



Commercialization: The First Responders' Best Friend

DHS reaches out to First Responders to address their needs

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Commercialization, broadly described as “the development of markets and the production and delivery of products/services to meet the unsatisfied needs/wants of the markets,” represents a key process that the U.S. Department of Homeland Security can use to create effectively capabilities for the first responder community.

Commercialization allows DHS to develop and deliver products/services to the first responder community in a more cost-effective and efficient manner as compared to a traditional governmental Acquisition process; at the benefit of the first responder and, just as importantly, to the benefit of the American taxpayer. Through this commercialization process, DHS is fostering new partnerships with the private sector to participate in cooperative product/service development efforts aligned to DHS needs.

In a relatively short amount of time, DHS has developed and is now implementing a “commercialization mindset” in its approach to responding to the needs of its stakeholders. These stakeholders include DHS’s seven operating components (TSA, CBP, FEMA, ICE, USCIS, U.S. Secret Service and U.S. Coast Guard), the first responder community and the critical infrastructure/key resources (CIKR) owner/operators. The idea of utilizing a commercialization process at DHS is a much-needed and significant departure from the commonly employed Acquisition model because it has the potential to yield significant benefits in terms of reducing research and development costs, as well as realizing a much more rapid time-to-market for newly developed commercial products/services for DHS. Rather than have DHS pay for the development of custom “one-off” systems, which is frequently the case in military applications, it is apparent that DHS has much to offer the private sector in terms of potential available markets that can be addressed in a more “commercial” fashion with firms competing for sales in an open and free market system. Figure 1 shows the major differences between a “pure” Acquisition versus “pure” commercialization process, and our resultant DHS “hybrid” commercialization process.

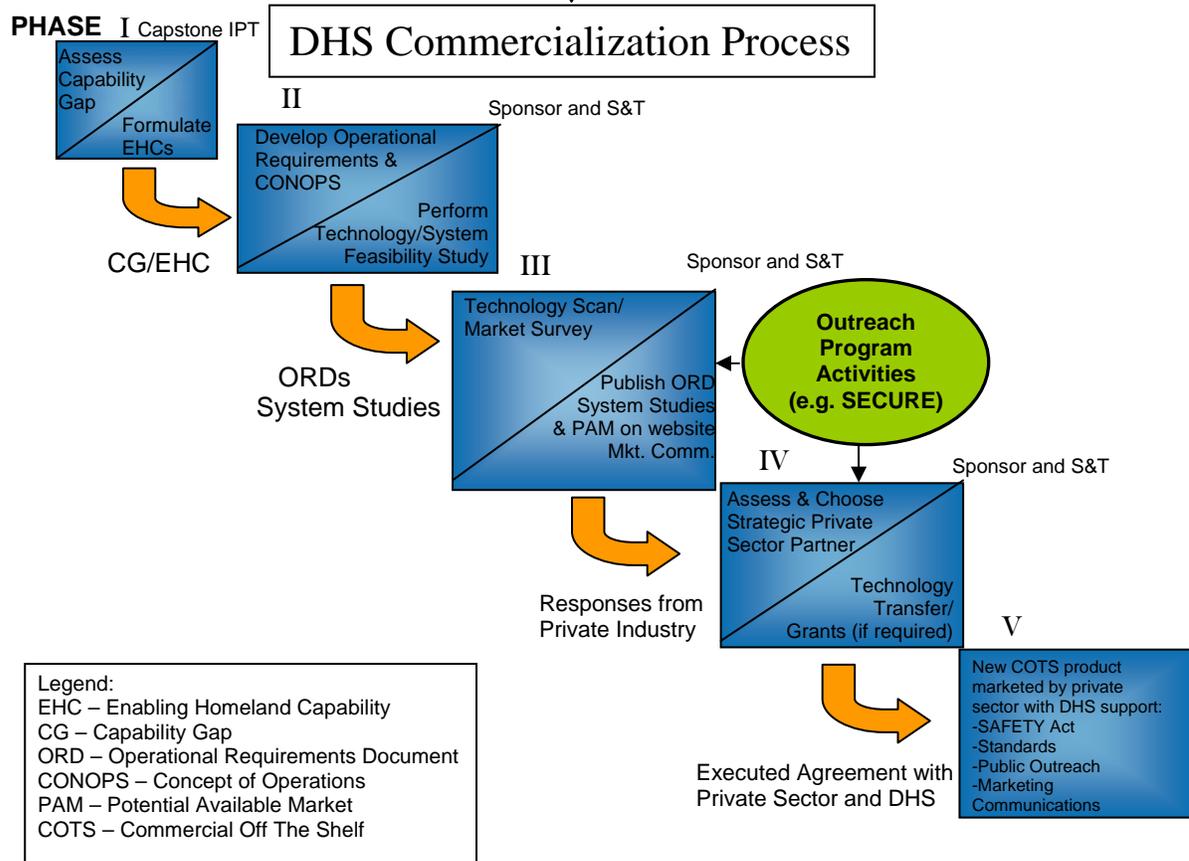
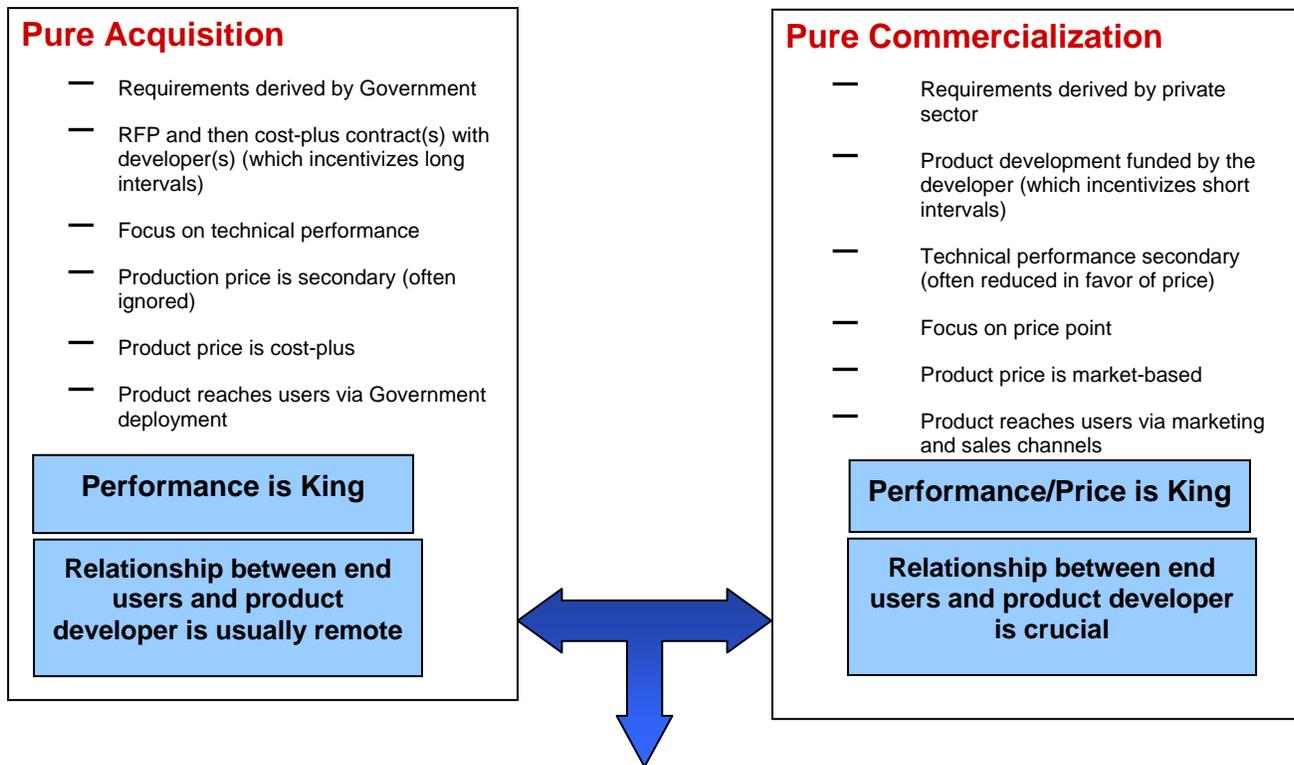


Figure 1 DHS’s commercialization process combines aspects of a “pure” Acquisition and Commercialization model resulting in the current “hybrid” commercialization model.

The SECURE (System Efficacy through Commercialization, Utilization, Relevance and Evaluation) Program, outlined in Figure 2, is one such effort leveraging the DHS commercialization process to meet end-user needs. Briefly, the SECURE Program is based on the premise that the private sector has shown repeatedly that it is willing and able to use its own money, resources, expertise and experience to develop and produce fully developed products and services for DHS if significant market potential exists. The private sector has shown remarkable interest in devoting its time and money to such activities if and when an attractive business case can be made related to large revenue/profit opportunities, which certainly exist at DHS and its ancillary markets. The private sector requires two things from DHS: 1. detailed operational requirements, and 2. a conservative estimate of the potential available market(s). This information can then be used by the private sector to generate a business case for their possible participation in the program.

SECURE Program

Overview of Concept of Operations



- **Application** – Seeking products/technologies aligned with posted DHS requirements
- **Selection** – Products/Services TRL-5 or above, scored with internal DHS metrics
- **Agreement** – One-page Cooperative Research and Development (CRADA)-like document that outlines milestones and exit criteria
- **Publication of Results** – Recognized 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/services aligned to their stated requirements

Figure 2 A brief overview of the SECURE Program Concept of Operations. (See http://www.dhs.gov/xres/programs/gc_1211996620526.shtm)

While the development of highly specialized products is still relevant to the Department, DHS itself represents a substantial potential available market for widely distributed products; in many instances requiring thousands, if not millions of product or service units to address unsatisfied needs. Couple to this the fact that DHS has responsibility for an array of ancillary markets: namely, first responders and CIKR owner/operators, representing large potential available markets in their own right; it is evident that substantial business opportunities exist for the private sector. Figure 3 shows those groups of individuals classified as first responders according to Homeland Security Presidential Directive 8. While these groups represent a highly fragmented market, the

size of the market is nonetheless attractive enough that many companies seek to capture portions of it.



Figure 3 Homeland Security Presidential Directive (HSPD) - 8 classifies those individuals considered first responders in the United States. A conservative estimate shows that over 25.3 Million people work or volunteer as first responders. For a complete segmentation of the first responder market map, please refer to Appendix I of the Developing Operational Requirements book available online at http://www.dhs.gov/xlibrary/assets/Developing_Operational_Requirements_Guides.pdf.

There is a new concentrated focus in understanding the requirements of members of the first responder community in an effort to close their mission-critical capability gaps. Given the fragmented nature of the first responder communities, DHS, through the Science and Technology Directorate (S&T), is formulating a crosscutting Capstone Integrated Product Team (IPT) to focus solely on the needs and requirements of the first responders. Figure 4 shows the general organization of a Capstone IPT along with the appropriate functions of each member. This First Responder Capstone IPT will reach out to the various first responder associations and organizations across the country to gain valuable insight into their needs and requirements and provide a forum for them to be discussed and addressed.

S&T Transition IPT Members and Function

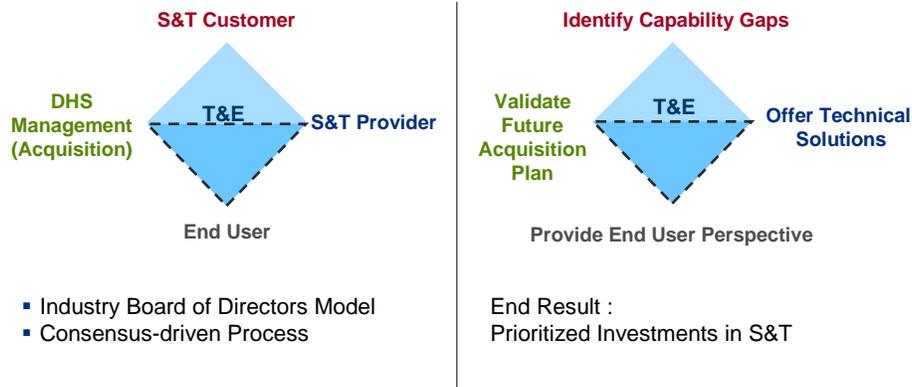


Figure 4 The First Responder Capstone IPT will bring together end-users, scientists and program managers to discuss mission-critical capability gaps and requirements.

The Capstone IPT process¹ ensures that quality, efficacious products are developed in close alignment with customer needs. Through a network of communication channels, Capstone IPTs bring together S&T division heads, management personnel and end-users (operating components, field agents and supporting first responders and/or CIKR owner/operators) involved in Research, Development, Testing and Evaluation (RDT&E). Working collaboratively, the First Responder IPT collects, evaluates and prioritizes requirements to enable new mission-critical capabilities.

In providing critical information to the private sector in terms of the collection and articulation of detailed operational requirements and a conservative estimate of the potential available market, DHS has laid the foundation for cooperative product development with the private sector. These relationships drive the commercialization process and ensure that end-users such as first responders receive needed products/services in a timely manner at minimal costs to DHS. Given these relationships, it is relatively easy to make a case for commercialization at the Department (see Figure 5) as it results in “wins” for the American taxpayer, public and private sectors.

¹ Kikla, Richard V. and Cellucci, Thomas A. “Capstone IPTs: Even in Government the Customer Comes First,” April 2008.

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

Figure 5 A benefit analysis of the SECURE Program shows a number of positive outcomes for Taxpayers as well as the public and private sectors.

In conclusion, a commercialization process is ideal to match the detailed requirements of the collective first responder community with product development efforts undertaken by the private sector who seek access to the large potential available markets represented by the first responders. Commercialization is not only an attractive method by which DHS can develop products/services for first responders – but it is also beneficial to both the public and private sectors and – most importantly – to the American taxpayers at large.



Thomas A. Cellucci, Ph.D., MBA is the U.S. Department of Homeland Security’s first Chief Commercialization Officer. In his role, he recently published two comprehensive guides: *Requirements Development Guide* and *Developing Operational Requirements* to aid in effective requirements development and communication for the department. He possesses extensive experience as a senior executive and Board Member in high-technology firms in the private sector.

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- **Small Business Innovation Research(SBIR):** SBIR's 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. <http://www.sbir.dhs.gov>
- **SAFETY Act:** The SAFETY Act enables the development and deployment of qualified anti-terrorism technologies and provides important legal liability protections for manufacturers and sellers of effective technologies. <https://www.safetyact.gov/>
- **TechSolutions:** The mission of TechSolutions is to rapidly address technology gaps identified by Federal, State, Local, and Tribal first responders by fielding prototypical solutions within 12 months at a cost less than \$1M per project. www.dhs.gov/techsolutions
- **Commercialization:** The mission of S&T's commercialization efforts is to identify, evaluate, and commercialize technologies that meet the specific operational requirements of DHS operating components and first responder communities. The commercialization efforts actively reach out to the private sector to establish mutually beneficial working relationships to facilitate cost-effective and efficient product development efforts. Please contact Chief Commercialization Officer Tom Cellucci at S&T-Commercialization@dhs.gov.



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