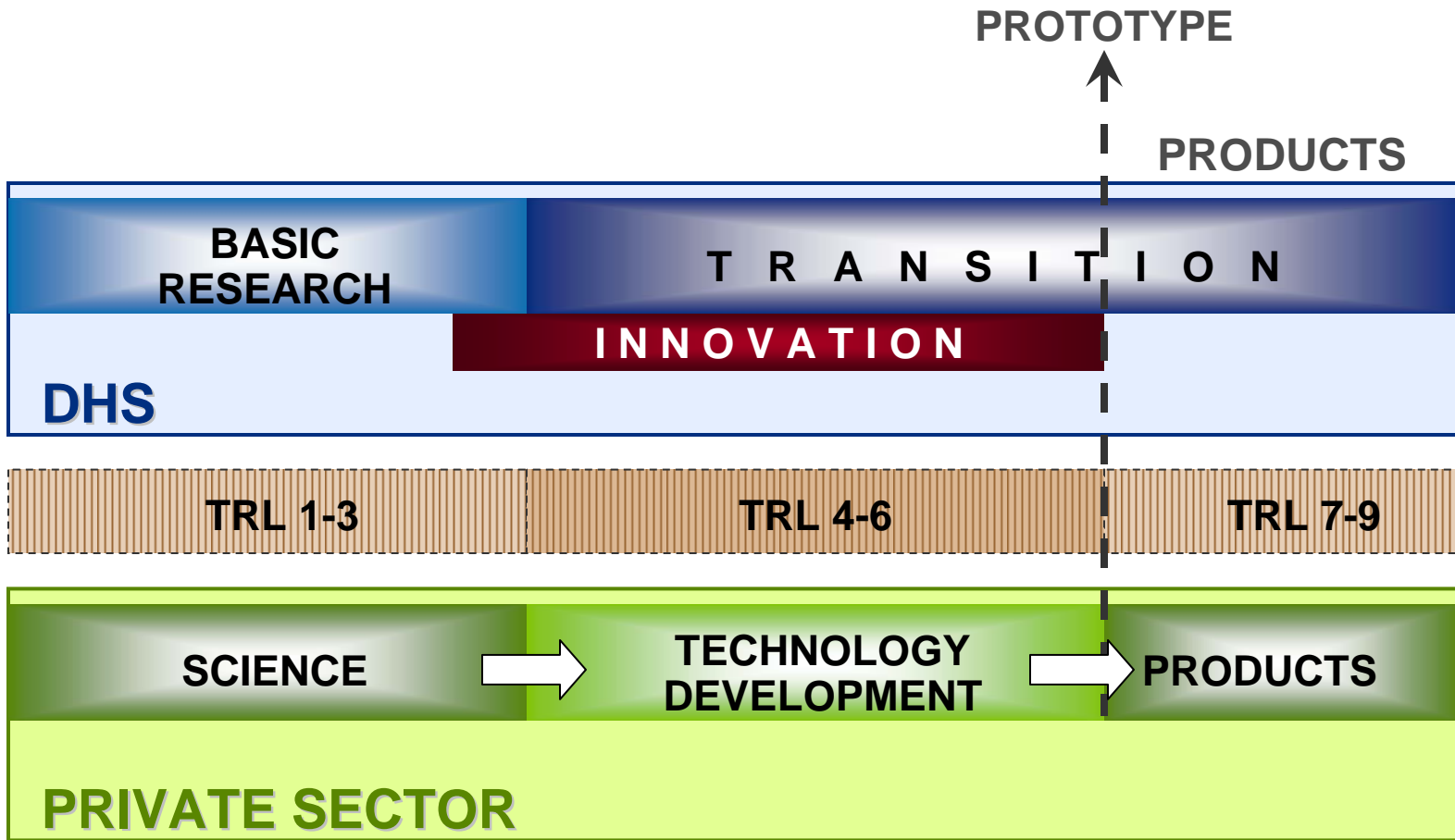
TRLs are NASA-generated and Used Extensively by DoD

Basic principles observed and reported	1	Basic
Technology concept and/or application formulated	2	
Analytical and experimental critical function and/or characteristic	3	
Component and/or breadboard validation in laboratory environment	4	Applied
Component and/or breadboard validation in relevant environment	5	
System/subsystem model or prototype demonstration in a relevant environment	6	Advanced
System prototype demonstration in a operational environment	7	
Actual system completed and 'flight qualified' through test and demonstration	8	
Actual system 'flight proven' through successful mission operations	9	



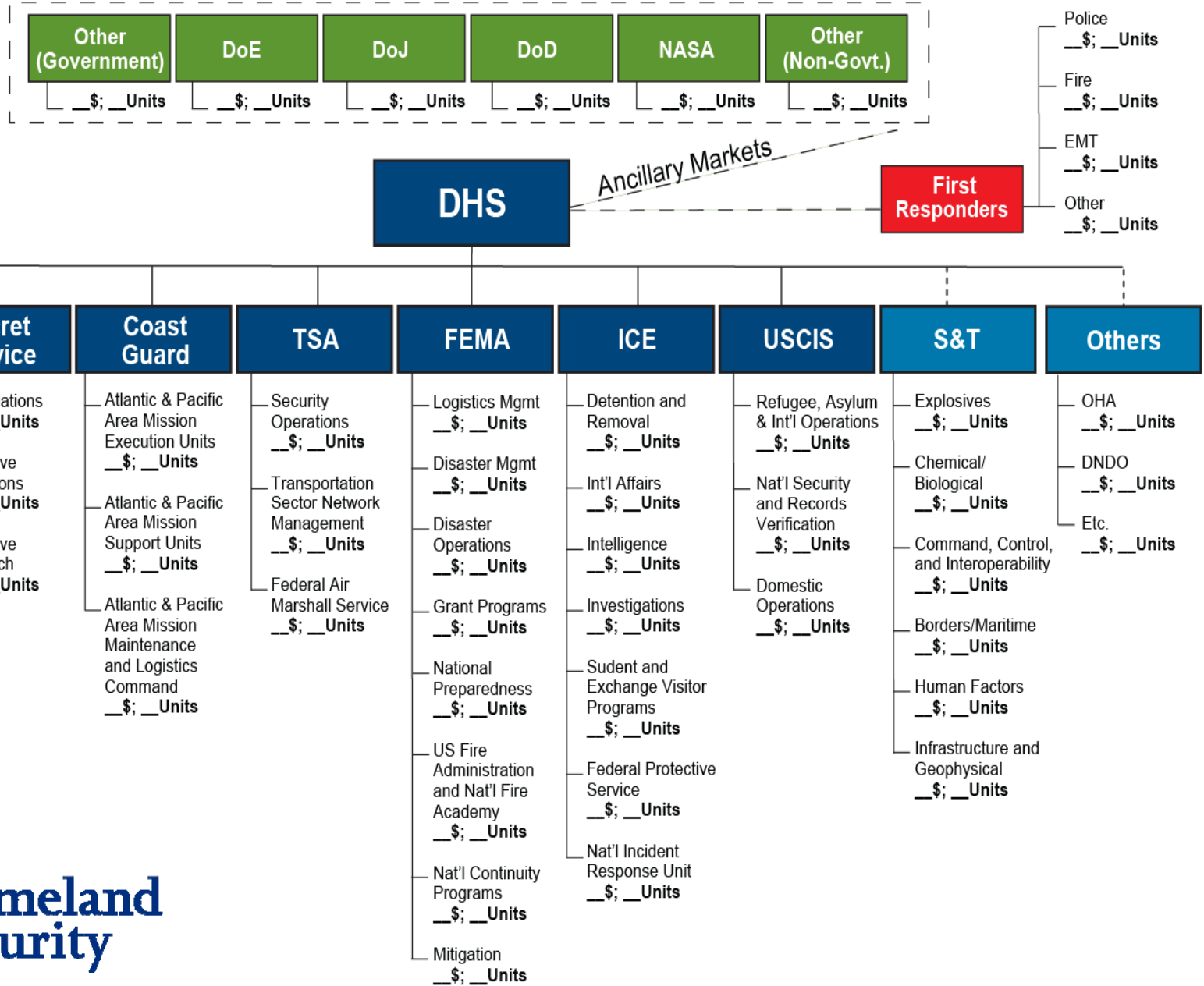
**Homeland
Security**

Correlation: DHS and Private Sector



**Homeland
Security**

Market Potential Template

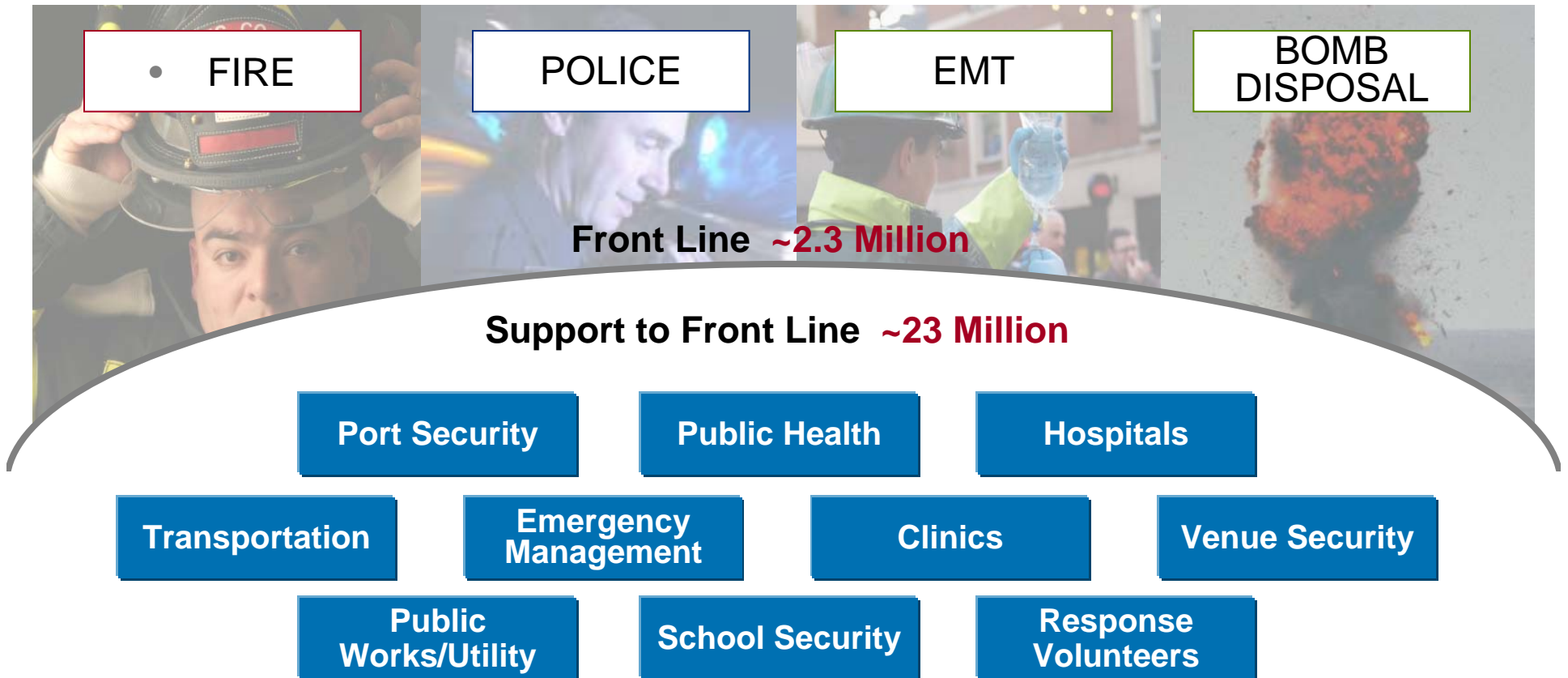


Homeland Security

Conservative Estimate: Number of First Responders in the US

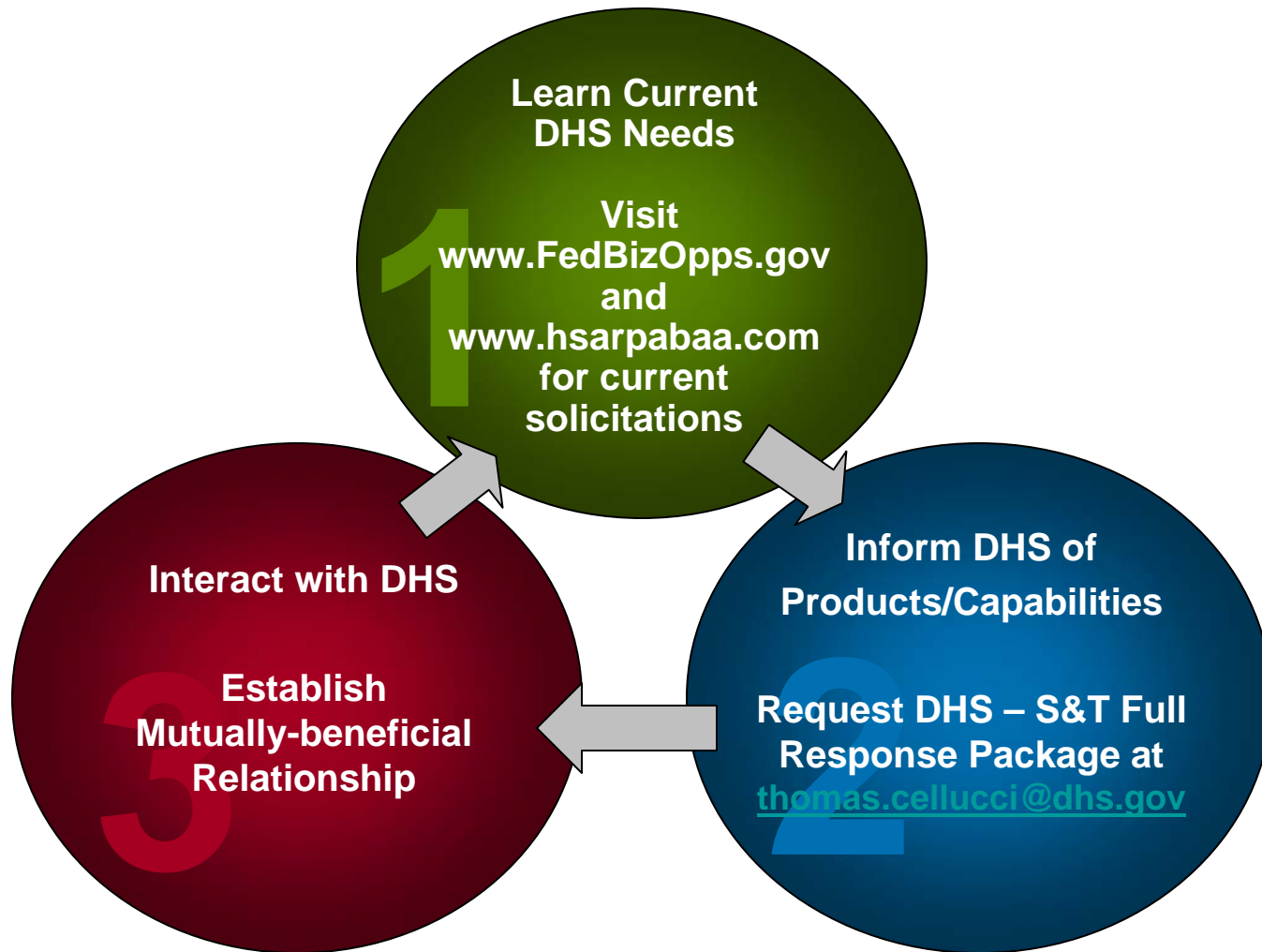
- Homeland Security Presidential Directive 8
- Steve Golubic (FEMA)

Total: ~25.3 Million Individuals



Call to Action: Mutual Benefits

Create “Win-Win-Win” Relationships

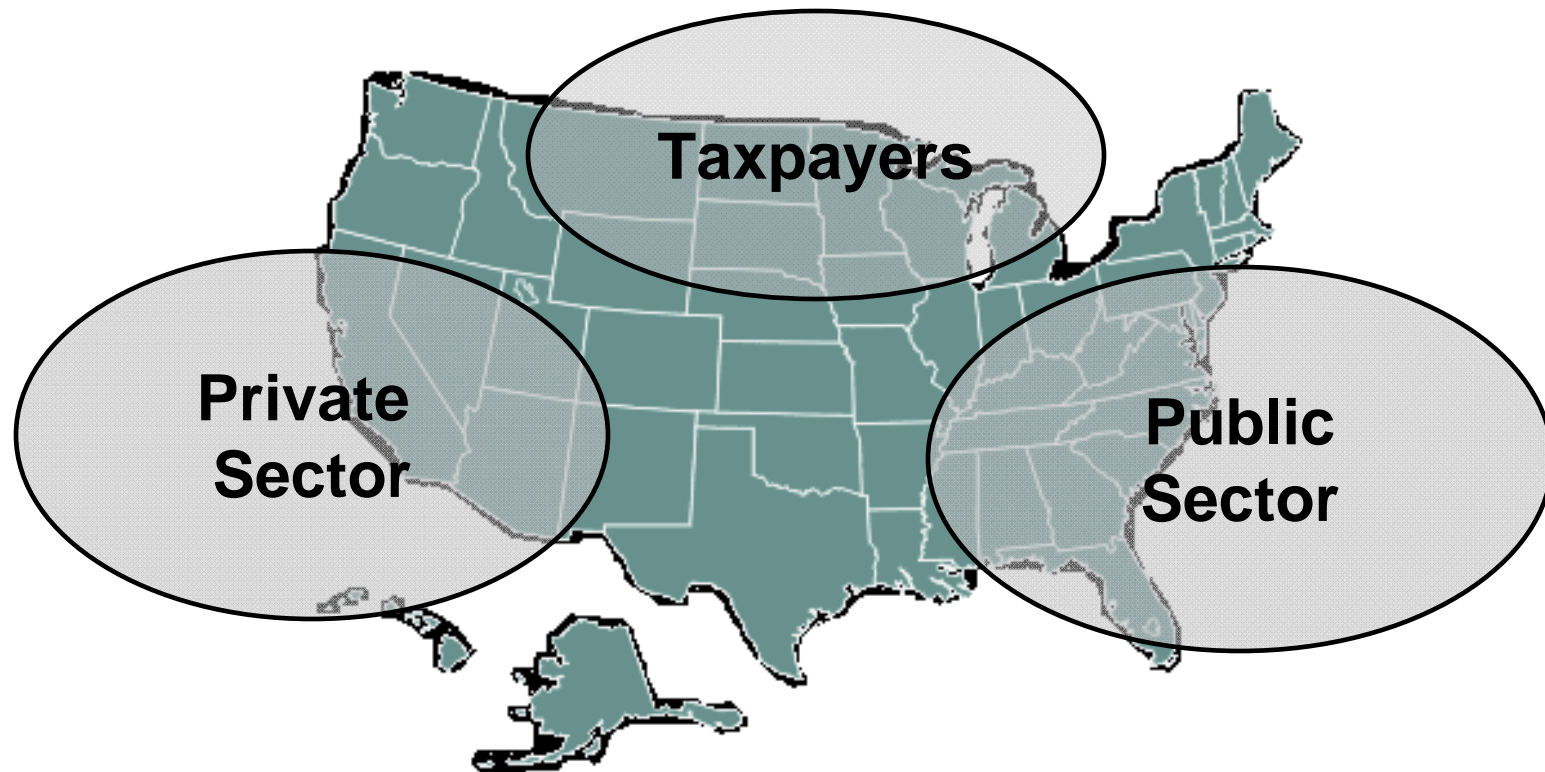


**Homeland
Security**

SECURE Program

System Efficacy through Commercialization, Utalization,
Relevance and Evaluation

WIN - WIN - WIN



**Homeland
Security**

SECURE Program

Mutually-Beneficial Goals Achieved Through Rigorous Process”

Goals

System

Efficacy
through

Commercialization

Utilization

Relevance

Evaluation



Process

DHS Detailed Requirements

Private Sector Product Development

Product Launch, Sales and Marketing

Customer-Focused Capstone IPT Process

Third-party Test & Evaluation
with DHS Validation



**Homeland
Security**

SECURE Program

Concept of Operations



- Application – Seeking products/technologies aligned with posted DHS requirements
- Selection – Products/Technologies TRL-5 or above, scored on internal DHS metrics
- Agreement – One-page CRADA-like document. Outlines milestones and exit criteria
- Publication of Results – Independent Third-Party T&E conducted on TRL-9 product/technology. Results verified by DHS, posted on DHS web-portal

Benefits:

- ✓ Successful products/technologies share in the imprimatur of DHS
- ✓ DHS Operating Components and First Responders make informed decisions on products/technologies aligned to their stated requirements



**Homeland
Security**

Federal Business Opportunities

Sites where the Office of Procurement Operations (OPO) posts opportunities for perspective suppliers to offer solutions to DHS – S&T's needs:

- www.FedBizOpps.gov
- www.HSARPAbaa.com
- www.SBIR.dhs.gov
- www.Grants.gov

take advantage of...

- **Vendor Notification Service:** Sign up to receive procurement announcements and solicitations/BAA amendment releases, and general procurement announcements.
<http://www.fedbizopps.gov>
- **S&T's HSARPA website:** Register to join the HSARPA mailing list to receive various meeting and solicitation announcements. Link to Representative High Priority Technology Areas, where DHS areas of interest can be found.
<http://www.hsarpabaa.com>
- **Truly Innovative and Unique Solution:** Refer to Part 15.6 of the Federal Acquisition Regulation (FAR) which provides specific criteria that must be met before a unsolicited proposal can be submitted to Kathy Ferrell.
http://www.acquisition.gov/far/current/html/Subpart%2015_6.html

Contact Information:

Kathy Ferrell
Department of Homeland Security
Office of the Chief Procurement Officer
245 Murray Dr., Bldg. 410
Washington, DC 20528
unsolicited.proposal@dhs.gov
202-447-5576

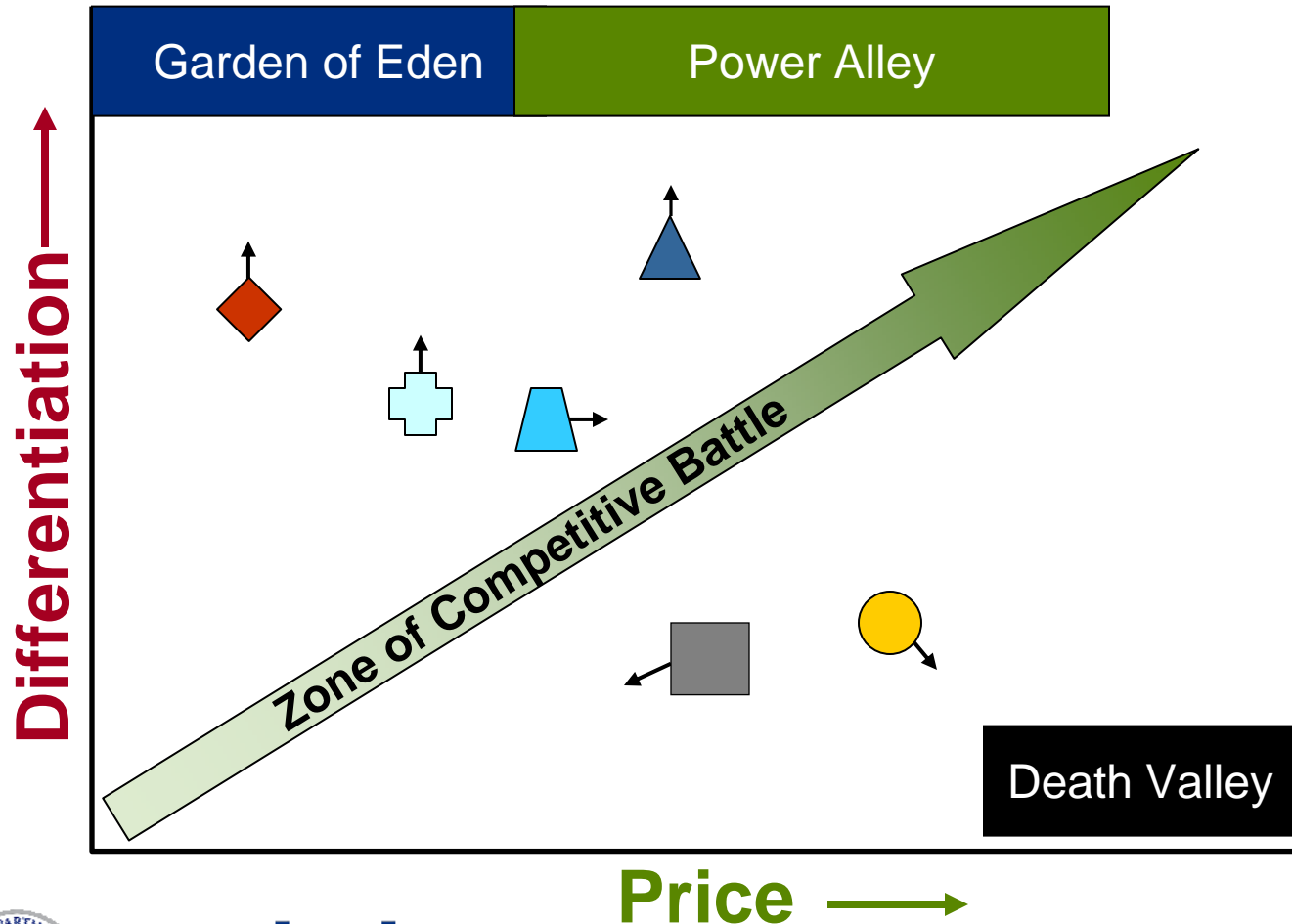


**Homeland
Security**

Show Us the Difference...

Hall's Competitive Model

- As a function of:
- Market
 - Application
 - Technology



$$\text{Differentiation} = (A+B)C/(D+E)$$



**Homeland
Security**

The background features a large, faded seal of the Department of Homeland Security. The seal is circular and contains an eagle with wings spread, a shield on its chest, and arrows in its talons. The words "DEPARTMENT OF" are at the top and "HOMELAND SECURITY" is at the bottom of the seal.

More Opportunities with DHS Science and Technology

SAFETY Act

Support Anti-Terrorism by Fostering Effective Technologies Act of 2002

- Enables the development and deployment of qualified anti-terrorism technologies
- Provides important legal liability protections for manufacturers and sellers of effective technologies
- Removes barriers to industry investments in new and unique technologies
- Creates market incentives for industry to invest in measures to enhance our homeland security
- The SAFETY Act liability protections apply to a vast range of technologies, including:
 - Products
 - Services
 - Software and other forms of intellectual property (IP)

Examples of eligible technologies:

- Threat and vulnerability assessment services
- Detection Systems
- Blast Mitigation Materials
- Screening Services
- Sensors and Sensor Integration
- Vaccines
- Metal Detectors
- Decision Support Software
- Security Services
- Data Mining Software

Protecting You, Protecting U.S.



**Homeland
Security**

Criteria as stated in the SAFETY Act

- ✓ Is it an Anti-Terrorism Technology?
- ✓ Is it effective and available?
- ✓ Does it possess large potential third party liability risk exposure?
- ✓ Does Seller need SAFETY Act?
- ✓ Does it perform as intended?
- ✓ Does it conform to Seller's specifications?
- ✓ Is it safe for use as intended?

Addition SAFETY Act information...

Online: www.safetyact.gov Email: helpdesk@safetyact.gov

Toll-Free: 1-866-788-9318



**Homeland
Security**

Award Criteria

	Developmental Testing and Evaluation (DT&E)	Designation	Certification
Effectiveness Evaluation Conclusion	Needs more proof, has potential	Demonstrated effectiveness, i.e. Developmental testing (with confidence of repeatability)	Consistently proven effectiveness, i.e. operational performance (with high confidence of enduring effectiveness)
Protection	Liability cap <ul style="list-style-type: none"> • only for identified test event(s) and for limited duration (=3yrs) 	Liability cap <ul style="list-style-type: none"> • for any and all deployments in 5-8 year term 	Government Contractor Defense (GCD) <ul style="list-style-type: none"> • for any and all deployments in 5-8 years term
Examples	<ul style="list-style-type: none"> • EDS not yet TSL Certified • Novel incident pattern matching service 	<ul style="list-style-type: none"> • Radiological detector with <u>laboratory</u> success Opt-out screeners, only similar projects completed 	<ul style="list-style-type: none"> • EDS TSL Certified • Well-documented infrastructure protection service with history of excellent performance and meeting DoE standards

EDS=Explosive Detection System TSL=Transportation Security Laboratory (TSA)



Homeland Security

<http://www.sbir.dhs.gov>

- SBIR Home
- What's New
- Solicitation Deadlines
- SBIR Solicitations
- Awards
- Proposal/Award Administration
- Proposal Review
- Reviewer Opportunities
- Collaboration Opportunities
- SBIR Contact Information
- FAQ
- Links/Forms
- Topic Recommendations
- Presentations
- Privacy Policy



Homeland Security Advanced Research Projects Agency

[Homeland Security](#) | [Science & Technology](#) | [HSARPA BAA](#) | [OSDBU](#) | [SBA](#) | [Contact Us](#) | [Privacy Policy](#) | [Join HSARPA Mailing List](#)

[DHS SBIR expects to release its 6.2 SBIR Solicitation in August 2006](#)
[DHS announces its 6.1 SBIR/STTR award selections.....](#)

Homeland Security Advanced Research Projects Agency SBIR/STTR Program

Vision: Make America Safer

The top priority for everything HSARPA does is to enhance the safety and security of America's people, institutions and way of life.

SBIR Program:

The Department of Homeland Security (DHS), Homeland Security Advanced Research Projects Agency (HSARPA) launched the Small Business Innovation Research (SBIR) program, in December 2003. Our goal is to increase the participation of innovative and creative small businesses in Federal Research/Research and Development (R/R&D) programs and challenge industry to bring innovative homeland security solutions to reality.

All Federal agencies with an annual extramural R&D budget exceeding \$100M are required to participate in the SBIR Program. Each fiscal year, not less than 2.5 percent of the annual extramural budget, is reserved for awards to small businesses for R/R&D through a three phase process.



Other Funding Opportunities

Collaboration Opportunities

Topic Recommendations

Tech Clearinghouse Mission

To rapidly disseminate technical information concerning existing and desired products and services to/between Federal, State, Local, and Tribal Government and the Private Sector in order to encourage technological innovation and facilitate the mission of the Department of Homeland Security.

- Establishes Central Federal Technology Clearinghouse
- Issues Announcements for Innovative Solutions
- Establishes S&T Technical Assessment Team
- Provides guidance for the evaluation, purchase, and implementation of homeland security enhancing technologies
- Provides users with information to develop or deploy technologies that would enhance homeland security
- Enables technology transfer

Improved Knowledge Sound Acquisition Decisions



**Homeland
Security**

TechSolutions

The mission of TechSolutions is to rapidly address technology gaps identified by Federal, State, Local, and Tribal first responders

- Field prototypical solutions in 12 months
- Cost should be commensurate with proposal but less than \$1M per project
- Solution should meet 80% of identified requirements
- Provide a mechanism for Emergency Responders to relay their capability gaps
 - Capability gaps are gathered using a web site (www.dhs.gov/techsolutions)
- Gaps are addressed using existing technology, spiral development, and rapid prototyping
- Emergency Responders partner with DHS from start to finish

Rapid Technology Development

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



**Homeland
Security**

TechSolutions Investments

Seatbelt Safety for
Emergency Vehicles



Next Generation
Breathing Apparatus



Fire Ground Compass



Under Consideration

Vehicle Mounted Chem/Bio
Sensor Detection



**Homeland
Security**

Getting Involved: S&T Contacts

Division	Email
Jim Tuttle	S&T-Explosives@dhs.gov
Beth George	S&T-ChemBio@dhs.gov
David Boyd	S&T-C2I@dhs.gov
Dave Newton	S&T-BordersMaritime@dhs.gov
Sharla Rausch	S&T-HumanFactors@dhs.gov
Chris Doyle	S&T-InfrastructureGeophysical@dhs.gov
Rich Kikla (Acting)	S&T-Transition@dhs.gov
Starnes Walker	S&T-Research@dhs.gov
Roger McGinnis	S&T-Innovation@dhs.gov



**Homeland
Security**

Summary

Detailed Requirements

Sizeable Market Potential

Delivered Products – PERIOD!

How Can You Afford NOT to Partner with DHS S&T?

Questions/Comments:

Thomas A. Cellucci, Ph.D., MBA

thomas.cellucci@dhs.gov



**Homeland
Security**

U.S. Department of Homeland Security: Science and Technology Directorate's Chief Commercialization Officer

Thomas A. Cellucci, PhD, MBA recently accepted a special five year appointment as Chief Commercialization Officer for the Department of Homeland Security's Science and Technology (S&T) Directorate. The Chief Commercialization Officer (CCO) is responsible for initiatives that identify, evaluate and commercialize technology for the specific goal of rapidly developing and deploying products and services that meet the specific operational requirements of the Department of Homeland Security's Operating Components and its end users. The CCO also develops and drives the implementation of DHS-S&T's outreach with the private sector to establish and foster mutually-beneficial working relationships to facilitate cost-effective and efficient product/service development efforts.



Cellucci is an accomplished serial entrepreneur, seasoned senior executive and Board member possessing extensive corporate and VC experience across a number of worldwide industries. Profitably growing high technology firms at the start-up, mid-range and large corporate level has been his trademark. In 1999, he founded a highly successful management consulting firm--Cellucci Associates, Inc. -- that raises capital and provides strategic business services to top-tier global high technology firms. He serves on both public and private Boards and has authored or co-authored over 120 articles on Nanotechnology, Laser physics, Photonics, Environmental disturbance control, MEMS test and measurement, Mistake-proofing enterprise software, and Sales & Marketing. He has also held the rank of Lecturer or Professor at institutions like Princeton University, University of Pennsylvania and Camden Community College. Cellucci also co-authored ANSI Standard Z136.5 "The Safe Use of Lasers in Educational Institutions".

As a result of his consistent achievement in the commercialization of emerging technologies, Cellucci has received numerous awards and citations from industry, government and business.

Cellucci earned a PhD in Physical Chemistry from the University of Pennsylvania, an MBA from Rutgers University and a BS in Chemistry from Fordham University. He has also attended and lectured at executive programs at the Harvard Business School, MIT Sloan School, Kellogg School and others. Dr. Cellucci is regarded as an authority in rapid time-to-market new product development and is a frequent public speaker.



**Homeland
Security**



Homeland
Security