Introduction to Commercialization at U.S. Department of Homeland Security

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Discussion Guide

- Commercialization Office Overview
- Commercialization Activities at DHS
- SECURE™ and FutureTECH™ Public-Private Partnerships
- Highlights
- Summary

Homeland Security

S&T Office of Commercialization

Mission:

To develop and execute programs and processes that identify, evaluate and commercialize technologies that result in widely-distributed products or services that meet the operational requirements of the Department of Homeland Security's operating components, first responders, critical infrastructure/key resources owners and operators and other stakeholders.

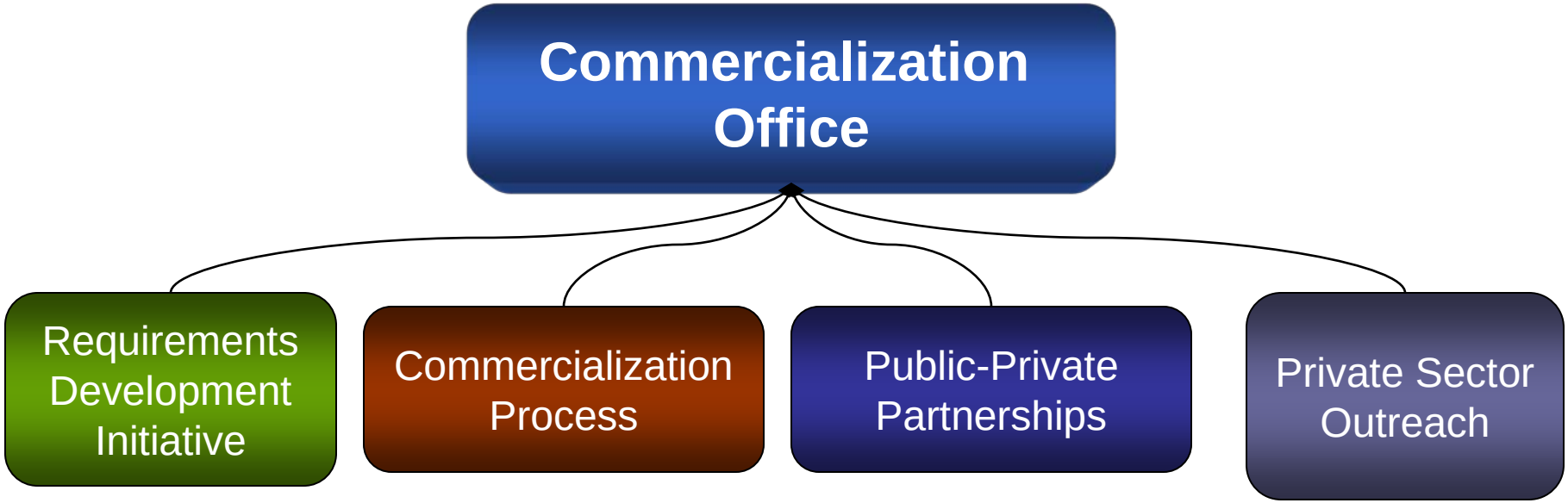
Why Commercialization?

The Private Sector is willing and able to use its own money, resources, expertise and experience to develop and produce fully developed products and services for DHS. The Private Sector wants/needs two things from DHS : 1. Detailed Operational Requirements; and 2. a Conservative Estimate of the Potential Available Markets.

Question:

Should DHS solely develop S&T (and products) through an Acquisition Process -- even though DHS' budget is far less than DoD's and DHS has something much more valuable than DoD to offer the Private Sector-- *substantial Potential Available Markets*?

Commercialization Office: Major Activities



- Requirements Development Book(s)
- Operational Requirements Document Template
- Training for end users and engineers

- "Hybrid" Commercialization Model
- Product Realization Chart
- Commercialization Framework and "Mindset"

- FutureTECH™ (TRL 1-6)
- SECURE™ (TRL 5-9)
- Concept of Operations
- Website Development
- Internal processes developed and socialized
- Requirements and Conservative Potential Market Available Estimates Communicated

- Invited Speeches
- Meetings with business executives
- Numerous articles written and published regarding observations and programs in practice.
- Repository of currently available products, services and/or technologies in the private sector aligned to Capstone IPT Capability Gaps

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

DHS Hybrid Commercialization Process

Big-A Acquisition

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

Performance is King

Relationship between users and product developer is usually remote

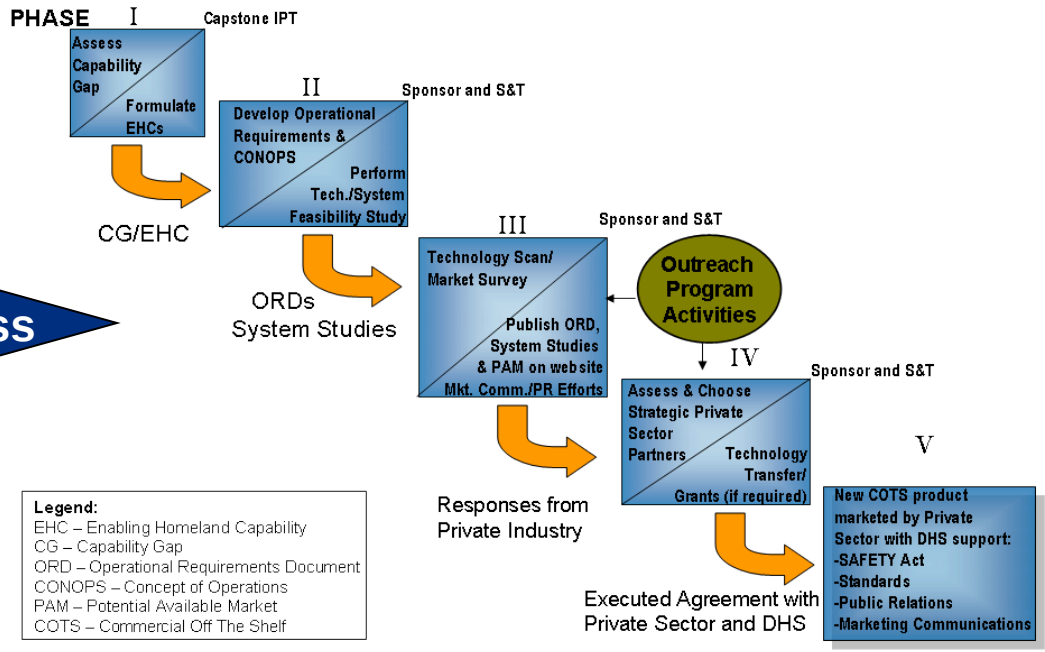
Hybrid Commercialization Process

Pure Commercialization

1. Requirements derived by Private Sector
2. Product development funded by the developer (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

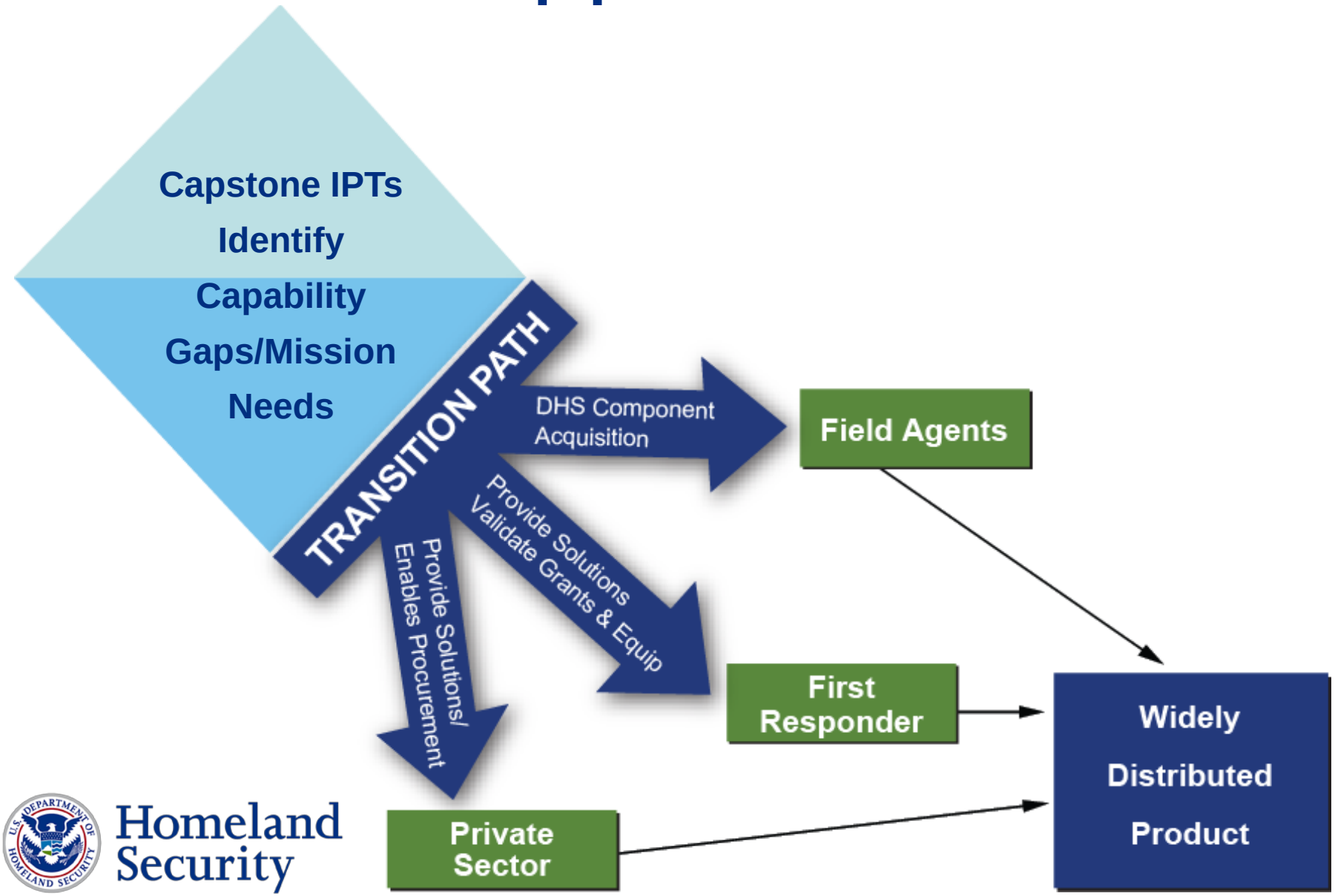
Performance/Price is King

Relationship between end users and product developer is crucial



"Commercialization" – The process of developing markets and producing and delivering products or services for sale.

Transition Approaches



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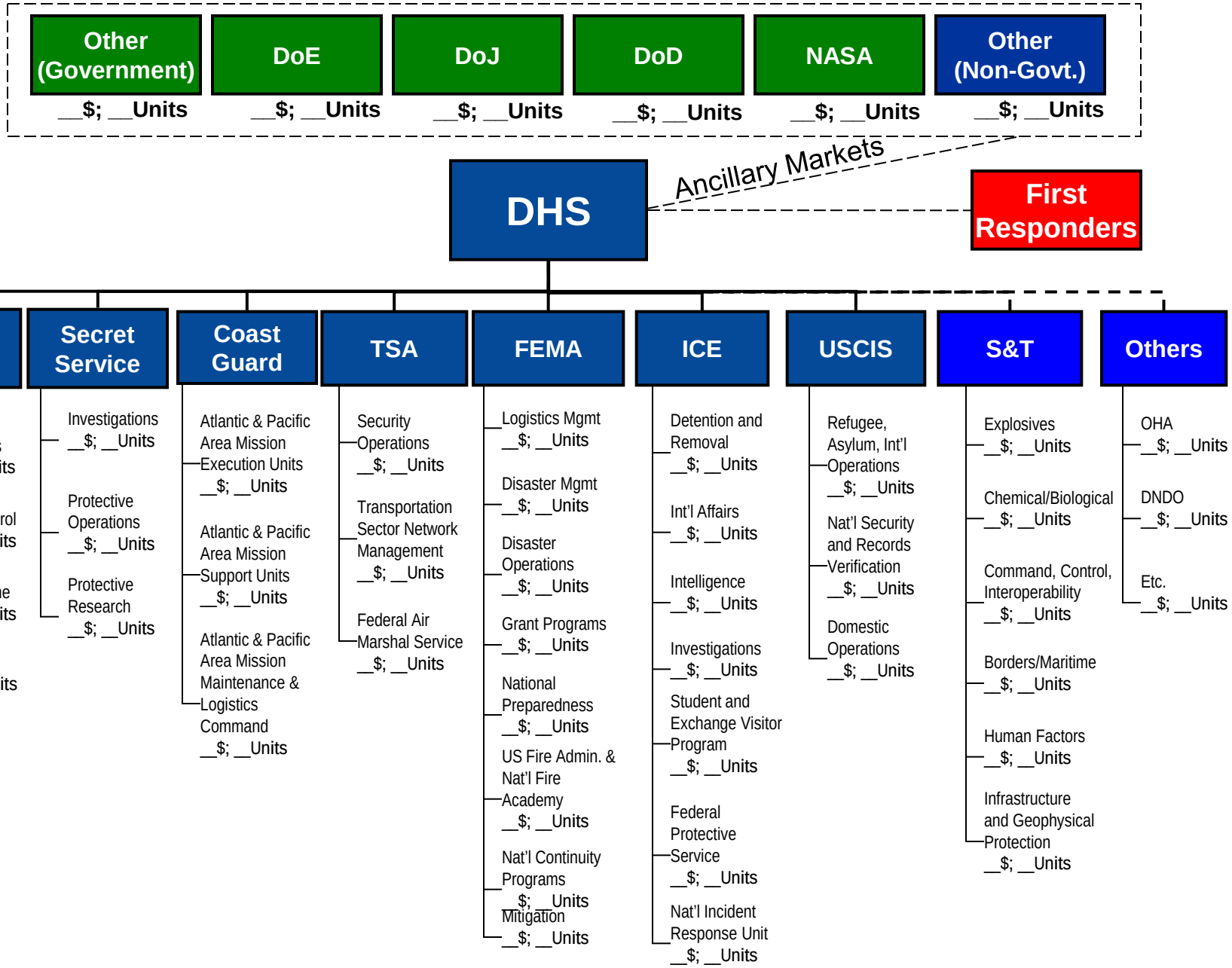
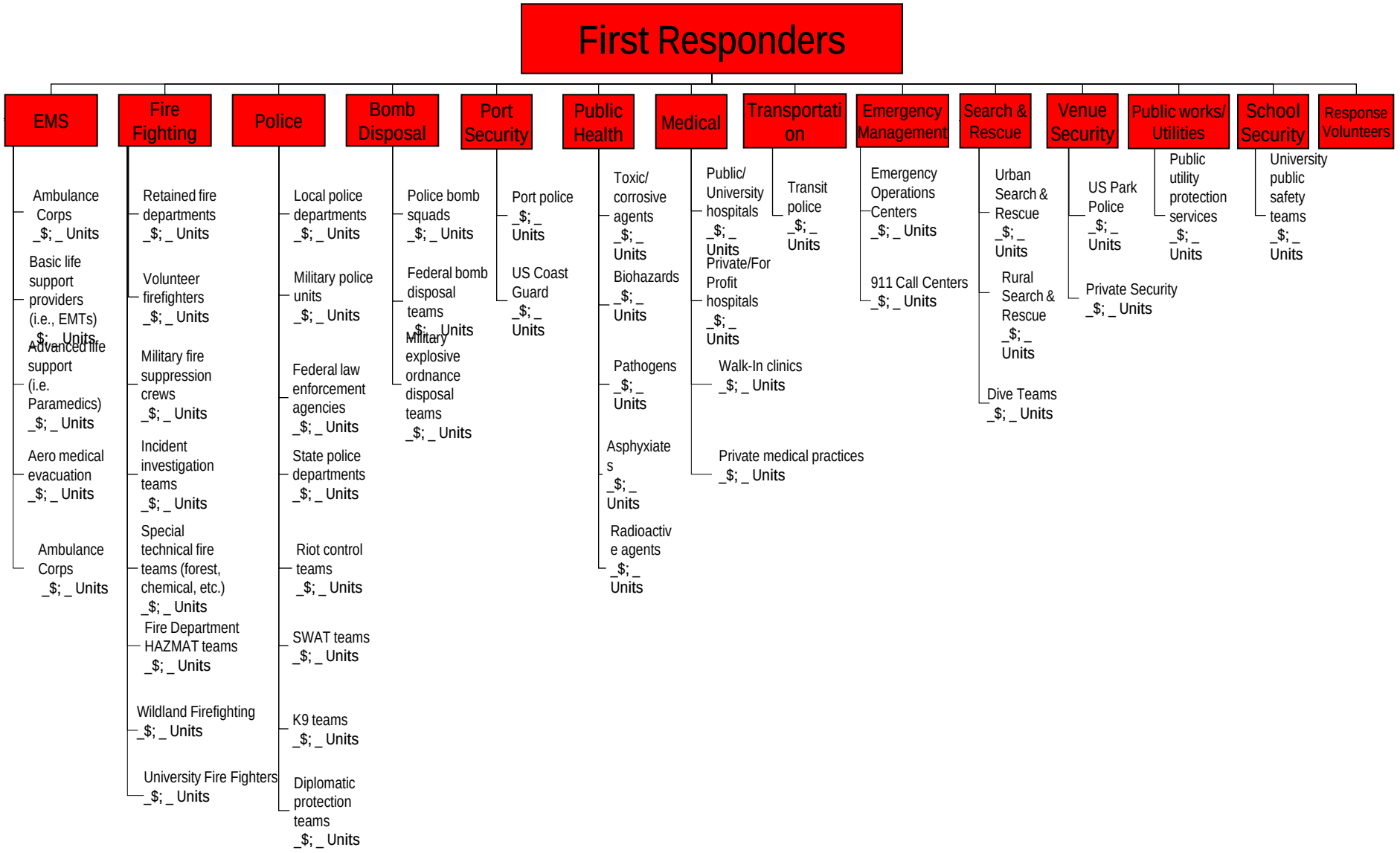
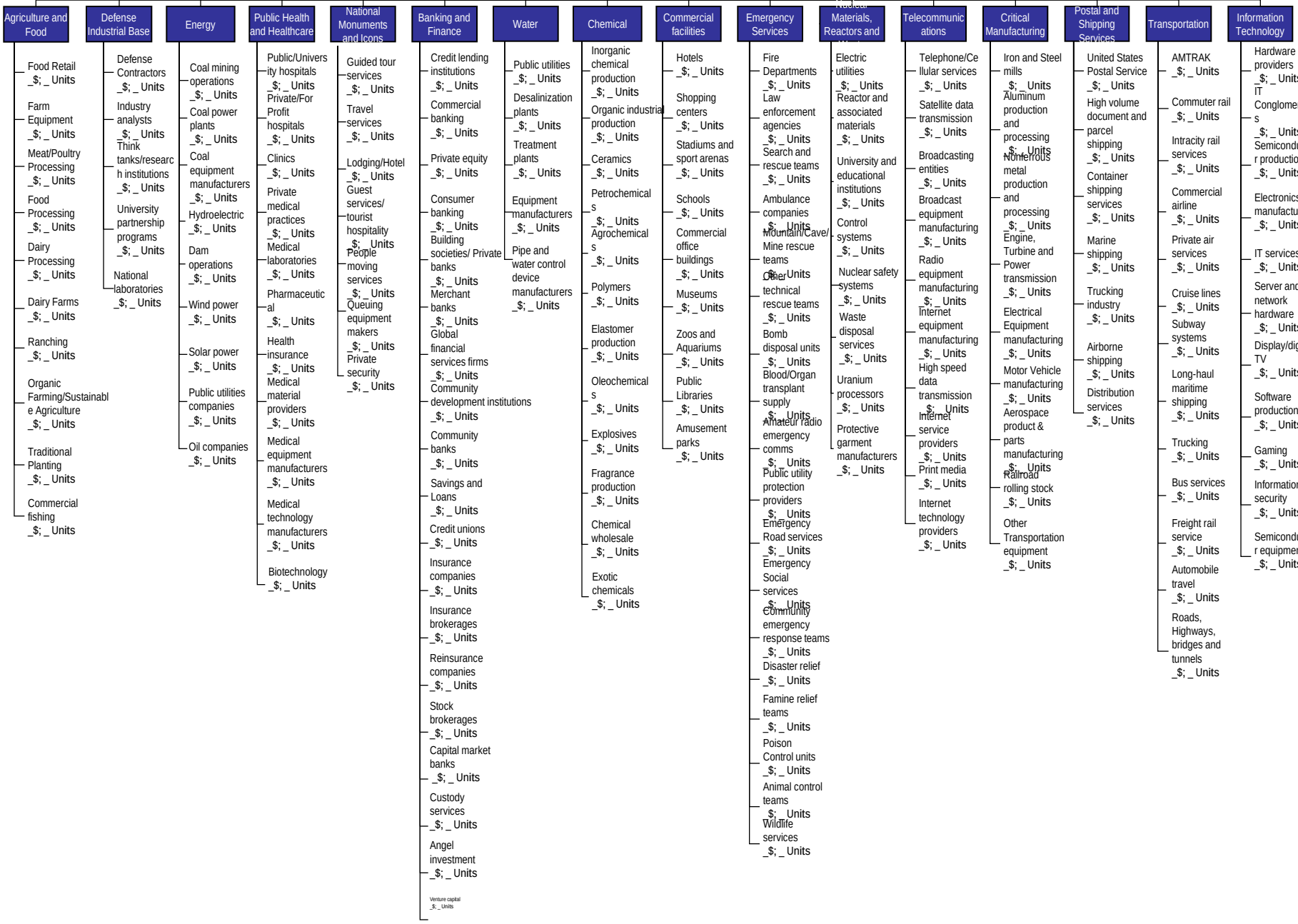
Market Potential Template




First Responders
EMS
Ambulance Corps _$; _ Units
Basic life support providers (i.e., EMTs) _$; _ Units
Advanced life support (i.e. Paramedics) _$; _ Units
Aero medical evacuation _$; _ Units
Ambulance Corps _$; _ Units
Fire Fighting
Retained fire departments _$; _ Units
Volunteer firefighters _$; _ Units
Military fire suppression crews _$; _ Units
Incident investigation teams _$; _ Units
Special technical fire teams (forest, chemical, etc.) _$; _ Units
Fire Department HAZMAT teams _$; _ Units
Wildland Firefighting _$; _ Units
University Fire Fighters _$; _ Units
Police
Local police departments _$; _ Units
Military police units _$; _ Units
Federal law enforcement agencies _$; _ Units
State police departments _$; _ Units
Riot control teams _$; _ Units
SWAT teams _$; _ Units
K9 teams _$; _ Units
Diplomatic protection teams _$; _ Units
Bomb Disposal
Police bomb squads _$; _ Units
Federal bomb disposal teams _$; _ Units
Military explosive ordnance disposal teams _$; _ Units
Port Security
Port police _$; _ Units
US Coast Guard _$; _ Units
Public Health
Toxic/ corrosive agents _$; _ Units
Biohazards _$; _ Units
Pathogens _$; _ Units
Asphyxiates _$; _ Units
Radioactive agents _$; _ Units
Medical
Public/ University hospitals _$; _ Units
Private/For Profit hospitals _$; _ Units
Walk-In clinics _$; _ Units
Private medical practices _$; _ Units
Transportation
Transit police _$; _ Units
Emergency Management
Emergency Operations Centers _$; _ Units
911 Call Centers _$; _ Units
Search & Rescue
Urban Search & Rescue _$; _ Units
Rural Search & Rescue _$; _ Units
Dive Teams _$; _ Units
Venue Security
US Park Police _$; _ Units
Private Security _$; _ Units
Public works/ Utilities
Public utility protection services _$; _ Units
School Security
University public safety teams _$; _ Units
Response Volunteers

Critical Infrastructure Key Resources (CIKR)



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

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

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.

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

Public-Private Partnerships

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

Commercialization Office Highlights:

- White House Office of Science and Technology Policy briefings (Chief Technology Officer Aneesh Chopra)
- Homeland Security Council: Recommended priority for FY11-15 for transportation security: SECURE Program
- Homeland Security Advisory Council, Essential Technology Task Force Report, June 2008
- Council on Competitiveness, Chief Commercialization Officer is first Federal Government Representative
- “Big Bang Economics”: CNN Feature Video with Jeanne Meserve
- Two Federal Certification Programs developed and implemented– SECURE™ and FutureTECH™: Innovative public-private partnerships
- Published Five books (and more than 20 articles) on requirements development and public-private partnerships
- Commercialization Office websites have highest number of page visits and longest dwell time (over 17 minutes) of all S&T Directorate websites

Summary

- Commercialization can be viewed as a “Win-Win-Win” approach to developing capabilities for DHS stakeholders
- Innovative public-private partnerships offer alternative to traditional Acquisition activities at “Obtain” phase
- Increase speed-of-execution and net realizable budget for DHS, extendable to other federal agencies

Questions and Answers

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

Dr. Cellucci accepted a five-year appointment from the Department of Homeland Security in August 2007 as the Federal Government's first Chief Commercialization Officer (CCO). He 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 other DHS stakeholders such as First Responders and Critical Infrastructure/Key Resources owners and operators. Cellucci has also developed and continues to drive 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. His efforts led to the establishment of the DHS-S&T Commercialization Office in October 2008. The Commercialization Office is responsible for four major activities; a requirements development initiative for all DHS stakeholders, the development and implementation of a commercialization process for DHS, development and execution of private sector partnership programs such as SECURE and leading the private sector outreach for the S&T directorate.

Since his appointment, he has published three comprehensive guides [*Requirements Development Guide* (April 2008), *Developing Operational Requirements* (May 2008), and *Developing Operational Requirements, Version 2* (November 2008)] dealing with the development of operational requirements, developed and implemented a commercialization model for the entire department and established the SECURE Program—an innovative public-private partnership to cost-effectively and efficiently develop products and services for DHS's Operating Components and other DHS stakeholders. In addition, he has written over 25 articles and a compilation of works [*Harnessing the Valuable Experiences and Resources of the Private Sector for the Public Good,* (February 2009)] geared toward the private sector to inform the public of new opportunities and ways to work with DHS. Cellucci has received recognition for his outreach efforts and engagement with the small and disadvantaged business communities who learn about potential business opportunities and avenues to provide DHS with critical technologies and products to help secure America.
Cellucci is an accomplished 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. He has authored or co-authored over 139 articles on Requirements development, Commercialization, Nanotechnology, Laser physics, Photonics, Environmental disturbance control, MEMS test and measurement, and Mistake-proofing enterprise software. 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". Dr. Cellucci is also a commissioned Admiral and Commander of a Squadron in Texas responsible for civil defense and has been a first responder for over twenty years.
As a result of his consistent achievement in the commercialization of technologies, Cellucci has received numerous awards and citations from industry, government and business. In addition, he has significant experience interacting with high ranking members of the United States government—including the White House, US Senate and US House of Representatives—having provided executive briefs to three Presidents of the United States and ranking members of Congress. Cellucci represents DHS as the first Federal Government member on the U.S. Council on Competitiveness.

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 regularly asked to serve as keynote speaker at both business and technical events.

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