



STATEMENT OF

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BEFORE THE

**U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON HOMELAND SECURITY**

**Subcommittee on Cybersecurity, Infrastructure Protection, and Security
Technologies**

*“Examining DHS Science and Technology Directorate’s Engagement with Academia
and Industry”*

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311 Cannon House Office Building

Chairman Ratcliffe, Ranking Member Richmond, and distinguished Members of the Subcommittee, my name is Marc Pearl, and I am the President and CEO of the Homeland Security & Defense Business Council (Council), a non-partisan, non-profit industry organization that is made up of the leading large, mid-tier, and small companies that provide homeland security and homeland defense technology, product, and service solutions to DHS and other government and commercial markets. We thank you for giving us the opportunity to appear before you today to provide our perspectives on the DHS Science and Technology (S&T) Directorate's engagement with industry.

The mission of the Council is to sponsor and promote programs and initiatives that encourage greater and more effective communication between government and industry. We seek to facilitate a dialogue that can inform the implementation of policy and process, help address mission challenges, and improve the management and organization of DHS. We often bring both sides together to gain a greater understanding of each other's perspectives and processes so we can identify improved ways of doing business together. In this regard, we have a history of working with S&T to discuss the best ways of engaging with industry to develop and find advanced technologies.

Effective engagement with industry is a priority area of interest for the Council. In 2014, we developed a "*Framework for Government-Industry Engagement Through the Planning and Execution of the Acquisition Process.*" Through this effort, our member companies have worked closely with the DHS directorates and components to identify critical points of communication throughout the different stages of the acquisition process (which includes pre-acquisition strategic and business planning), the challenges and barriers to communication, and to share best practices and options for effective methods and forums for engagement. Many of the lessons learned from this initiative apply to S&T.

The Council's testimony today will focus on the progress that S&T has made as a result of Dr. Reginald Brothers' leadership and how it impacts industry, the challenges that still remain, and our recommendations for what can be done to encourage more effective engagement with industry, as well as greater success for the Directorate.

In September of 2014, Dr. Brothers testified before this Subcommittee and outlined his vision and six priority areas of focus for the Directorate, which included:

1. Visionary goals that serve as 30 year horizon points to build towards.
2. A 5-10 year strategic plan which would provide a nearer term roadmap for how the organization seeks to achieve its visionary end goals.
3. An updated and balanced R&D portfolio that includes APEX programs, technology engine programs, and other focused programs not captured under one of these umbrellas.
4. A refined process for identifying capability gaps.
5. An empowered 21st century workforce with multi-lingual program managers that can slide between operational and technical environments.
6. The ability to foster deeper engagement and transparency with the homeland security industrial base.

Industry is a critical stakeholder and partner in S&T's mission and each of these priorities impacts industry's ability and willingness to engage with S&T.

PROGRESS WITHIN S&T

While S&T has not yet accomplished all of these goals, there have been a number of positive changes at S&T that show progress in Dr. Brother's priority areas of focus. He should be applauded for the following proactive efforts that demonstrate that S&T is trying to improve transparency and communication with industry.

- **Release of S&T's Visionary Goals and 5 Year Strategic Plan**

Through the release of S&T's long term visionary goals and its recently published 2015 - 2019 Strategic Plan, S&T has established the necessary framework to help guide the mid to long term future of the agency. The updated strategic plan is probably the best that S&T has ever put forward, in part because it includes capability roadmaps and specific objectives that are delineated by fiscal year. While more communication is still needed, the capability roadmaps are an important first step in developing a process that helps private companies align their own investments to where the government needs help. The visionary goals and strategic plan provide a basic blueprint for the government's future needs and allows the time for DHS and industry to have the necessary conversations required to align resources.

- **Greater Involvement of the Components and Industry through Apex Programs**

One of the positive impacts of S&T's focus on Apex programs is the involvement and commitment by senior leaders of the DHS operational components. The collaborative nature of these programs is important because it helps integrate an operational perspective into S&T's work earlier in the process and creates greater connections between S&T and the end users. If successful, this type of partnership will help build credibility and relevance for S&T, which in turn may increase industry's desire to work with the Directorate.

We have also seen more outreach to industry through the Apex programs. Last October, the Council coordinated an industry tour with S&T and Customs and Border Protection at the Maryland Test Facility of the Apex Air Entry Re-Exit Engineering (AEER) Program. This program has used a series of briefings, webinars, work sessions, and industry events to promote transparency while developing a collaborative environment in which stakeholder expertise and best practices are solicited and incorporated into proposed solutions. Tours are an excellent way of helping industry see and better understand the operational working environment for technologies. In addition to tours, the Apex AEER program solicits industry information and ideas through an email address and uses information submitted to determine which companies to meet with in one-on-one discussions.

The S&T explosives division is hosting a Checkpoint Industry Day next month to discuss with stakeholders in an open forum the specific intentions of S&T and TSA regarding the newly authorized Apex Checkpoint Program. It is encouraging to see outreach that is intended to solicit input and ideas from all stakeholders. We hope though that this Industry Day is not the only forum for engagement with industry.

Group events are an important starting point for pushing out information and encouraging dialogue, however there are certain things that industry will not discuss in this type of setting. S&T should follow up with one-on-one meetings with relevant companies to ensure it gains the information it needs to formulate investment plans for checkpoint technologies and architectures.

- **More Information Available Through Website**

There is a noticeable difference in the amount and type of information that is now publicly available on the S&T website. It includes information on its strategic direction, descriptions of its major programs and each of the component parts that make up S&T, identifies senior leaders, provides contact information for program managers, lists business opportunities, and includes upcoming events, press releases, blog entries, articles, videos, and other archived stories. This collection of information is valuable to those in industry who are seeking to better understand what S&T is working on, how it operates, and who to contact if they have questions.

- **S&T National Conversation**

The National Conversation is a series of online and in-person discussions designed to bring together multiple and diverse stakeholders that play a role in innovating solutions for homeland security challenges. While it is still early in the process to determine the effectiveness of these tools, it is an example of S&T trying to use cost effective forums and technology to gain insight and perspectives from all stakeholders in a collaborative environment.

- **Increased Number of Webinars**

In the appropriate circumstances, webinars are a cost effective tool to push out information to a large number of people because DHS does not need to spend the time and money on event planning or acquiring a large venue. Industry also saves time and money by not having to send employees to events that may require travel and extensive time out of the office. Over the past two years, there has been a noticeable increase in webinars that include joint participation by the components. This is one example of improving information sharing with both industry and other stakeholders.

CHALLENGES AND RECOMMENDATIONS

Despite this progress, S&T still faces a number of daunting challenges which impact its ability to motivate and effectively engage with industry in a manner that allows it to accomplish its mission. These challenges include budget constraints, a lack of understanding of its audience, the lack of a business case for industry involvement, and its ability to closely coordinate and integrate its work with the components. We believe that these challenges can be addressed through a combination of the following actions: taking the time to understand the market dynamics of the industrial base, creating industry incentives, learning about industry R&D, developing greater transparency and more effective communication with industry through tactical business plans and industry engagement strategies, finding ways to ensure greater integration of the components into S&T's work, and focusing on what can be accomplished with limited resources.

After a peak budget award in FY06, S&T experienced a series of decreasing and fluctuating budgets, particularly in FY11-FY12, when it received its lowest budgets ever. While its budget did increase in FY14, the lack of an adequate, stable, or predictable funding picture over the years has created a number of interrelated problems.

Due to the budget cuts, many mid to large size companies lost interest in engaging with S&T because it has had difficulty making an attractive business case for their involvement. The budget constraints have forced S&T into a trap that other resource constrained government R&D organizations fall into, in which they want industry to spend its own resources on R&D, and then spend additional resources demonstrating its capabilities at a government sponsored venue, even when there is no clear return on investment that would motivate that behavior. Most industry providers do not have the time or money to invest in speculative R&D unless they are convinced it will translate directly to component acquisition or another market. Without an understanding of or promise of a future market or acquisition, industry will not spend its money in this way.

While the release of the S&T Strategic Plan is a necessary and important first step in communicating future priorities, the plan currently lacks the context of S&T's resources, its ability to implement the contents of the plan, and an understanding of the private sector. It is not yet credible. Industry will not align its investments in R&D until there is follow up communication that demonstrates that S&T understands its audience, has a tactical business plan that aligns with budget realities to accomplish its goals, and can demonstrate incentives and a business case to motivate industry.

- **Build a Business Case and Tailor Message to the Appropriate Audience**
S&T tends to focus on trying to identify technologies and capabilities without regard to the kinds of companies that participate in that market. The market dynamics for building a business case vary depending on the type and size of company. To be successful, S&T's messaging needs to be targeted to the appropriate audience. They should not be talking to systems integrators about innovative technology or talking to small companies about large systems integration. S&T should take the time to gain a better understanding of the market dynamics of the industrial base and tailor their communication and engagement to the appropriate audience based upon the need they are trying to solve.

One way to learn more about the industrial base is to consult with industry associations like the Council and other membership organizations that serve niche markets. These groups can provide information on different segments of industry as well as help push S&T's message out to the right audience.

- **Learn More About Industry's R&D Work**
Large companies spend a tremendous amount of money in R&D and would welcome the opportunity to share their future technology direction and potentially direct research towards projects in areas where the government has specific needs. The release of the S&T Strategic Plan helps provide information to industry on future direction, but it is also critical for S&T to engage with industry so it can learn more about industry IR&D. Particularly in a challenging budget environment, S&T should lean towards industry to

create partnerships to assist them with technology needs. If there are detailed future requirements and adequate incentives, industry can assist DHS with additional out of the box solutions ready for future deployment. We have heard of a few large companies inviting S&T to visit their laboratories so they can see and learn more about their R&D efforts, but these offers have not been accepted. It would be beneficial for S&T to host more industry days focused on specific technology areas and to visit leading edge private sector laboratories to learn more about the R&D that is taking place.

- **Create Incentives for Industry Involvement**

S&T has been trying to model the Department of Defense (DoD) for its process innovation model. While the DoD model is robust, it is not geared for a tactical law enforcement perspective and quick acquisition. Without the carrot of visible available funding, few vendors have the resources to engage in a protracted dialogue with S&T that can be dropped at any step along the way. There are many examples of vendors, particularly in radiological / nuclear detection markets, that are building relationships with foreign governments, obtaining a seat at the table quickly and ramping up new technological solutions due to the promise of immediate available funding. Many of these companies say it does not pay to focus on this type of innovation in the United States because there is no incentive.

If S&T cannot make the business case for industry involvement, it needs to create or seek legislation for the appropriate incentives. This was the approach used by Congress and the FDA when it created new business models and incentives for the development of drugs and other medical interventions for rare diseases through the adoption of the Orphan Drug Act of 1983.

- **Develop an Industry Engagement Strategy and Tactical Business Plans for Apex Programs**

There are two important ways that S&T can expand on transparency and communication with industry related to its Strategic Plan. We believe that S&T should develop an industry engagement strategy for how it will introduce and roll out its Apex programs and it should share tactical business plans that explain **how** S&T plans to accomplish its goals within each program.

An industry engagement strategy could consist of a flexible three stage process. The first stage would focus on awareness and would introduce all of the Apex programs to industry in a single session so that there is greater transparency into the entire process and a better understanding of everything that S&T is trying to accomplish across all of the programs. In this stage, industry is introduced to the concept of Apex and they would receive a description of each Apex program at a high level. The information provided would include the purpose, goals, high level timelines, high level process description, goals for engaging with industry, and how other efforts from across the Department would be tied in. By hearing about all the programs in one session, industry would have a better sense of which programs they have the highest interest in and may be able to identify other efforts going on within DHS or in other federal agencies that relate to those efforts.

The second stage would include engagement forums to roll out each individual Apex program. These sessions would describe the state of play to industry for each program and would provide opportunities to discuss the state of current and emerging technologies. The final stage would focus on sessions that discuss specific opportunities within each program.

As part of this engagement process, industry would be looking to learn the following types of tactical information from S&T:

- What is the timeline for execution and engagement with industry?
- Who are the players and stakeholders?
- Who from industry are you trying to target and attract?
- What do you want to get from industry throughout the process?
- When do you want industry involved?
- How do you plan to engage with industry?
- What are the projects that will support this program?
- Which projects have already started or are ongoing?
- What are the major deliverables and milestones?
- What are the new business opportunities and incentives for industry participation?
- Who is the final end user and likely purchaser?
- What is the funding profile? Does this include component funded projects?
- What are the enablers and opportunities for collaboration?
- What are DHS' challenges/risks and plan to overcome them?
- What actions will you take to accomplish your goals?

We know that a lot of this tactical business information is available internally within S&T but has not yet been shared with industry. This type of information sharing would serve to help attract and motivate industry by giving them greater confidence in what S&T is doing and an understanding of how these programs will translate into opportunities for industry. If industry had a better understanding of specific objectives and challenges within these programs, it could also have an early dialogue with S&T on who needs to be included in engagement, impediments to getting those groups to participate, how to effectively message communications, how to incentivize the target audience, and the best forums for engagement.

Currently, the information available about different Apex programs is inconsistent. Many in industry do not know the specifics of each program or the business plan that S&T will use to accomplish its goals. We realize that the Apex programs are not all operating on the same timelines and that some will be complete in 2016 while others will not end until 2019 and beyond. It would be helpful to have some kind of roadmap that allows industry to easily determine what S&T has done so far, where it is going with each program, and if changes are occurring along the way.

- **Greater Coordination, Integration, and Unity of Effort Between S&T and the Components**

While the Apex programs are a good start, S&T still has much to do to establish value added relationships and credibility with the components. Part of the problem is the lack of incentives or authority to require the components to work with S&T. Some components, like Coast Guard and DND, have separate and independent R&D budgets and organizations. None of the components are precluded from carrying out their own R&D activities as long as they coordinate with S&T. However, there is no clear guidance on what constitutes coordination and S&T has no direct oversight authority into their work. Partnership with the components is voluntary and based upon relationships, however close coordination is necessary to develop a common vision, ensure unity of effort, and reduce the potential for duplication of effort. S&T cannot be successful if a disconnect exists between their work and the end users or if they fail to consider the operational systems perspective. The participation of components, particularly as it relates to identifying capability gaps and developing operational requirements, makes it more likely that research results will successfully transition into the field and that S&T is working on the priority needs of a component. Since acquisition authority and most of the money lies within the components, it is important for industry to see and understand the close coordination and integration between S&T and a component, because it makes it more likely that there is a future market.

- **Increase Funding or Narrow Focus**

S&T's scope of work is vast and serves a diverse group of customers. Its responsibilities include a wide range of activities such as funding basic and applied research, advanced development, oversight of testing and evaluation, technology foraging, acquisition support and operational analysis, maintenance of federal research infrastructure, and providing technical, operational and systems engineering support to the components. If S&T's budget is not going to increase to an amount that is adequate for its responsibilities and authorities, perhaps it should have a narrower focus. Right now, S&T is trying to be all things to all people and they cannot do this successfully with their budget. Tough decisions need to be made on what activities should be prioritized and would have the highest impact to its customers. If they were able to do a few things successfully, it would help build credibility with industry, with the components, and with Congress.

CONCLUSION

The work of S&T is important and industry wants to be a partner in their mission and help them succeed. We believe Dr. Brother's leadership and the recently released 5 year strategic plan is leading the Directorate in the right direction, but there is still more to do, particularly as it pertains to effective engagement with industry. The S&T budget and the lack of a business case for industry involvement remain the top challenges to moving forward. There are many things that S&T and Congress can do to help address the impact of these issues. We hope that S&T is ready to build on their progress and focus on the next steps. If they take the time to understand their audience and its current work, build a business case and create incentives, that industry will step up and direct their work towards the needs of S&T and the Department. However, greater transparency and communication through an industry engagement strategy and the sharing of tactical business plans is another aspect to making this happen.

Congress can also play a role by supporting S&T in these efforts with industry, by increasing funding for S&T, considering legislative incentives for industry, enhancing S&T's authority over the components, or promoting closer coordination and integration between S&T and the components. As a last resort, it may have to reconsider and narrow the scope of S&T's portfolio so that the Directorate can focus on what can be accomplished with limited resources. We know the decisions are not easy, but are critical to producing results.

On behalf of the Homeland Security & Defense Business Council, I appreciate the opportunity to provide the collective perspectives of our members on S&T's engagement with industry. The Council stands ready to answer any additional questions you may have on these topics.