

“Bridging Technology Capability Gaps” Opportunities with the Private Sector



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Discussion Guide

- Overview of Department of Homeland Security
- Commercialization Office Initiatives at DHS
- Capstone Integrated Product Teams (IPTs)
- Market Potential is Catalyst for Rapid New Product Development
- Getting on the Same Page
- SECURE Program
- Safety Act Protection
- TechSolutions
- SBIR Opportunities
- Getting Involved
- Effecting Change in Government
- Summary



**Homeland
Security**

Homeland Security Mission

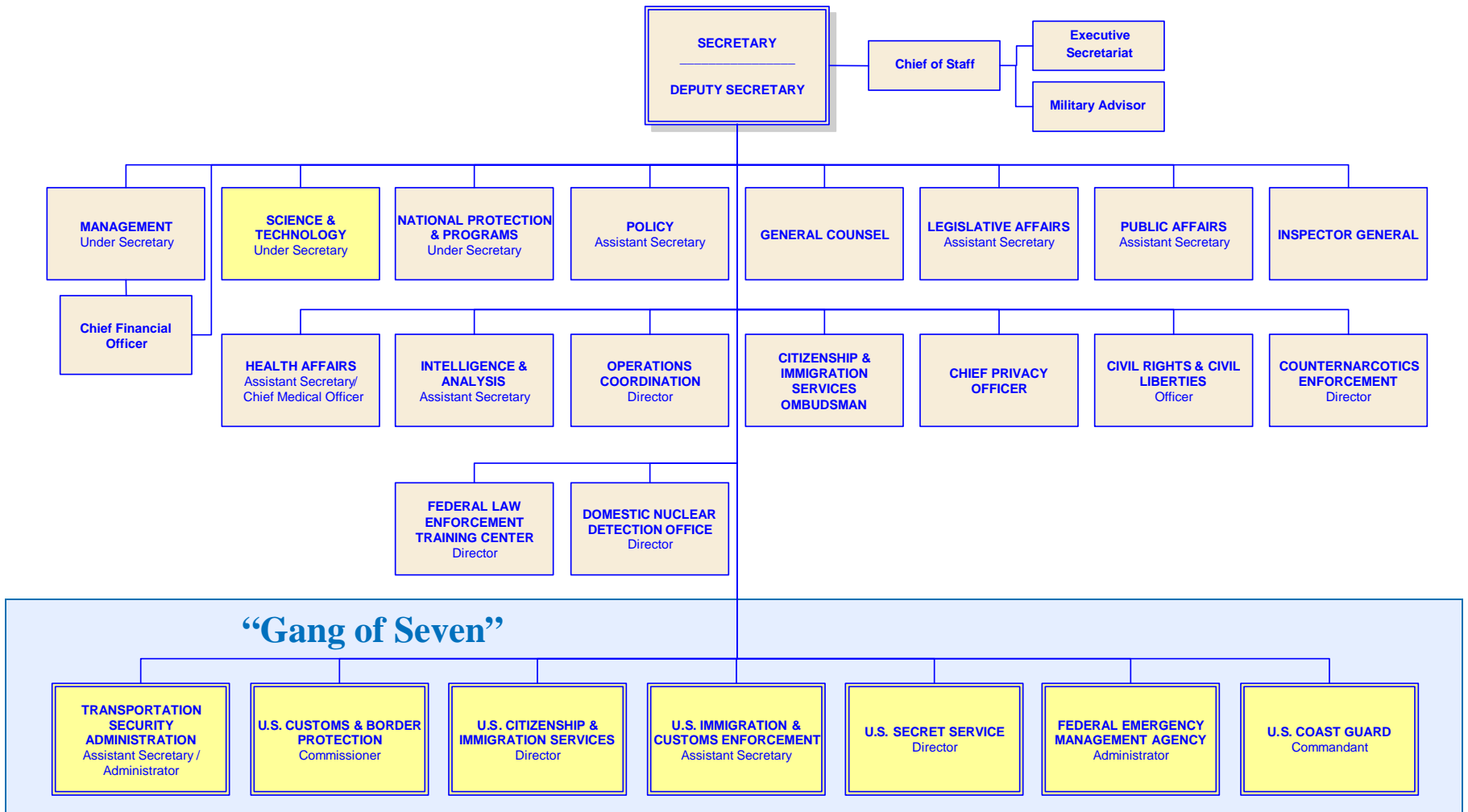


- Lead Unified National Effort to Secure America
- Prevent Terrorist Attacks Within the U.S.
- Respond to Threats and Hazards to the Nation
- Ensure Safe and Secure Borders
- Welcome Lawful Immigrants and Visitors
- Promote Free Flow of Commerce



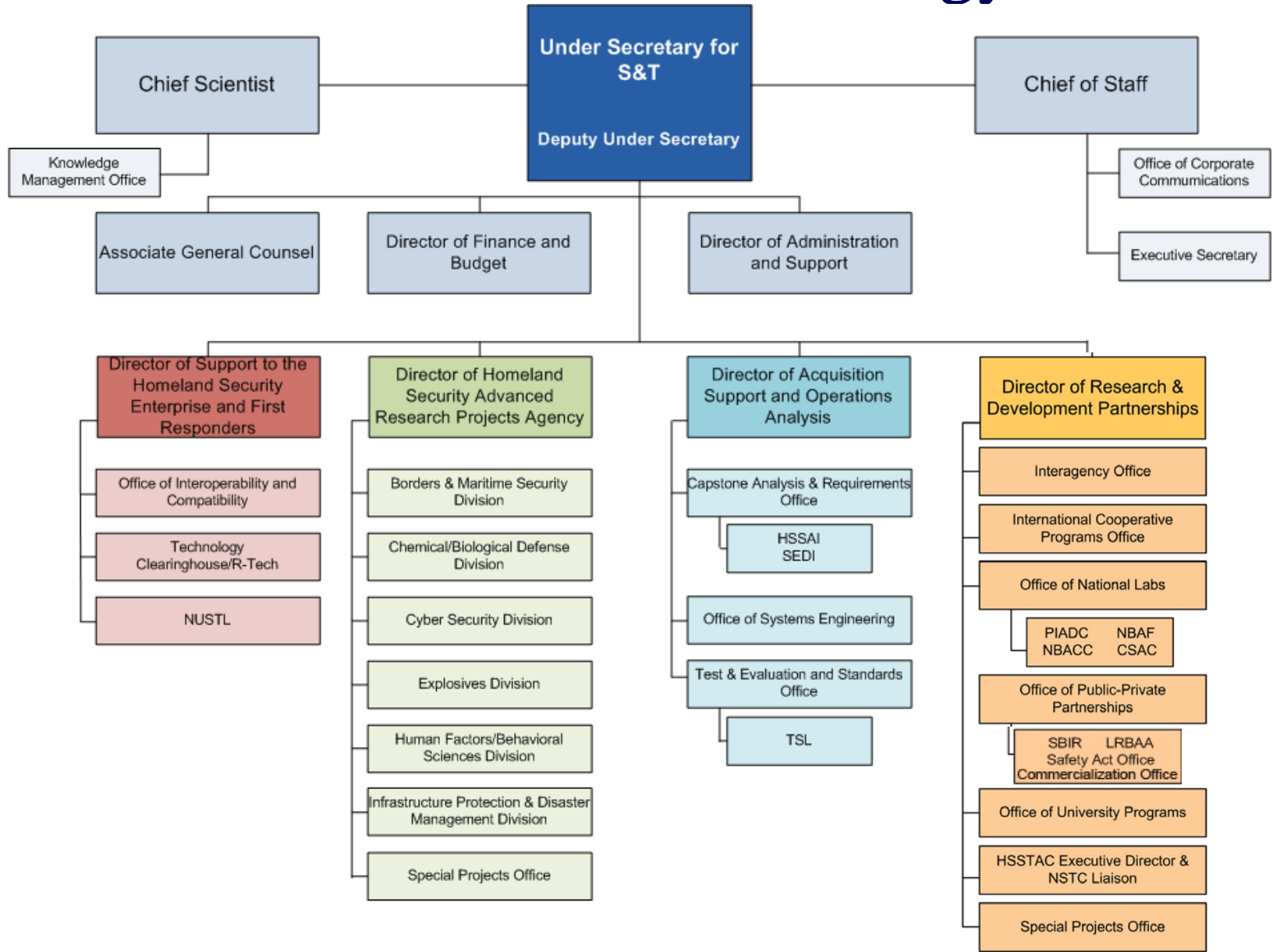
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U.S. Department of Homeland Security

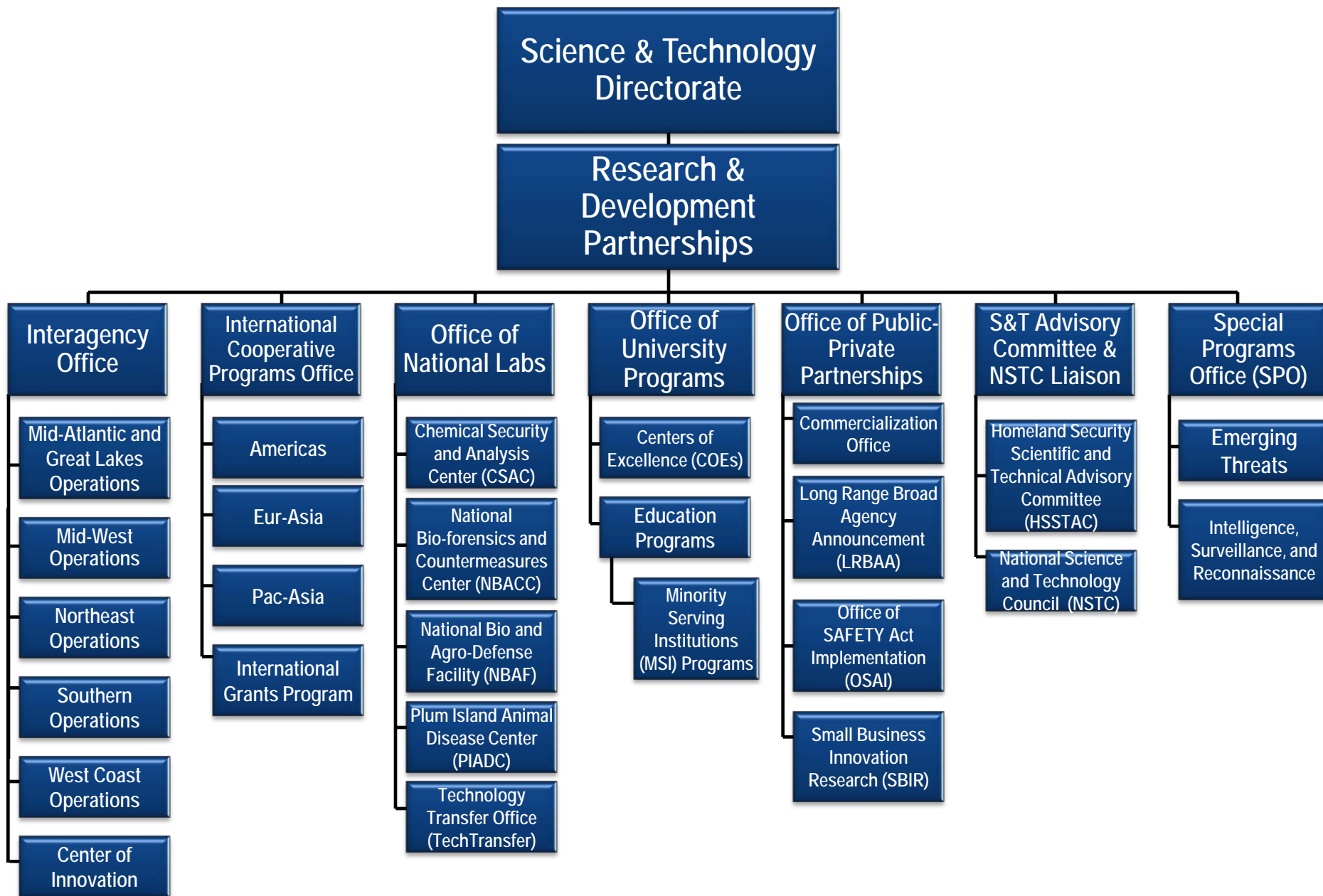


Homeland Security

Office of the Under Secretary for Science and Technology



Research & Development Partnerships Group



DHS 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.



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DHS S&T Investment Portfolio

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

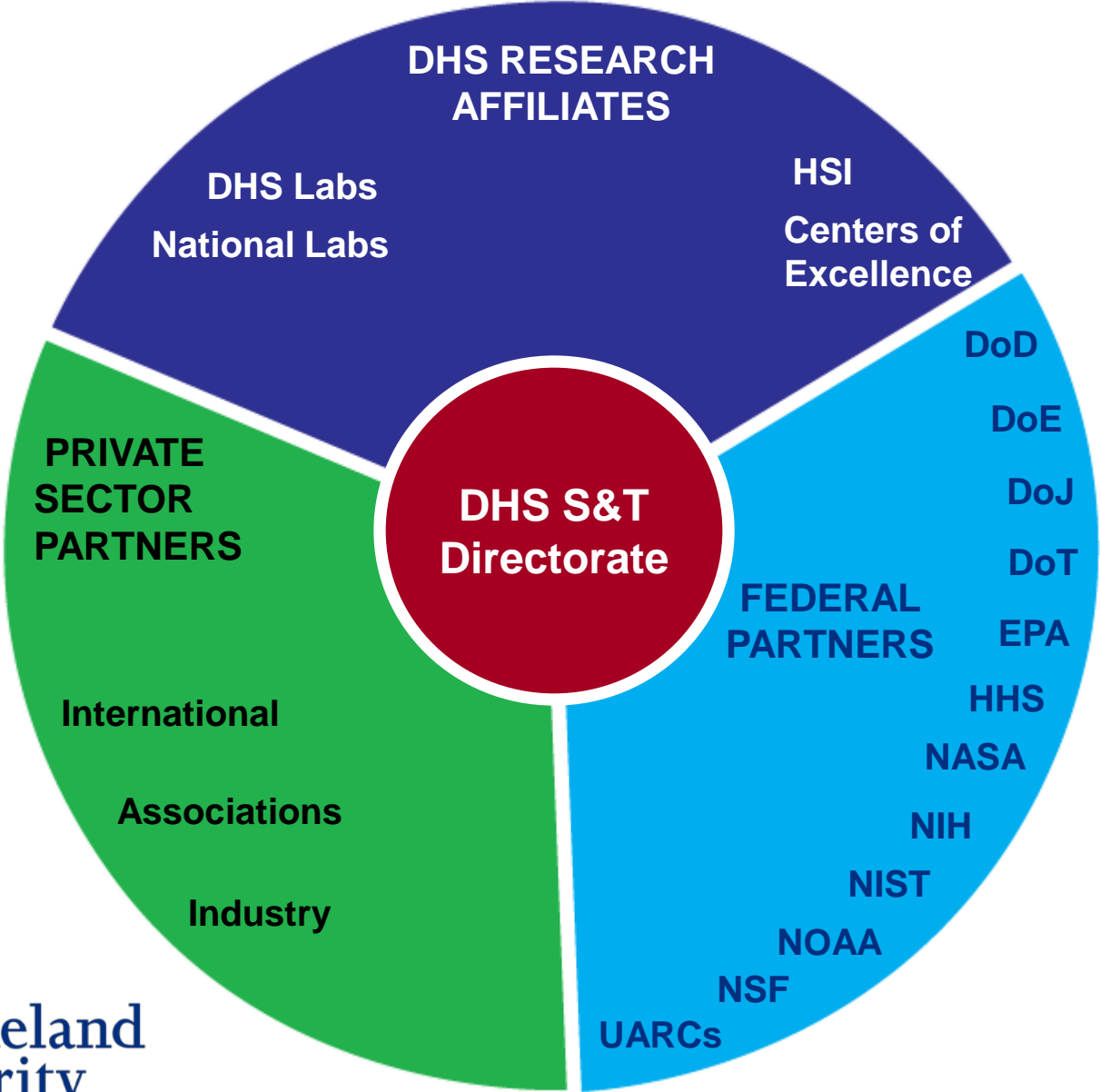
Product Transition (0-3 yrs) <ul style="list-style-type: none">▪ Focused on delivering near-term products/enhancements to acquisition▪ Customer IPT controlled▪ Cost, schedule, capability metrics	Innovative Capabilities (1-5 yrs) <ul style="list-style-type: none">▪ High-risk/High payoff▪ “Game changer/Leap 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

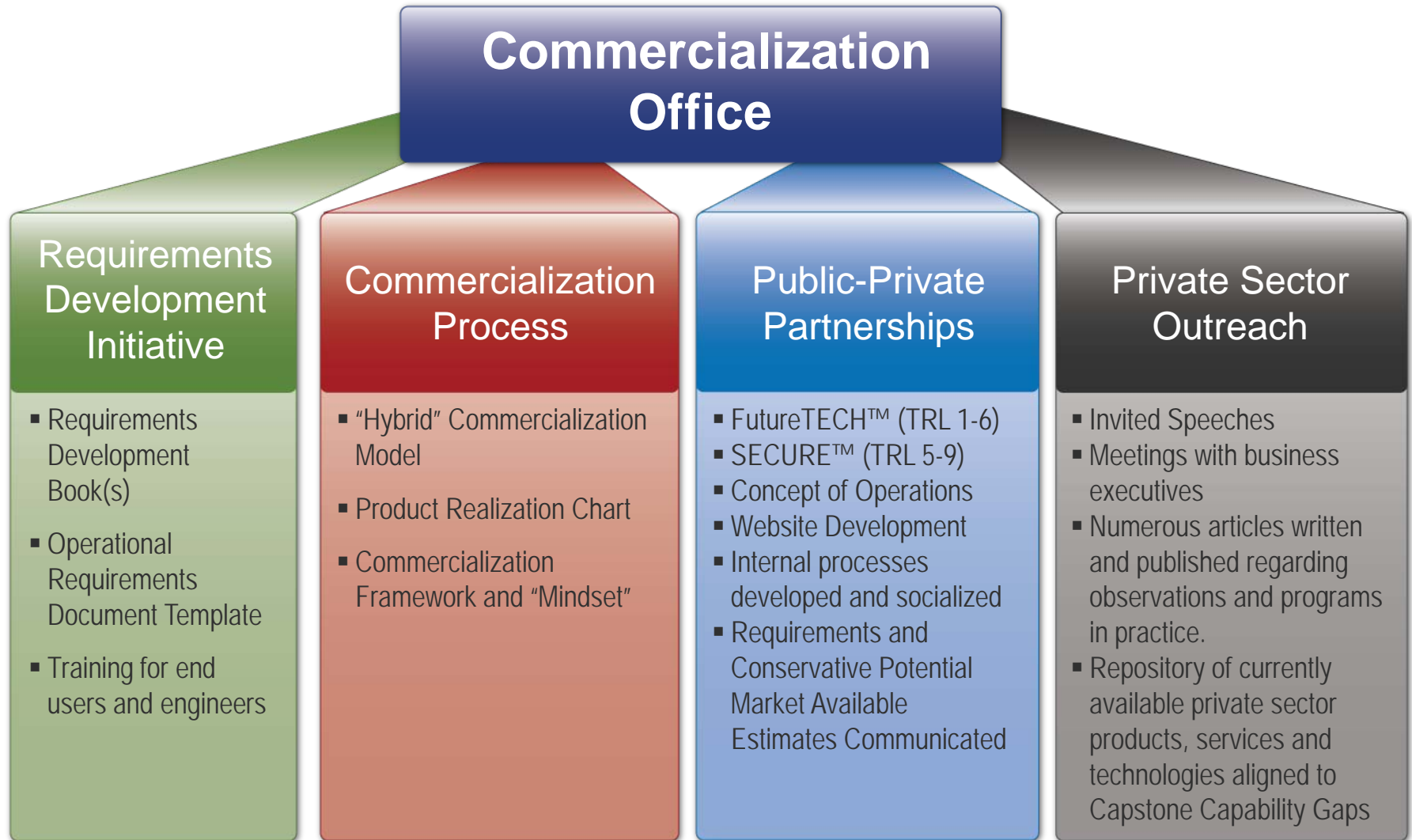


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Homeland Security S&T Enterprise



Commercialization Office: Major Activities



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http://www.dhs.gov/xabout/structure/gc_1234194479267.shtm

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!



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Two Models for Product Realization

Big-A Acquisition

1. Requirements derived by Government
2. RFP and then cost-plus contract(s) with developer(s) (which incentivizes long intervals)
3. Focus on technical performance
4. Production price is secondary (often ignored)
5. Product price is cost-plus
6. Product reaches users via Government deployment

Performance is King

Relationship between end users and product developer is usually remote



**Is there a
“Middle Ground”**

Pure Commercialization

1. Requirements derived by Private Sector
2. Product development funded by the developer (which incentivizes short intervals)
3. Technical performance secondary (often reduced in favor of price)
4. Focus on price point
5. Product price is market-based
6. Product reaches users via marketing and sales channels

Performance/Price is King

Relationship between end users and product developer is crucial



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A new model for Commercialization...

1. Development of Operational Requirements Document (ORD)
2. Assess addressable market(s)
3. Publish ORD and market assessment on public DHS web portal, soliciting interest from potential partners
4. Execute no-cost agreement (streamlined CRADA) with multiple Private Sector entities, transferring technology (if necessary)
5. Develop supporting grants and standards as necessary
6. Assess T&E after product is developed
7. New Commercial off the Shelf (COTS) product marketed by Private Sector with DHS support

Differences from the Acquisition model:

- **Primary criteria for partner selection is market penetration, agility, and performance/price ratio**
- **Product development is not funded by DHS**
- **Government involvement is limited to inherently governmental functions (e.g., Grants and Standards)**



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Potential Solution: Create a Commercialization Ecosystem



Private Input

Independent R&D
Innovation
Rapid Prototyping
Market Shaping

Speed of Government

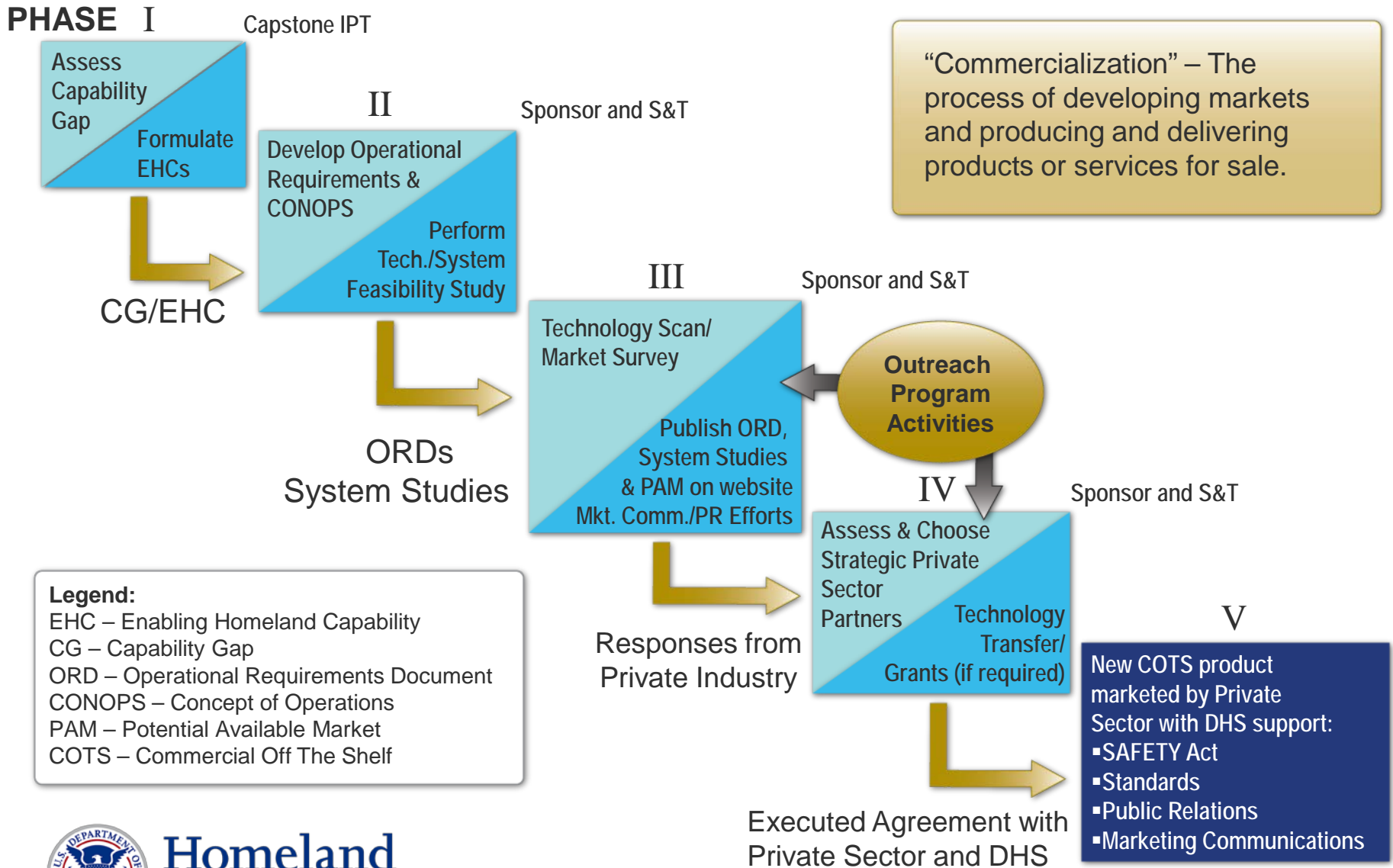
Speed of Business

Driven by Public-Private Partnerships



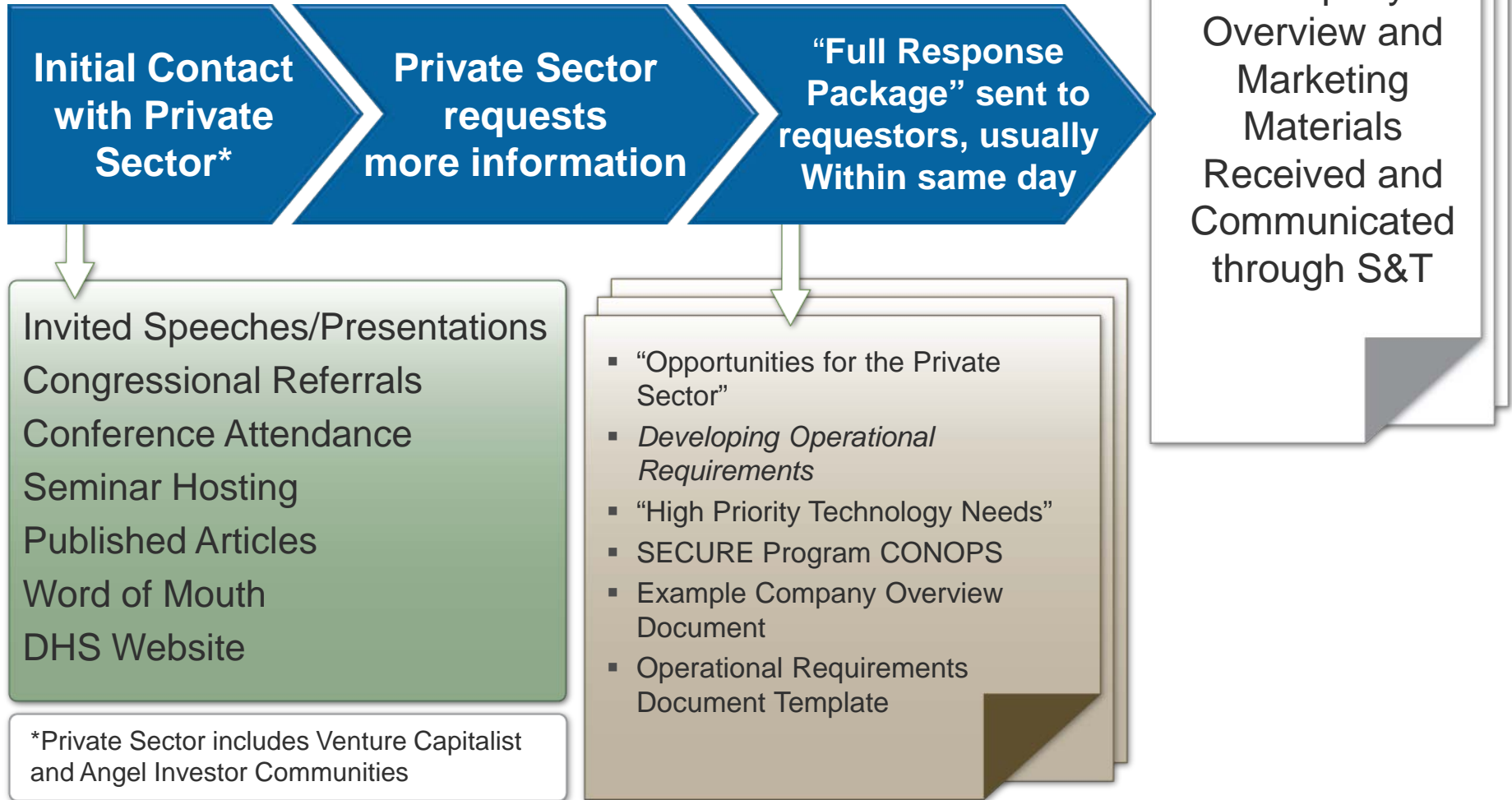
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Commercialization Process



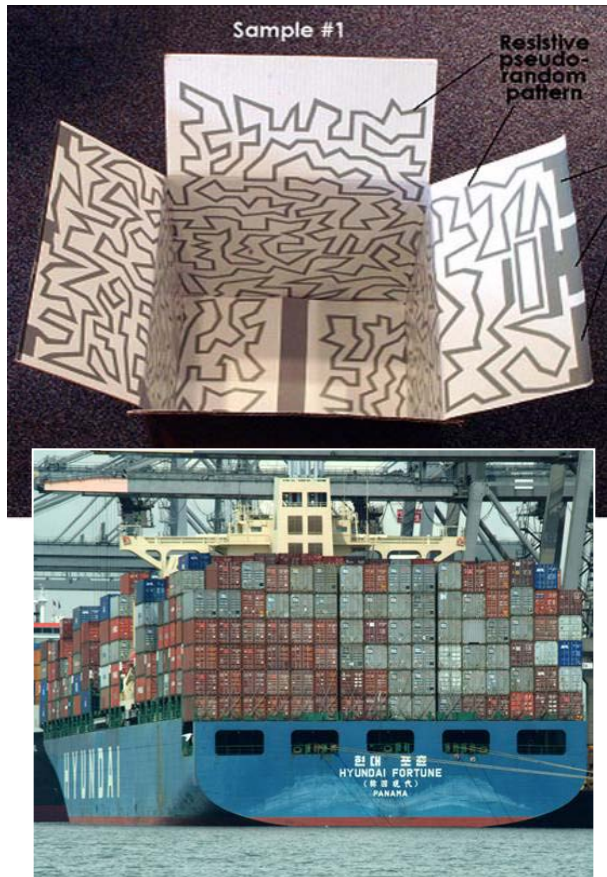
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Contact with the Private Sector



Cargo Security

Representative Technology Needs



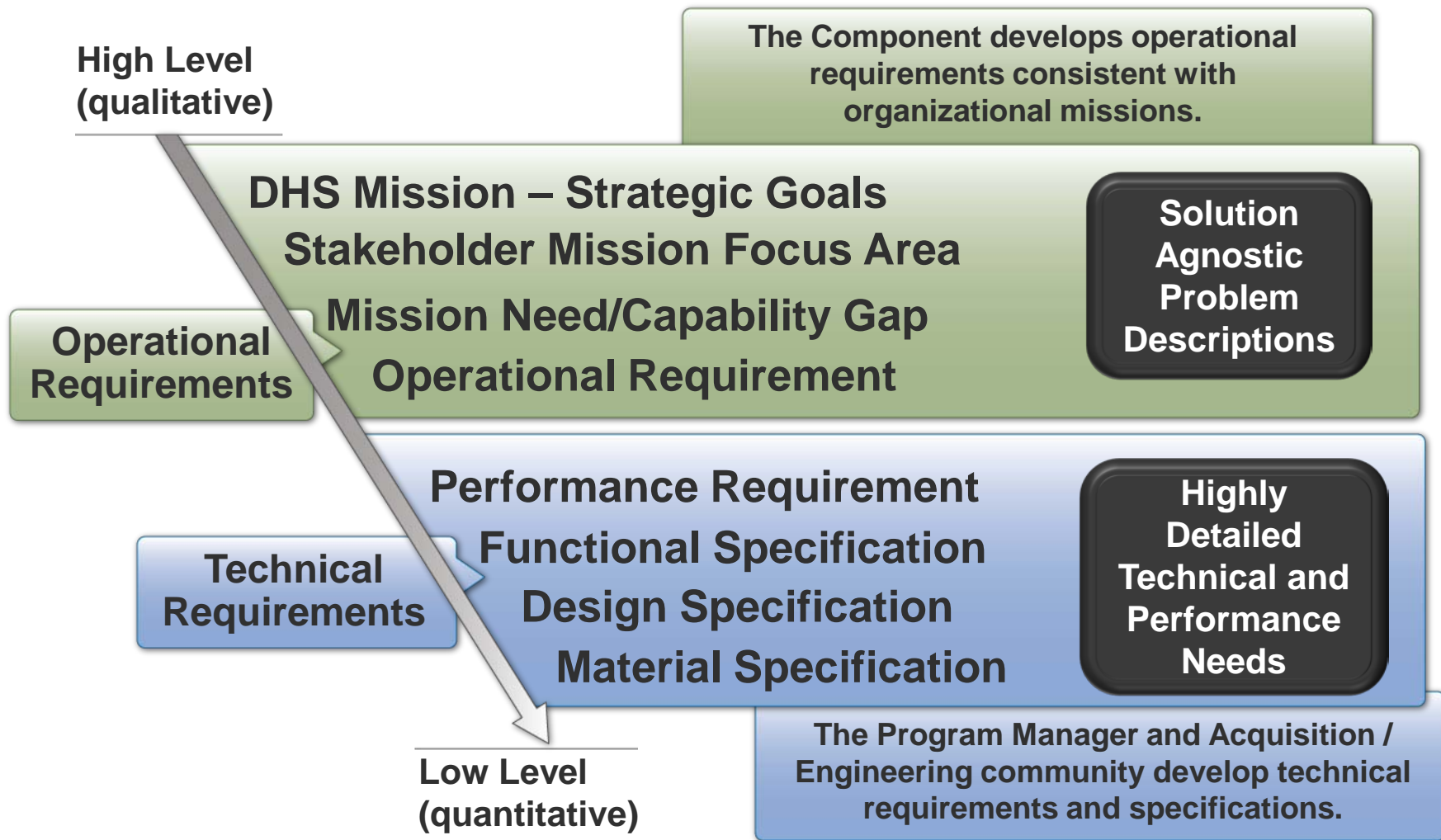
- Enhanced screening and examination by non-intrusive inspection
- Increased information fusion, anomaly detection, Automatic Target Recognition capability
- Detect and identify WMD materials and contraband
- Capability to screen 100% of air cargo
- Test the feasibility of seal security; detection of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



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

Requirements Hierarchy



Each lower-level requirement must be traceable to a higher-level requirement.



ORD: Operational Requirements Document

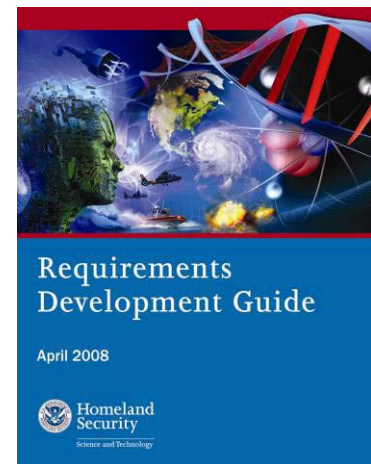
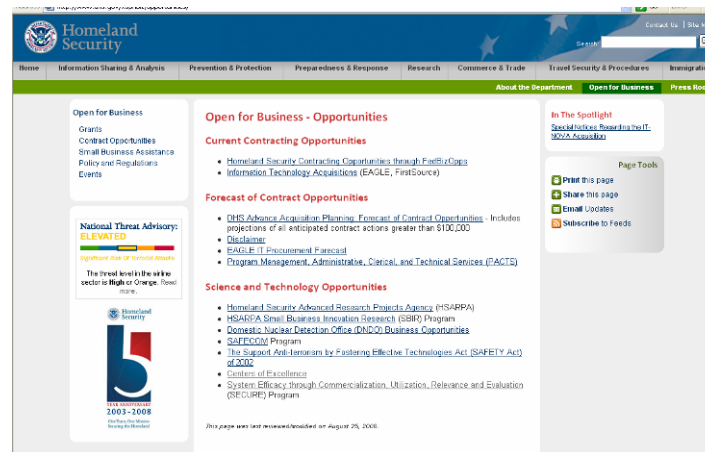
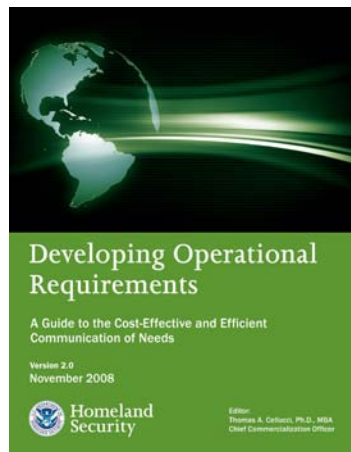
What: ORDs provide a clear definition and articulation of a given problem.

How: Training materials have been developed to assist drafting an ORD.

- *Developing Operational Requirements, 353pp.* Available online: http://www.dhs.gov/xlibrary/assets/Developing_Operational_Requirements_Guides.pdf

When: For Use in Acquisition, Procurement, Commercialization and Outreach Programs –Any situation that dictates detailed requirements (e.g. RFQ, BAA, RFP, RFI, etc.)

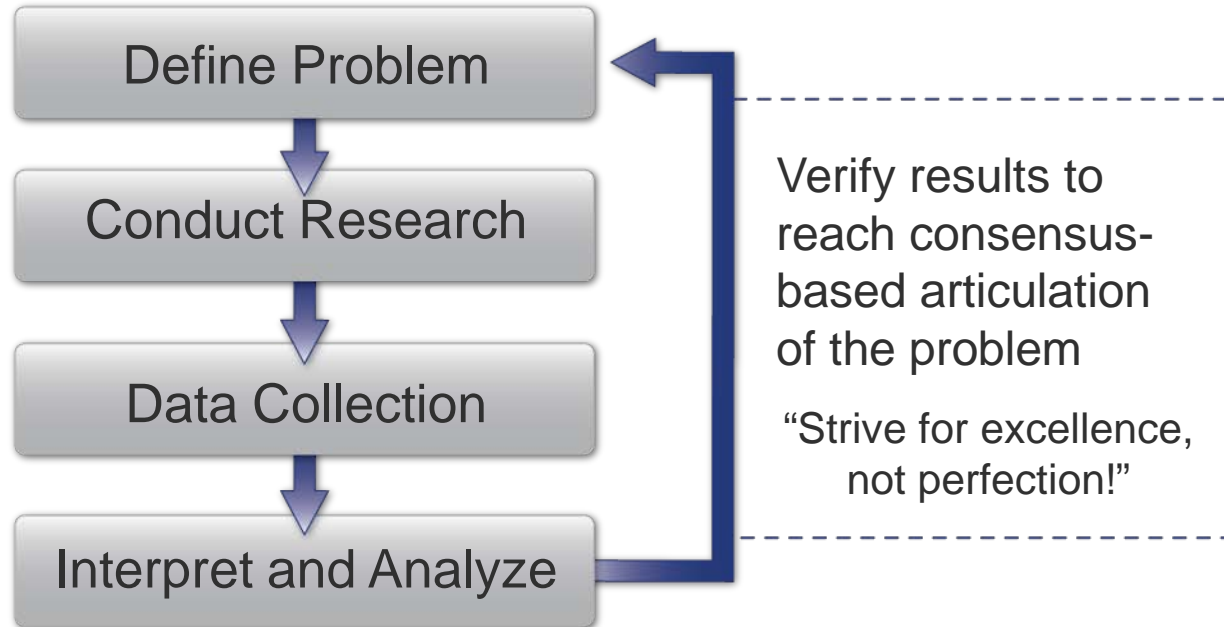
Why: It's cost-effective and efficient for both DHS and all of its stakeholders.



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Generating “Good” ORDs

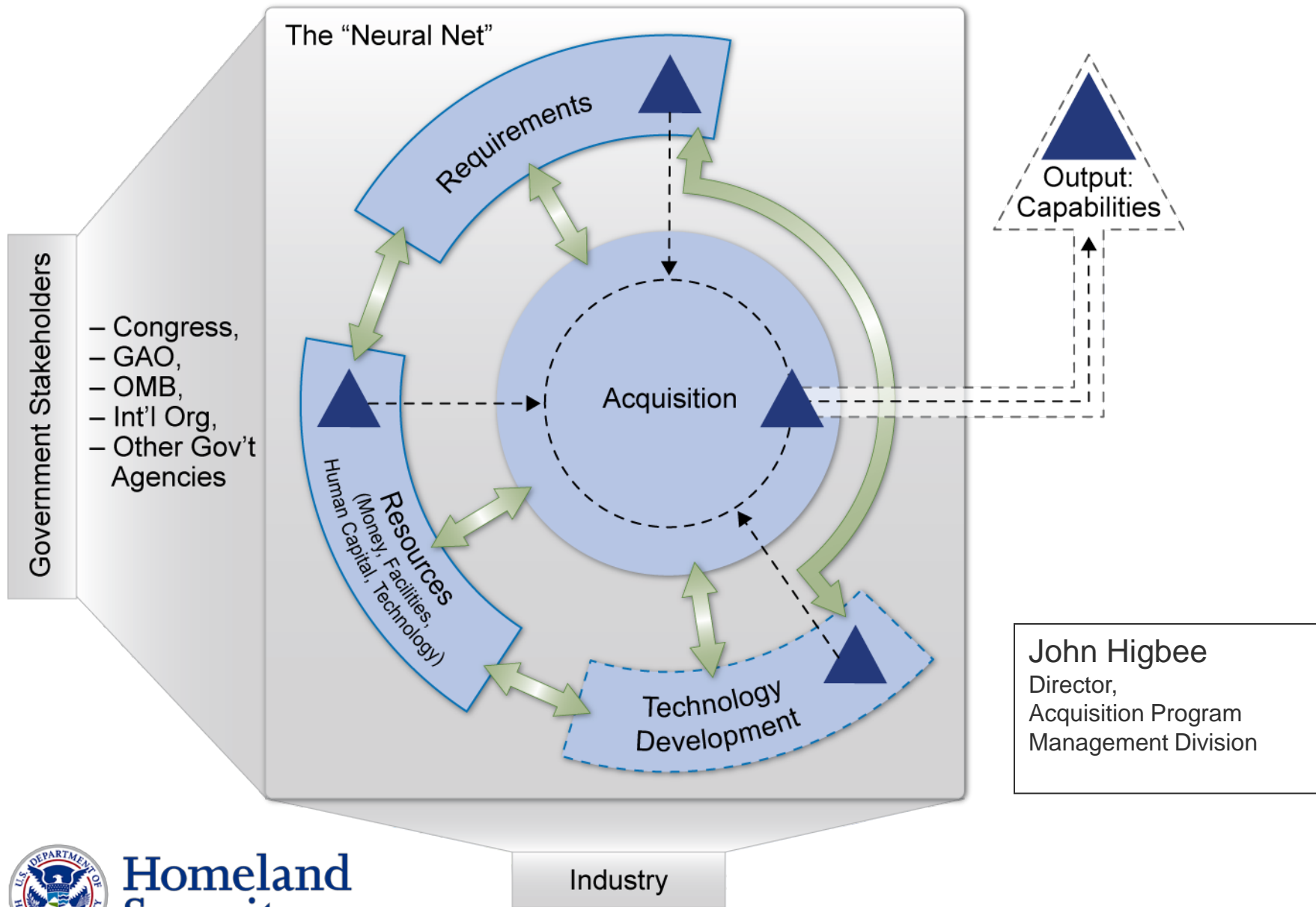
- Solution Agnostic
- Take into account the varying needs and wants of markets/market segments



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Source: Kaufman, et. al.

Interlinking Mechanisms Create Conversations Pipelines



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Evolution of Change:

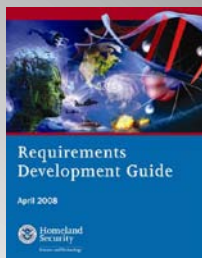
DHS Providing Better Information about its Needs

DoD, DoE, DHS,
DoJ, DoT, etc.

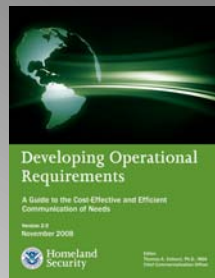
DHS, First Responders, CI/KR
Federal Stakeholders



Capstone
IPT
Process
(August 2006)



*Requirements
Development
Guide* (May 2008)



*Developing
Operational
Requirements*
(Nov. 2008)



*Harnessing the Valuable
Experience and
Resources of the Private
Sector* (Feb. 2009)



Semantic Web 3.0
(The Future)

Industry

Business, Venture Capital/Angel Investment, Strategic Partnerships

BACKUP SLIDES



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SECURE Program

Developing Solutions in Partnership with the Private Sector

- ‘Win-Win-Win’ Public-Private Partnership program benefits DHS’s stakeholders, private sector and –most importantly- the American Taxpayer
- Saves time and money on product development costs leveraging the free-market system and encouraging the development of widely distributed products for DHS’s stakeholders
- Detailed articulation of requirements (using MD 102-01 ORD template) and T&E review provides assurance to DHS, First Responders and private sector users (like CIKR) that products/services perform as prescribed



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http://www.dhs.gov/xres/programs/gc_1211996620526.shtm

SECURE Program

Concept of Operations

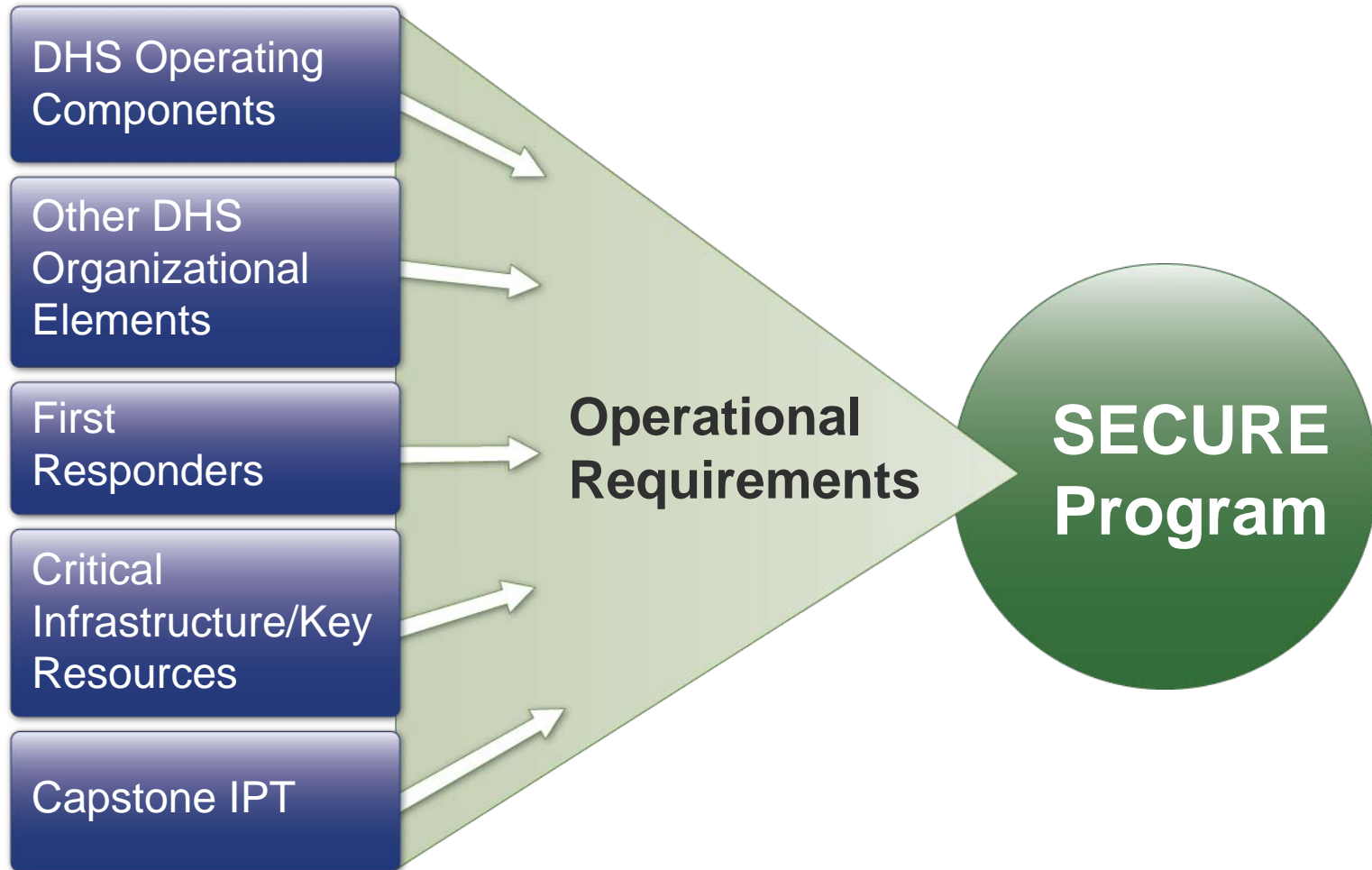


- Application – Seeking products/technologies aligned with posted DHS requirements
- Selection – Products/Technologies TRL-5 or above, scored on internal DHS metrics
- Agreement – One-page streamlined CRADA document. Outlines milestones and exit criteria
- Publication of Results – Independent Third-Party T&E conducted on TRL-9 product/service. 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
- DHS spends less on acquisition programs → Taxpayers win.

Multiple Sources of ORDs for SECURE



Why SECURE Program

▪ **Multi-Use**

- Provides private sector, in an open and transparent way, with what they need most—Business Opportunities
- Provides assurance to DHS, First Responders and private sector users (like CI/KR) that products/services perform as prescribed (and provides vehicle for First Responders, CI/KR owners and operators to voice their requirements)
- Augments the value of the SAFETY Act

▪ **Saves Money**

- Private Sector uses its own resources to develop products and services to the benefit of the taxpayer and the Federal Government

▪ **Creates Jobs**

- Detailed articulation of requirements coupled with funded large, potential available markets yield OPPORTUNITY that yields Job Creation (it's better to teach a person to fish than to give them a fish)
- Enables small firms with innovative technologies to partner with larger firms, VCs and angel investors because of the credibility of having government show detailed requirements with associated market potential (instead of just their own business plans).

▪ **Efficient Use of Government Funds**

- Articulating detailed requirements saves time and money. It is better for Government to spend funds to procure products or services that are available for sale and rigorously tested compared to spending money and time to develop new solutions for ill-defined problems.



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SECURE Program

Benefit Analysis “Win-Win-Win”

Taxpayers	Private Sector	Public Sector
1. Citizens are better protected by DHS personnel using mission critical products	1. Save significant time and money on market and business development activities	1. Improved understanding and communication of needs
2. Tax savings realized through Private Sector investment in DHS	2. Firms can genuinely contribute to the security of the Nation	2. Cost-effective and rapid product development process saves resources
3. Positive economic growth for American economy	3. Successful products share in the “imprimatur of DHS”; providing assurance that products really work	3. Monies can be allocated to perform greater number of essential tasks
4. Possible product “spin-offs” can aid other commercial markets	4. Significant business opportunities with sizeable DHS and DHS ancillary markets	4. End users receive products aligned to specific needs
5. Customers ultimately benefit from COTS produced within the Free Market System – more cost effective and efficient product development	5. Commercialization opportunities for small, medium and large business	5. End users can make informed purchasing decisions with tight budgets



FutureTECH Program

Addressing the Future Needs of DHS

- ‘Win-Win-Win’ Public-Private Partnership program benefits DHS stakeholders, private sector and –most importantly- the American Taxpayer
- 5W template provides detailed overview of Critical Research/Innovation Focus Areas
- Critical Research/Innovation Focus Areas provide universities, national labs and private sector R&D organizations insight into the future needs of DHS stakeholders
- Partnership program encourages R&D organizations to work on development of technology solutions up to TRL-6 to address long-term DHS needs.



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http://www.dhs.gov/xres/programs/gc_1242058794349.shtm

FutureTECH Program

Concept of Operations



- Expression of Interest – Seeking technologies aligned with posted DHS Critical Research and Innovation Focus Areas
- Acceptance–Technologies TRL-6 or below, scored on internal DHS metrics
- CRADA– One-page CRADA document. Outlines milestones and exit criteria
- Publication of Results – Independent Third-Party T&E conducted on TRL-6 technology. Results verified by DHS, posted on DHS web-portal

Benefits:

- Insight into future needs of DHS Stakeholders
- Increased speed-of-execution of technology development and transition
- DHS spends less on technology development → Taxpayers win.



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FutureTECH Program

Critical Research & Innovation Focus Areas

- Improvised Explosive Devices Detect & Defeat Countermeasures:
 - Waterborne IEDs
 - Vehicle Borne IEDs
 - Radio Controlled IEDs
 - Person Borne IEDs
 - IED Assessment and Diagnostics
 - IED Access and Defeat
 - Homemade Explosives
- IED Threat Characterization
- IED Mitigation: Alert/Warning System
- IED Deter and Predict: Network Attack and Analysis



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I Want to

- Contract with the Department
- Find small business resources
- Find contracting opportunities
- Register to do business with the Department



Open for Business

Open for Business

- Contracting Opportunities**
 - [Contracting with the Department of Homeland Security](#)
 - [Advance Acquisition Planning: Forecast of Contract Opportunities](#)
 - [Homeland Security Contracting Opportunities through FedBizOpps](#)
 - [More Contracting Opportunities »](#)
- Small Business**
 - [Prime Contractors](#)
 - [Mentor-Protégé Program](#)
 - [Connect with Small Business Specialists in the Department](#)
 - [More Small Business »](#)
- Events**
 - [Vendor Outreach Sessions](#)
 - [Office of Small and Disadvantaged Business Utilization Conferences](#)
- Policy and Regulations**
 - [Homeland Security Acquisition Regulation \(HSAR\)](#)
 - [Forms](#)
 - [Reports and Notices](#)
 - [More Acquisition Policies and Regulations »](#)
- Grants**
 - [State Contacts and Grant Award Information](#)
 - [FEMA Grants and Assistance Programs](#)
 - [Transportation Security Administration Grant Programs](#)
 - [More Grants >>](#)
- Resources**
 - [Support Anti-terrorism by Fostering Effective Technologies \(SAFETY\) Act](#)
 - [System Efficacy through Commercialization Utilization, Relevance and Evaluation \(SECURE\)](#)
 - [E-Verify, the employee eligibility program](#)

Homeland Security Components

- Directorate for Management
- Private Sector Office

Page Tools

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More from Homeland Security

- [Economic Recovery Act of 2009](#)
- [E-Verify Designated as Employment Eligibility Verification](#)
- [E-Verify](#)
- [Links for Businesses](#)
- [Office of Multimedia](#)
- [Exhibit 300: Capital Asset Plan and Business Case Summaries](#)
- [Rights-of-Way Permission for Telecommunications Projects](#)

SECURE Program

Federal Business Opportunities

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

- www.FedBizOpps.gov
- <https://baa.st.dhs.gov/>
- <https://www.sbir.dhs.gov/>
- www.Grants.gov

take advantage of...

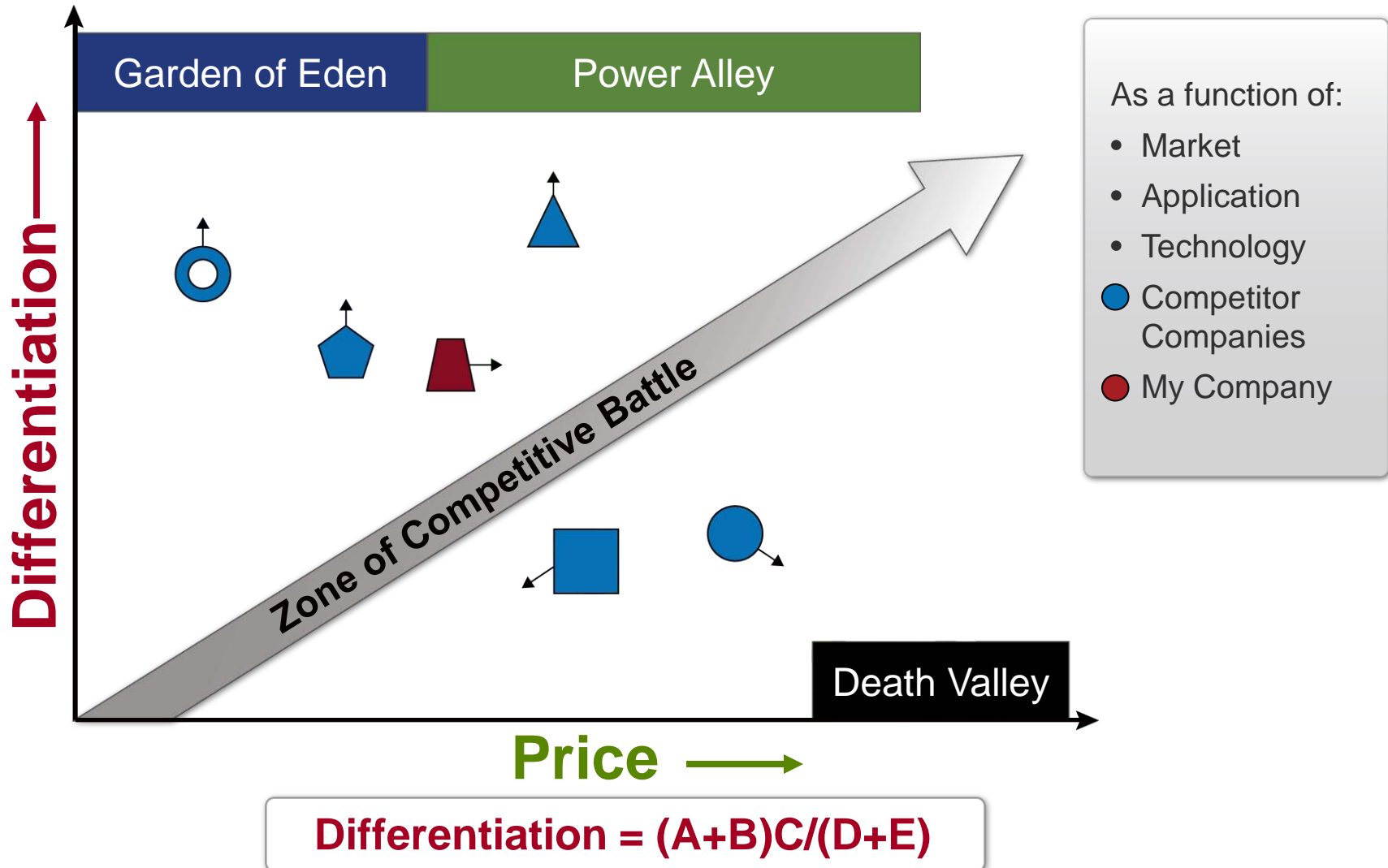
- **Vendor Notification Service:** Sign up to receive procurement announcements and solicitations/BAA amendment releases, and general procurement announcements.
<http://www.fedbizopps.gov>
- **S&T's Solicitation Portal:** The Department of Homeland Security Science and Technology Directorate currently has several active Solicitations on a broad range of topics. Relevant information is posted and access to the teaming portal, conference registration and white paper/proposal registration and submission is provided, as applicable. In addition, historical information about past Solicitations and Workshops is maintained.
<https://baa.st.dhs.gov>
- **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 Diane Osterhus.
http://www.acquisition.gov/far/current/html/Subpart%2015_6.html
- **EAGLE Contract** will serve as a department-wide platform for acquiring IT service solutions.
http://www.dhs.gov/xopnbiz/opportunities/editorial_0700.shtm

Contact Information:

Diane Osterhus
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

Show Us the Difference...

Hall's Competitive Model



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.

Additional SAFETY Act information...

Online: www.safetyact.gov Email: helpdesk@safetyact.gov Toll-Free: 1-866-788-9318

Long Range Broad Agency

Announcement

(Contact: Adrian.Groth@hq.dhs.gov | <https://baa.st.dhs.gov/>)

- Peer or scientific review of proposals in Basic Research and Applied Technology in science and engineering.
- Research to promote revolutionary changes in technologies; advance the development, testing, and deployment of security technologies; and to accelerate the prototyping and deployment of technologies.
- Streamlined and flexible funding mechanism. Open to all DHS-relevant ideas, no submission deadlines, no ceiling on potential funding.
- Public Solicitation identifies science and technology target areas as does the S&T publication “High Priority Technology Needs” dated May 2009, as amended. This document may be obtained by accessing <https://baa.st.dhs.gov> and by following the link for “*Representative High Priority Technology Needs*”.

*** Peer or Scientific Reviews ***

*** Basic or Applied Research ***

*** Maximum Flexibility: Schedules, Subjects, Funding ***



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Technology Transfer

Transfer federally owned/originated technology to State and local governments and the private sector, ensuring the widest dissemination and impact of Federal research investments.

DOD 1401 Program Liaison

- Push DHS requirements to DOD
- Pull DOD technologies into DHS for first responders
- Assess technology suitability and adaptations for DHS applications
- Create DHS & DoD Program Manager partnerships to maximize technology enhancements for our nation's first responders



Office of Research and Technology Applications (ORTA)

- Manage all technology transfer mechanisms used in DHS
 - Cooperative Research and Development Agreements (CRADAs)
 - Licensing Agreements
 - Other Transaction Agreements (OTAs)
 - Commercial Test Agreements
 - Work for Others
 - Partnership Intermediaries
- Capture Intellectual Property and licensing in DHS
- Assess R&D projects for potential commercial applications
- Train engineers and scientists for Technology Transfer and Intellectual Property
- Represent DHS in the Federal Laboratory Consortium



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Contact: Marlene Owens, Marlene.Owens@dhs.gov

- SBIR Home
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- Awardee Portal
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The DHS S&T SBIR FY08.2 solicitation closed on July 8, 2008.

**Department of Homeland Security
Science and Technology Directorate (S & T Directorate)
Small Business Innovation Research (SBIR) Program**

The DHS S&T SBIR Program was initiated in 2004. For the DHS S&T SBIR Program, two solicitations are issued per year. Generally, they will be issued in November and May.

Solicitation topics are developed by Program Managers in each of the Science and Technology (S&T) Divisions, and from time to time, by the Offices of Innovation and Basic Research. The annual solicitations consist of topics that are relevant to the Chemical and Biological, Borders and Maritime Security, Human Factors, Explosives, Infrastructure and Geophysical, and Command, Control and Interoperability Divisions.

Similar to the R&D programs of the S&T Directorate, the SBIR topics generally address the needs of the seven DHS Operational Units, i.e., U.S. Coast Guard, U.S. Transportation Security Administration, U.S. Customs and Border Protection, Federal Emergency Management Agency, U.S. Citizenship and Immigration Services, U.S. Immigration and Customs Enforcement, and U.S. Secret Service, as well as First Responders.

For the Phase II SBIR effort, the DHS S&T SBIR Program has a Cost Match feature for SBIR projects that attract matching cash from an outside investor. The purpose is to focus SBIR funding on those projects that are most likely to be developed into viable new products that DHS and others will buy and that will thereby make a major contribution to homeland security and/or economic capabilities. Click here for more information about the [Cost Match feature](#).

The DHS S&T SBIR Program has several processes in place to accelerate the Phase I and Phase II award process to further satisfy operational requirements and commercial application.

- Phase I awards are typically made within 90 days of selection.
- Invited Phase II projects will be reviewed and awards will be made incrementally, as quickly as possible under the Jump Start feature, to maintain the momentum of the Phase I effort. The Phase II proposal invitation process expeditiously identifies those Phase I awardees deserving of Phase II awards.

To learn more about the SBIR Program, please visit <http://www.sba.gov/SBIR/indexsbir-sttr.html>.

[Click Here to Print](#)

****WARNING**WARNING**WARNING****

Safety Act

Other Funding Opportunities

Topic Recommendations



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



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Summary

Detailed Requirements

Sizeable Market Potential

Delivered Products – PERIOD!

How Can You Afford NOT to Partner with DHS?

Questions/Comments:

Thomas A. Cellucci, Ph.D., MBA

SandT_Commercialization@dhs.gov



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