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THE FUTURE OF SCIENCE AND TECHNOLOGY AT THE DEPARTMENT OF HOMELAND SECURITY

HEARING

BEFORE THE

SUBCOMMITTEE ON EMERGING THREATS, CYBERSECURITY, AND SCIENCE AND TECHNOLOGY

OF THE

COMMITTEE ON HOMELAND SECURITY HOUSE OF REPRESENTATIVES

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THE FUTURE OF SCIENCE AND TECHNOLOGY AT THE DEPARTMENT OF HOMELAND SECURITY

Tuesday, April 1, 2008

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON HOMELAND SECURITY,
SUBCOMMITTEE ON EMERGING THREATS, CYBERSECURITY, AND SCIENCE AND TECHNOLOGY,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:19 p.m., in Room 311, Cannon House Office Building, Hon. James R. Langevin [chairman of the subcommittee], presiding.

Present: Representatives Langevin, Christensen, Etheridge, Pascrell, McCaul, Lungren and Broun.

Mr. LANGEVIN. The subcommittee will come to order. The subcommittee is meeting today to receive testimony on today's hearing, the Future of Science and Technology at the Department of Homeland Security.

Good afternoon. I would like to welcome everyone to today's important hearing on the Future of Science and Technology at the Department of Homeland Security, and I would like to begin my opening remarks by thanking Under Secretary Jay Cohen for his leadership at the Science and Technology Directorate. You have brought a great deal of direction and stability to the organization, Mr. Secretary; and I want to commend you for your efforts.

I also would like to commend the thousands of dedicated people, of course, from the program managers within your Directorate to the scientists and researchers throughout the country who are working on homeland security research and development projects that will secure our Nation for the future. Your work is greatly appreciated.

In a bipartisan fashion over the course of the 110th Congress, this subcommittee has spent a great deal of time working with Under Secretary Cohen and the Department to create a sound foundation for the research and development efforts that will protect our homeland. I therefore concur with the Under Secretary's focus on what he calls the four P's, getting the people, the processes, the partnerships, and the product right will ensure that the S&T Directorate achieves enduring success.

Establishing this organizational structure, I believe, is critical, given the unique historical moment in which we find ourselves. Because the Department of Homeland Security has never before expe-

rienced a Presidential transition, it is more important than ever that those four P's are in place.

Today, with our eye on the future, I look forward to discussing two sets of issues with the Under Secretary. The first are immediate concerns, the Homeland Security Institute, HSI, and the Homeland Security Science and Technology Advisory Council, or HSSTAC, both of which are set to sunset at the end of this year. We have been conducting a review to determine whether this committee should reauthorize the federally Funded Research and Development Center for Homeland Security.

While HSI has taken steps toward developing more core competencies, I wonder if we see real compelling evidence that HSI has progressed sufficiently toward achieving competency in specific areas of interest to DHS or that HSI has become a fully functional Studies and Analysis FFRDC.

Before the subcommittee decides to reauthorize HSI, and of course we are certainly still open-minded on this issue, I would like you to provide us with a comprehensive review justifying the need for the FFRDC, including information and data about the metrics with which S&T will assess HSI progress, efficiency, and effectiveness. We also need assurances that there will be an open competition for the next contract.

I have similar questions about the use of the HSSTAC, which is also set to expire at the end of the calendar year. For several years, this advisory committee lay dormant. But under your leadership, Under Secretary Cohen, we resurrected it in 2007 to do a report on improvised explosive devices. But I am unsure how the Department sees its future, and I am hoping we can discuss these issues today.

The second set of issues includes long-term policy concerns; and while I believe the Under Secretary has done a great deal to strengthen the foundation of the Directorate in his year-and-a-half on the job, we all recognize that much work still remains. I think the organization's biggest challenge is to get the prioritization of research and development right.

At the Under Secretary's last appearance in June, 2007, we spent some time discussing the S&T's strategic plan. At the time, I was critical of the strategic plan, because it looked more like a business organizational document, rather than a strategic document.

In December, 2007, S&T submitted a document called Coordination of Homeland Security Science and Technology, which is a compilation of science and technology requirements, gaps, and strategic goals, as well as agency roles, responsibilities, accomplishments, and ongoing activities taken from a variety of existing strategies, plans, and directives. Though I believe this is a useful document, I was hoping for more specifics.

This document provides no estimates of budgetary or resource requirements and provides overviews of programs rather than details of program content. It doesn't describe the process that was used to identify particular topics as an appropriate focus. It also neglects to discuss nuclear threats, which is a curious absence. In fact, the document gives no indication of the relative importance of the 10 chapter topics. It lists short-, mid-, and long-term requirements but

doesn't suggest if we should work on these goals sequentially or simultaneously.

I hope that the Quadrennial Homeland Security Review Process will provide an opportunity to strategically assess the value of the many initiatives under way. Perhaps this is a better format for the Department to address these concerns.

So while I congratulate the Under Secretary for its effort thus far—and he brings, obviously, a wealth of knowledge and experience to the table, and we appreciate his service to the country—I still have to say that we still need additional clarification where the Directorate is headed. I believe that a future S&T Directorate must clarify a role for risk assessments and prioritizing research projects, develop or further define metrics for success and failure of projects, obligate funds in a more timely fashion, enhance transparency, project selection, further define roles and uses of national laboratories and Centers of Excellence, enhance relationships with the DOE national laboratories by allowing competition for both long-term and short-term R&D money, improve responsiveness to industry and develop processes by which industry can become more aware of opportunities at S&T, better define technical requirements, and establish a robust procurement operation within the S&T Directorate.

Just as getting the four P's right was an important first step in ensuring organizational successes, getting these issues right will ensure that the S&T Directorate at DHS will continue to generate products that protect this Nation.

With that, I want to thank Under Secretary Cohen for working with us and this subcommittee; and I look forward to our continued relationship in the future. Again, Secretary, I appreciate you appearing with us today.

With that, the Chair now recognizes the Ranking Member of the subcommittee, the gentleman from Texas, my partner in this effort, Mr. McCaul, for an opening statement.

Mr. MCCAUL. Thank you, Mr. Chairman, and thank you for holding this hearing.

Admiral, welcome back. You are certainly no stranger to this committee.

I want to first commend you for the incredible progress you have made since the time you have come on board. It is truly remarkable. We don't always say that to our witnesses who appear before this committee. We can be pretty hard on them. But I think you have got the best job in the Department.

You know, the science and technology is really going to provide the answers to so many of the Homeland Security, national security issues that we face in this country; and I look forward to hearing from you your vision as to where you want to take this Department in a futuristic way in terms of transforming it and using technology to our advantage.

I will say under your leadership the Directorate has implemented the Integrated Product Team process to better collect and coordinate the DHS operational component needs and capability gaps. In addition, the efforts of the Homeland Security Advance Research Project Agency have been realigned to operate more effectively.

The Directorate, through its Centers of Excellence Program, which I look forward to your testimony on as well, has also worked directly with this country's leading universities and academics; and as someone who represents the University of Texas, I believe that the universities have a critical role to play in a public-private partnership, if you will, with the Federal Government. This will reduce redundancies in research and work toward prioritizing goals.

I commend you again for your service. I am sure that everyone here will agree that, while great progress has been made, there is still a lot of work to be done not just in the Department but here in the Congress as well. We have yet to reauthorize other transactional authority beyond the end of this fiscal year, which in my view is a critical component in allowing the Directorate to work with nontraditional government contractors; and I introduced a bill to provide that authority.

Congress also needs to consolidate oversight authority so that DHS officials can get to work instead of testifying in front of 86 different committees and subcommittees that currently have jurisdiction. That remains really the sole recommendation of the 9/11 Commission yet to be enacted.

This committee also needs to reestablish an annual DHS authorization bill to provide the guidance to the Department.

I hope, Mr. Chairman, that we can work on these issues this year to help ensure that the Department and the S&T Directorate are both ready for the future; and, with that, I yield back.

Mr. LANGEVIN. I thank the gentleman.

The other members of the subcommittee are reminded, under the committee rules, opening statements may be submitted for the record.

With that, I want to welcome our witness, the Honorable Jay Cohen, who is the Under Secretary of Science and Technology at the Department of Homeland Security.

Jay Cohen is a native of New York. He was commissioned in 1968 as an ensign upon graduation from the United States Naval Academy. He has a long and distinguished career with the Navy, commanding several ships and submarines during his tenure. He was promoted to the rank of Rear Admiral in October, 1997. Prior to his arrival at S&T, he served as Chief of Naval Research. Under Secretary Cohen was sworn into his current position at the Department of Homeland Security in August 2006.

Mr. Under Secretary, we appreciate your service to our country, as I have expressed many times in the past; and I welcome you back to this subcommittee.

Without objection, Under Secretary Cohen's full statement will be inserted into the record; and I now recognize him to summarize his statement for 5 minutes.

Welcome, Mr. Secretary.

STATEMENT OF THE HONORABLE JAY COHEN, UNDER SECRETARY, SCIENCE AND TECHNOLOGY, DEPARTMENT OF HOMELAND SECURITY

Mr. COHEN. Well, good afternoon, Chairman Langevin and Congressman McCaul and all the distinguished members of this committee. It is always a great honor and privilege for me to testify

before this committee. I know you have many questions. Thank you for entering my written comments for the record, and so I will make my comments short so that we can address your questions.

But I will say that the Congress and this committee, in establishing the Science and Technology Directorate in the enabling legislation for the Department of Homeland Security set a very high bar and understood, as has already been addressed, the value that science and technology brings to making the Nation safer.

We live in a very optimistic country. When President Kennedy said we were going to put a man on the moon in this decade, we had no idea if we would put a man on the moon. But we believed; we achieved. It is who we are. So I suffer a little bit from the goals and the desires of the Congress and the American people to move faster in all that we are doing. But sometimes science and technology moves at its own pace.

Chairman, your leadership and the rest of the committee and the full committee have been invaluable to me; and the bipartisan support that we enjoy—because in my opinion science and technology is in fact bipartisan, nonpartisan—has been absolutely invaluable to me as we have moved forward.

You have addressed the four P's. I have had the opportunity over the last year-and-a-half to address with this committee and the full committee the initial goals, which were—I call them the four "gets". We had to get the organization right, we had to get the books right, we had to get the people right, and when we did that we could get the content right. Now I believe that that is fundamentally done.

Then I characterized the threats that we face as the four B's; and that was bombs, borders, bugs, and business. You all understand, we all understand bombs, borders, and bugs, but what is business? Business—and, Chairman, you have been very actively involved in this—is the cyber backbone. It is the underlying processes by which our society is enabled; and we only have to look at Symantec and McAfee, Estonia, and the day-in, day-out threats to our way of doing business, communicating, et cetera, to understand the priority that deserves.

Well, we are now a year-and-a-half into it, and I think we have got the four gets about where I can get them. We still face significant threats, and so where we are today with a stable organization are the four P's. The four P's are people, government service people, motivated people, capable people. When I came on board, as you know, fewer than 60 percent manning in government service. Today we are more than 96 percent; and I have no shortage of volunteers, including people who want to work pro bono.

The processes, Congressman McCaul has already addressed the Integrated Product Team. We are customer-focused, output-oriented. Half of my budget goes in 0 to 3 years, spiral development, and my customers are 22 components and agencies, and the customer of my customers, the first responders. Ten percent goes to innovation, high-risk/high-role, prototypical in nature.

I am pleased to inform this committee and inform this committee first that, based on that investment portfolio, last week we just completed the basic research thrust alignment of the 20 percent of the budget that goes to universities and laboratories, the greatness

of America, the discovery and invention, and the two pillars of basic research.

Partnerships, already addressed the national labs; and thank you for letting me leverage them.

International partnerships. We have 6 MOUs, memorandums of understanding, right now. We are negotiating another six. The European Union has come to me twice now and put 1.4 billion Euros on the table because they want to partner in what they call security and we call Homeland Security. This is an area we have reached out, partnerships, and we can leverage what I call OPM, other people's money. When you put those together they equal product. They equal product. That is what we are delivering and will continue to deliver with your help.

So thank you very much for your support. I look forward to your questions. I welcome your oversight. With that I will conclude my comments.

[The statement of Mr. Cohen follows:]

PREPARED STATEMENT OF HON. JAY M. COHEN

APRIL 1, 2008

INTRODUCTION

Good Afternoon Chairman Langevin, Ranking Member McCaul and distinguished Members of the committee. It is an honor for me to appear before you today to update you on the progress of the Department of Homeland Security's (DHS) Science and Technology Directorate (S&T Directorate).

The S&T Directorate is committed to serving our customers—the many components that comprise the Department—and their customers—the hardworking men and women on the front lines of homeland security, especially the first responders, who need ready access to technology and information to perform their jobs more efficiently and safely. I am honored and privileged to serve with the talented scientists, engineers and other professionals who support these dedicated Americans in our shared mission to secure our homeland and defend our freedoms.

First and foremost, I continue to be very appreciative of the leadership of the Congress in its support of the S&T Directorate, and of me personally, as Under Secretary for Science and Technology. I am grateful for the engaged and nonpartisan relationship we enjoy, which is vitally important for the S&T Directorate. The informed counsel of committee Members with homeland security oversight, and that of their staffs, has been invaluable to the Department's efforts to position the S&T Directorate for accountability, tangible results and success, both for today and in the future.

Last year, I told you that to achieve long-term success, the S&T Directorate must get four "gets" right—its organization, its people, its books, and its program content. I also told you that we would concentrate our activities on the four "Bs"—bombs, borders, bugs and business—to stay focused on priority threat areas for the S&T Directorate.

I'm pleased to report that since last year, we have made significant progress in the four "gets" and the four "Bs."

Highlights of this progress include:

- Publishing a strategic plan that provides a framework to guide the Directorate's activities over the next 5 years;
- Strengthening our workforce by increasing Federal staff, implementing training initiatives, and building morale through directorate-wide communications and events;
- Realigning our organizational structure and research, development, test and evaluation (RDT&E) activities to better serve the Department's components and their end users; and
- Establishing a customer-led, Capstone Integrated Product Team (IPT) Process to identify our customers' needs and develop and transition near-term capabilities for addressing them.

This year, I am going to focus on the four "Ps": People, Process, Partnerships, and Product. Fine tuning and sustaining the four "Ps" will ensure that the S&T Directorate achieves enduring success.

The first "P" is for People. That is because once you get the people right, you have to keep the people right. The S&T Directorate will keep the right mix of people by having a solid staffing plan and by being a great place to work. Our employee communications, training opportunities and directorate-wide activities have helped make the S&T Directorate a place where highly skilled professionals want to be. We must sustain this effort.

The second "P" is for Process, because you need a stable and efficient operational foundation to keep an organization, its program content, and its books right. The S&T Directorate will refine and integrate its internal management processes—financial and administrative—to ensure operational excellence and fiscal responsibility. We must also mature those processes that drive the delivery of products to our customers, such as our customer-led Capstone Integrated Product Team (IPT) Process—and continue to support a balanced portfolio for RDT&E activities.

The third "P" is for Partnerships, which are essential for long-term success. The S&T Directorate will build on the international and interagency partnerships it put in place this past year by establishing more formal working agreements and commitments to the development of homeland security science and technology.

The fourth "P" is for Product, because we exist to deliver to our customers' science and technology breakthroughs that will strengthen the security of our homeland.

PEOPLE

The S&T Directorate functions as the Department's science and technology manager. We invest in science and technology that supports DHS component efforts to protect out homeland. To achieve this, the S&T Directorate develops and manages an integrated program of science from basic research and technology innovation through technology transition. The managers of this program are predominantly active scientists and engineers in the many disciplines relevant to Homeland Security. Program investment is guided by a multi-tiered strategy and review process based on higher guidance, customer needs, and technology opportunities.

Our staffing is currently at 93 percent of Full Time Equivalents (FTE). Hiring has been slowed due to the continuing resolution and a reduction in the M&A funding, but we expect to reach our full complement of 381 FTEs by the end of fiscal year 2008. This year we are putting in place a career Senior Executive Service Deputy Under Secretary for Science and Technology to help ensure a seamless transition into the next administration. I'm also pleased to inform you that in the past several months we have received a number of unsolicited employment applications from very qualified individuals. The word is out that the S&T Directorate is making a difference.

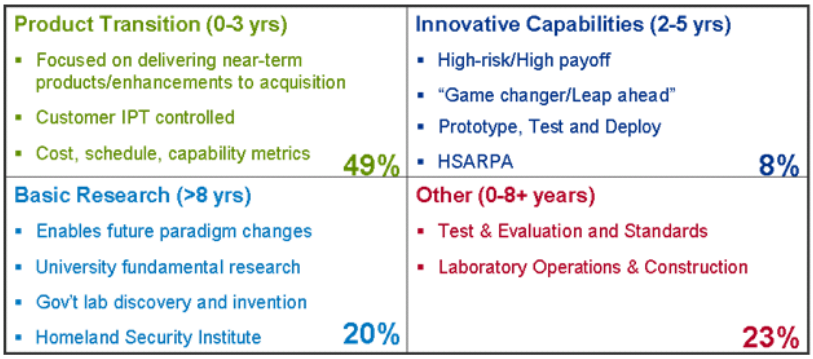
It continues to be very important to me personally that S&T Directorate staff be kept informed of our plans and priorities and that they have a forum for asking questions and expressing their views and concerns. I hold monthly "All Hands" meetings to brief all staff members, including teleconference links with staff in other locations such as the Transportation Security Laboratory in Atlantic City, New Jersey, the Animal Disease Center on Plum Island, New York, the Environmental Measurements Laboratory in New York City, and the National Biodefense Analysis Countermeasures Center in Fort Detrick, Maryland. These meetings also allow me to recognize the achievements of staff members, to answer questions and solicit input, and, most importantly, express my gratitude for their superb work.

PROCESS

I thank Congress for its support of the new organizational structure, which we put in place in September 2006.

This enabled us to re-engineer our management and administrative processes over the last 2 years to reduce the costs of our business operations by more than 50 percent. We accomplished this by implementing several efficiency initiatives to make better use of our resources including converting positions filled by contractors to be civil servants, consolidating office space, and limiting our overhead, which I will continue to cap at 9 percent in fiscal year 2009.

It has also supported a broad and balanced range of activities that are aimed at identifying, enabling and transitioning new capabilities to our customers to better protect the Nation. This is reflected in the President's fiscal year 2009 budget request, which includes $145.1 million for the basic research portfolio; $361.4 million for the transition portfolio; and $58.6 million (including SBIR) for the innovation portfolio.



DHS Science & Technology Investment Portfolio

Basic Research (> 8 years)

The S&T Directorate's basic research portfolio addresses long-term research and development needs in support of DHS mission areas that will provide the Nation with an enduring capability in homeland security. This type of focused, protracted research investment has the potential to lead to paradigm shifts in the Nation's homeland security capabilities.

The S&T Directorate's basic research program enables fundamental research at our universities, government laboratories and in the private sector. I have previously stated a goal to grow this account to approximately 20 percent of the budget; and I am pleased today to be able to say that we have met this goal. Approximately 20 percent of the S&T Directorate's investment portfolio, or $136.2 million, is allocated for basic research in the current fiscal year with 20 percent or $145.1 million planned for fiscal year 2009. It is essential that basic research be funded at consistent levels from year to year to ensure a continuity of effort from the research community in critical areas that will seed homeland security science and technology for the next generation of Americans.

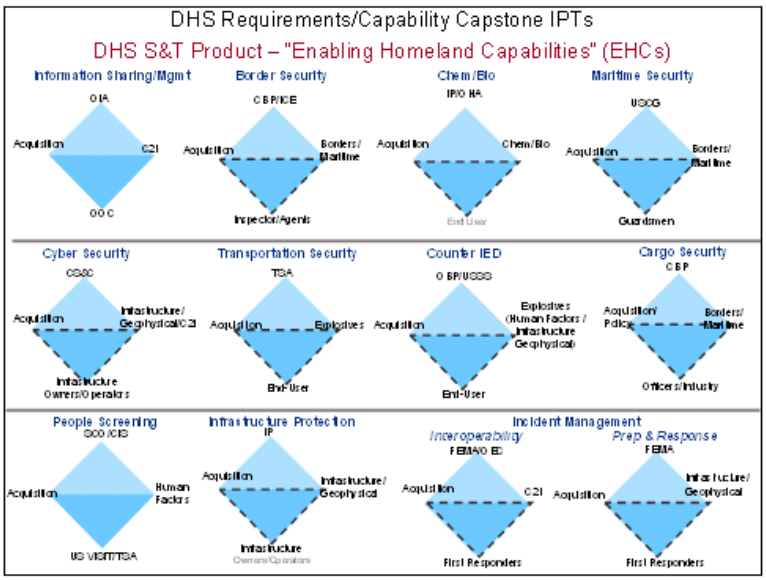
This year, we will focus internally on refining our basic research "thrust areas" and developing better means to measure the effectiveness of the basic research portfolio. I have asked the National Academies to help in this effort.

Product Transition (0 to 3 years)

Development of the product transition portfolio is driven by our customer-led, Capstone Integrated Product Teams (IPTs) that function in mission-critical areas to identify our customers' needs and enable and transition near-term capabilities for addressing them. These Capstone IPTs engage DHS customers, acquisition partners, S&T Division Heads, and end users as appropriate in our product research, development, transition and acquisition activities.

The Capstone IPT process enables our customers to identify and prioritize their operational capability gaps and requirements and make informed decisions about technology investments. The S&T Directorate, in turn, gathers the information it needs to respond with applicable technology solutions for closing these capability gaps. The science and technology solutions that are the outcome of this process, referred to as Enabling Homeland Capabilities, draw upon technologies that can be developed, matured, and delivered to our customer acquisition programs within 3 years.

Our experience over the last year has led us to align our Capstone IPTs structure to 12 major areas: Information Sharing/Management; Border Security; Chemical Defense; Biological/Agricultural Defense; Maritime Security; Cyber Security; Transportation Security; Counter IED; Cargo Security; People Screening; Infrastructure Protection; and Incident Management (includes first responder interoperability).



DHS Requirements/Capability Capstone IPTs

S&T's product transition/IPT process ensures that appropriate technologies are engineered and integrated into the DHS acquisition system for our customers. Approximately 53 percent of S&T's investment portfolio or $376.0 million is allocated for product transition in the current fiscal year with 49 percent or $361.4 million planned for fiscal year 2009.

Innovative Capabilities (2 to 5 years)

The Innovation/HSARPA portfolio supports three important efforts to put advanced capabilities into the hands of our customers as soon as possible: Homeland Innovative Prototypical Solutions (HIPS), High Impact Technology Solutions (HITS) and the Small Business Innovative Research (SBIR) program.

HIPS are designed to deliver prototype-level demonstrations of game-changing technologies within 2 to 5 years. Projects present moderate- to high-risk, with a high-payoff if successful.

HITS are designed to provide proof-of-concept solutions within 1 to 3 years that could result in high-payoff technology breakthroughs. While these projects are high-risk, they offer the potential for "leap-ahead" gains in capability should they succeed.

The Small Business Innovative Research (SBIR) program, which the S&T Directorate manages on behalf of DHS, issues two solicitations each year and generates multiple awards for the small business community. The first solicitation for fiscal year 2008 opened in mid-February and the second solicitation is planned for release in May. The solicitations will address topics in areas that are aligned with the S&T Directorate's six technical divisions.

The Innovation/HSARPA funding request for fiscal year 2008 was $60 million and $33 million was approved in the final Appropriations Act. I do not believe this reduction reflected any lack of confidence in the portfolio on the part of the Congress, but was rather an outcome of the extreme pressure in the Appropriations "end game." Therefore, we are requesting $45 million in fiscal year 2009 for Innovation's HITS and HIPS activities.

Test & Evaluation and Standards

In 2006, I established the Test and Evaluation and Standards Division (TSD). TSD is working closely with DHS Under Secretary for Management as well as all DHS components to develop and implement a robust Test and Evaluation (T&E) policy for all of DHS that will be fully integrated into the Department's Acquisition

Policy. The goal of the T&E policy will be to establish processes to support the evaluation of system efficacy, suitability and safety. TSD has established a T&E Council to allow participation by all components of DHS in promoting T&E best practices and lessons learned in establishing consistent T&E policy and processes for use in acquisition programs throughout DHS. Developmental Testing and Evaluation (DT&E) and Operational Testing and Evaluation (OT&E) are conducted at levels commensurate with validating performance and Technology Readiness Level (TRL) of the system throughout the development process. TRL assessments are initiated early on S&T projects and are performed throughout development to ensure technology is maturing as required and that projects are ready to transition to the DHS components at the appropriate time. DT&E is performed during the developmental phase of a product or system and is concerned chiefly with validating the contractual and technical requirements and the attainment of engineering design goals and manufacturing processes. OT&E focuses on determining operational effectiveness, suitability, and supportability and is performed with production representative equipment, with trained operators in an operational environment by an independent third party.

DHS Acquisition and T&E Policy under development will provide the appropriate review chain both within DHS as well as the approval process for test results and for adequacy of testing. The draft T&E policy that is being developed will require user components to participate in creating, reviewing and signing the Test and Evaluation Master Plan (TEMP). Its primary purpose is to describe the necessary Developmental Test and Evaluation (DT&E) and Operational Test and Evaluation (OT&E) that needs to be conducted in order to determine system technical performance, operational capabilities and limitations. The TEMP is an integrated and agreed-upon plan to ensure that the right tests are conducted and the products are meeting the user requirements. Having the customers involved in the test planning, execution, and reporting for the technology or system under development will ensure that the components are able to use the results and maintain a current knowledge during the product development. The TEMP also addresses the testing laboratories, capabilities, facilities and ranges required for the test program; testing laboratories are accredited/recognized; and independent oversight of the tests are performed. Additionally, when possible DHS ensures independent operational test teams are involved early in the project development to ensure operational shortcomings are identified and corrected as early as possible during development. The test results will be critical in ensuring that DHS products meet the necessary milestones to continue development.

While the T&E Policy is being finalized, DHS development programs are moving forward with the assistance and guidance of TSD in designing T&E protocols to assess whether systems meet standards, technical specifications and some operational requirements. It is the Department's objective to prepare standard T&E master plans, test plans and test reports to document the planning, execution and reporting phases of the testing. Test plans are required whether the research project is being conducted internally or externally to S&T. Red Teaming will be included in the test plans as required and be employed post-deployment when appropriate.

The DHS components working within the DHS Capstone IPT process ensure that the user needs are addressed in the research as well as the testing and evaluation. End user needs are incorporated in the planning and design of the tests. All tests will be performed to component requirements or DHS adopted standards. Reports of efficacy, safety, and suitability are assessed against test criteria which are developed with Component input.

TSD is also developing an accredited/recognized test capability, with the goal of testing all products in accredited/recognized facilities. The accreditation/recognition process is under development and facilities are currently being identified that are capable of conducting different aspects of the testing process. Accomplishing independent testing in realistic operational environments will better assess product effectiveness and suitability. Test results from the above process will allow decisionmakers to formulate better judgments concerning readiness for transition to the next phase of development or deployment.

TSD has an effort under way to ensure that once testing is completed both components and first responders have access to product performance evaluations. T&E results will be placed on the Responders Knowledge Base (RKB) that is funded and managed by FEMA. In addition to posting the results on the RKB, the DHS T&E policy will provide standard report formats to ensure that the results are useful including system limitations and capabilities.

In the area of standards, I would to like mention our efforts to implement the DHS Standards Policy through the development of a standards infrastructure and the issuance of guidance. Just as with T&E, we have established a Standards Coun-

cil. TSD and the Standards Council have developed and distributed guidance on the participation in the development and use of non-government standards. We continue to evaluate and adopt voluntary consensus standards in support of the Homeland Security Grant Program as well as key initiatives such as National Preparedness. Our standards development program continues its successful support for research on standards to support national needs in homeland security. In August 2007 the Office of Standards published its first Annual Report which documents the work and accomplishments of the previous year. In the years ahead we will be focusing on refining our investments to reflect the evolving challenges facing the Department, utilizing S&T's new operating model and the outputs from the Capstone IPTs. The range of projects includes trace and bulk explosives detection, biometrics, credentialing, chemical and biological countermeasures, responder protective equipment and many more. The standards office engages experts from the DHS components and a variety of Federal partners, and leverages the outstanding work of private sector standards development organizations.

PARTNERSHIPS

Over the past year, we have built partnerships that have helped us align our efforts within the S&T Directorate, across the Department, and with our public and private partners around the world. Within the Directorate, we have developed and published the S&T Strategic Plan that provides the strategy and planning framework to guide the Directorate's activities over the next 5 years. Through the Capstone IPT process, we have aligned our transition portfolio to our customers' needs. In basic research, we have aligned our university-based Centers of Excellence and, as a result of a meeting I held with the Directors of the Department of Energy (DOE) National Laboratories in May 2007, the National Laboratories to our six technical divisions to focus this enormous capability more closely on the fundamental knowledge gaps that limit our customer-oriented applied research programs. We announced five new COEs on February 26, 2008, which will further satisfy the Directorate's need for university-based fundamental research.

Over the past year my Office of Interagency Programs (and First Responder Liaison) has worked very closely with DoD to develop and enhance information-sharing opportunities. Among the accomplishments were the development of an implementing agreement among the partners and a senior level DHS-DoD working group. These accomplishments will help ensure the best use of resources while avoiding duplication of effort and will promote further cooperation among our partners. The first S&T liaison position within the California Governor's Office of Homeland Security was also established to enhance interagency efforts with our customers. Many of the experiences of this successful pilot were used as a working model for engaging with our Federal, State, local and tribal customers We will continue to conduct national interagency outreach through site visits, meetings, conferences and symposia to promote Federal, State, Local, and Tribal interoperability, collaboration, and coordination in the area of Science and Technology.

We also developed the *Coordination of Homeland Security Science and Technology* document that establishes the baseline for the efforts of the entire Federal Government homeland security research and development community. This document lays out the roles and responsibilities of Federal agencies as well as initiatives already under way to counter threats to the homeland. It identifies strategic goals through 2015 and intermediate steps to achieve those goals, and is the first step in developing a more prescriptive plan that will guide the efforts of all participants in the Homeland Security Science and Technology enterprise. For the next steps in the development of that plan, I intend to work with the Office of Science and Technology Policy's National Science and Technology Council to utilize standing processes and committees, specifically the Committee on National and Homeland Security, which I co-Chair. Continued development of the plan concurrent with the Quadrennial Homeland Security Review beginning this year will play an important role in helping align strategies and missions to adapt to a fast-changing world and an ever-evolving enemy.

Industry is a valued partner of DHS S&T and its continued participation in developing solutions for homeland security applications is vital to our effort to safeguard the Nation. Consistent with S&T's new structure, our Innovation/HSARPA portfolio and six technical divisions will be releasing BAAs that seek industry participation to address specific challenges in their respective areas. For example, Innovation/HSARPA has already posted BAAs for projects that cross all six divisions, seeking prototype or proof of concept demonstrations within 1–5 years.

Innovation/HSARPA plans to release additional BAAs as new technology developments permit and as new gaps in capabilities for homeland security are identified.

We have issued a Long Range BAA (08–01) that will remain open throughout the fiscal year. This BAA allows both national and international public and private sector providers to offer solutions to a very broad range of gaps and requirements. As I have often said, no one knows where good ideas come from and for that reason I have been personally proactive in both seeking out and receiving technology briefs and opportunities from all sources. This is a culture I am working to instill throughout the DHS S&T Directorate.

Additionally, DHS S&T has held several Stakeholder Conferences to foster business partnerships with key customers and partners, including industry, Federal, State, and local government leaders, and academia. The Command, Control, and Interoperability Division also held their annual Industry Roundtable to engage industry leaders on the future of communications interoperability issues.

The Support Anti-terrorism by Fostering Effective Technologies (SAFETY) Act of 2002, administered in the S&T Directorate, continues to be a valuable tool in expanding the creation, proliferation and use of cutting edge anti-terrorism technologies throughout the United States. During fiscal year 2007, the Office of SAFETY Act Implementation achieved an increase of 81 awards, an 83 percent increase over the total cumulative number of approvals attained over the previous 3 years of the program. Approximately 86 percent of the approved awards during fiscal year 2007 have relevance for the classes of capabilities and needs identified by the Science and Technology Capstone IPTs. The number of applications was up 63 percent, while processing time has been reduced 31 percent. The career Federal staffing level of the SAFETY Act office was increased to three, thus providing more continuity of leadership, and permitting more attention and a quicker response to individual applicants. I am mindful of the interest in this program in the Congress and across the Nation.

As part of our outreach efforts to encourage greater industry participation, the Directorate held the first Homeland Security Science & Technology Stakeholders Conference in May 2007 here in Washington. We were partners in a conference in London last December that focused on international outreach. And we held a conference in Los Angeles in January 2008, focused on "Putting First Responders, First." On March 19 and 20, we sponsored the second University Programs Summit here in Washington, an event at which participants will show off the results of their fantastic research at the colleges and universities that are part of the Homeland Security University Centers of Excellence. We will have another industry stakeholders' conference in Washington, June 2–5, 2008. I invite you and all elected Members and staffs to attend these events so you might see for yourself the power of innovation and technology in making our Nation safer.

I also know that we must look beyond our Nation's borders, for solutions to combating domestic terrorism. Therefore, consistent with DHS enabling legislation and the recent *Implementing the Recommendations of the 9/11 Commission Act*, the International Programs Division is responsible for coordinating international outreach efforts to help us tap into science and technology communities across the globe. We have proactively pursued bilateral technology and programmatic cooperation with my counterparts in the United Kingdom, Canada, Australia, Sweden, Singapore, the European Union, Germany, Mexico, France, Japan, and Israel. Formal agreements currently exist with Canada, the UK, Australia, Sweden and Singapore. With our current partners, we have twenty concrete projects in a number of high priority research areas including air cargo explosive detection, chemical and biological countermeasures, visualization and analytics, critical infrastructure protection, and incident management. In addition to these projects, active information sharing with our foreign partners has reduced duplication of research efforts, streamlined project development, and synergized the expertise of the broader international community to produce mutually beneficial results. The International Programs Division maximizes these relationships across the U.S. Government through active coordination with DHS Components and other agencies, including the Departments of State and Defense. Embedded S&T liaisons in Europe, the Americas and Pacific/Asia cast a wide global net to seek out new science and technology solutions with current and prospective partners. Annual academic grant competitions are open to the global community and provide worldwide access to cutting-edge S&T research in support of our homeland security mission. S&T is actively engaging with partners across the globe to develop coordinated efforts and joint solutions to our shared security challenges.

PRODUCT

I am committed to best apply across the S&T Directorate the resources you have wisely provided in ways that best serve the American people and better secure our

homeland. Your support over the last year has allowed us to "hit our stride," and I humbly ask for your continued trust and support of the President's fiscal year 2009 budget request to allow us to build upon that momentum. The following are a few examples of products we have developed and in some cases transitioned to our customers.

Border and Maritime Security

- Developed a lightweight shipping container with embedded security features within its walls, doors and floor to detect intrusions. Shippers benefit from weight savings by allowing them to load more goods per container, encouraging the use of these more secure containers.
- Conducted a joint test of the Marine Asset Tag Tracking System (MATTS) with Japan. When fielded, MATTS will provide the ability to track shipping containers in near-real time from their origin to final destination using a remote global communications and tracking device interfaced with sensors that detect container breaching.

Chemical and Biological

- Completed the Project BioShield material threat determinations for all traditional biothreat agents of significant public health concern. Such determinations are required before the authorized use of the BioShield Special Reserve Fund to procure new medical countermeasures.
- Transitioned BioWatch Generation 1 and Generation 2 operations to the Office of Health Affairs (OHA).

Command, Control and Interoperability

- Combined several government-funded testbeds to increase cybersecurity capabilities to create a realistic model of the internet on which to test cybersecurity technologies.
- Assisted States in identifying and implementing effective State-wide technical interoperability solutions; conducted piloted programs to assess and demonstrate data and video technologies in real-world environment.

Explosives

- Evaluated and tested commercial off-the-shelf systems capable of detecting homemade explosives to find the most effective existing technologies.
- Completed a system false alarm analysis of deployed check baggage technology and provided results to the Transportation Security Administration (TSA).

Human Factors

- Developed a database of public needs that were unmet during Hurricanes Katrina and Rita and made recommendations to address those needs during future emergencies.

Infrastructure and Geophysical

- Developed a risk-informed decision support system. The system provides information for making critical infrastructure protection (CIP) decisions by considering all 17 critical infrastructure sectors and their primary interdependencies, and computing human health and safety, economic, public confidence, national security, and environmental impacts. Built out CIP-Decision Support System (DSS) to include cyber-disruptions, nuclear event, and physical/natural disaster disruption scenarios.
- Developed the system requirements and designs for a first responder 3D location system for tracking personnel that provide incident commanders situational awareness through accurate location and monitoring inside threatened buildings, collapsed buildings, and subterranean areas.

Innovation

- Initiated Homeland Innovative Prototypical Solutions (HIPS) to deliver prototype-level demonstrations of game-changing technologies in 2 to 5 years. These projects are moderate-to-high risk with high payoff potential.
- Started High Impact Technology Solutions (HITS) to provide proof-of-concept answers that could result in high technology breakthroughs. These projects have the potential to make significant gains in capability; however, there is a considerable risk of failure.
- Built upon the efforts in Explosives and demonstrated the ability of sensors based on a high altitude platform to detect the launch of and track MANPADS.
- Investigated various technologies including probe systems to be installed on the cranes that on-load and off-load ship-carried containers, sensors and container

materials to improve the effectiveness and efficiency of the screening of cargo containers.

Laboratory Facilities

- Managed the operations and maintenance of specialized DHS laboratories and infrastructure including the Plum Island Animal Disease Center (PIADC), portions of the National Biodefense Analysis and Countermeasures Center (NBACC), Chemical Security Analysis Center (CSAC), Transportation Security Laboratory (TSL), and the Environmental Measurements Laboratory (EML).
- Began operation of the NBACC facility as a federally Funded Research and Development Center (FFRDC).
- Started construction of the Chemical Security Analysis Center (CSAC).
- Conducted the conceptual design of the National Bio Agro Defense Facility (NBAF), which will be an integrated animal, foreign animal, and zoonotic disease research, development, and testing facility that will support the complementary missions of DHS and U.S. Department of Agriculture (USDA). Down-selected potential sites for the NBAF.

Test & Evaluation (T&E) and Standards

- Continued to develop standards for an integrated chemical, biological, radiological, nuclear, and explosive (CBRNE) sensor.
- Completed multi-modal biometrics standards, including standards for latent fingerprint analysis, rapid biometric evaluation, and biometric image and image feature quality.
- Developed performance standards for emergency responder locator communications in collapsed structures. These standards will apply to new signal processing technologies that allow amplification of weak signals through rubble from collapsed structures.

Transition

- Aligned and coordinated the Directorate's transition effort with the Departmental component's requirements through the use of Capstone Integrated Product Teams (IPT) and provided support and analysis to the customer-led IPTs in developing prioritized science and technology capability gaps based on their experience and projected requirements.
- Conducted a Marine Asset Tag Tracking System (MATTS) test and workshop/conference on results with Japan and conducted a bi-national S&T exercise with Sweden to identify and describe transformational approaches to mitigating the effects of improvised explosive devices in mass transit systems.

University Programs

- Established five new DHS Centers of Excellence (COE) and developed a number of efforts to improve the capabilities of Minority Serving Institutions (MSIs) to conduct research in areas critical to homeland security and to develop a new generation of scientists capable of advancing homeland security goals.
- Provided scholarships for undergraduate and fellowships for graduate students pursuing degrees in fields relevant to homeland security.

FISCAL YEAR 2009 BUDGET OVERVIEW

The S&T Directorate's fiscal year 2009 budget request reflects the refinement of our four "Ps" and a commitment to the S&T investment portfolio. The request of $868.8 million is approximately 5 percent over the fiscal year 2008 appropriation and 9 percent over the fiscal year 2008 request.

Program, Project, and Activity (PPA)	FY 2008 PB	FY 2008 Enacted	FY 2009 Request
Management and Administration	**142.6**	**138.6**	**132.1**
Borders and Maritime	25.9	25.5	35.3
Chemical and Biological	228.9	208.0	200.4
Command, Control and Interoperability	63.6	57.0	62.4
Explosives	63.7	77.7	96.1
Human Factors	12.6	14.2	12.5
Infrastructure and Geophysical	24.0	64.5	37.8
Innovation	59.9	33.0	45.0
Laboratory Facilities	88.8	103.8	146.9
Test and Evaluations, Standards	25.5	28.5	24.7
Transition	24.7	30.3	31.8
University Programs	38.7	49.3	43.8
Research, Development, Acquisition and Operations	**656.5**	**691.7**	**736.7**
S&T Total	**799.1**	**830.3**	**868.8**

The Management and Administration request reflects several efficiency initiatives to make better use of its resources and better accounts for program activity costs at the laboratories. The Research, Development, Acquisition and Operations request is primarily based on the increased support for the development of additional technologies for specific high-priority, customer-identified needs identified during the S&T Capstone IPT process.

Administration (M&A)

The S&T Directorate requests $132.1 million for M&A in fiscal year 2009. This is a decrease of $6.5 million from the fiscal year 2008 budget request. This reflects a shift of $14 million and 124 positions to the Laboratory Facilities PPA combined with a $7.5 million increase to fully fund our planned FTEs.

Research, Development, Acquisitions, and Operations (RDA&O)

The S&T Directorate requests $736.7 for RDA&O in fiscal year 2009. This is an increase of $80.2 above the fiscal year 2008 budget request and $45.0 above the fiscal year 2008 appropriation. The following is a summary of the fiscal year 2008 to fiscal year 2009 changes—many are due to the increased support for the development of additional technologies for specific high-priority, customer needs identified during the S&T Capstone IPT process, specifically:

Borders and Maritime Security

The fiscal year 2009 program increase of $9.4 million above the fiscal year 2008 request allows the development of additional technologies for specific high-priority, customer-identified needs identified during the S&T Directorate's Capstone IPT process. The increase will allow for the development of technologies for advanced detection, identification, apprehension and enforcement capabilities along the maritime borders that support a framework that includes Coast Guard partners for rapid, coordinated responses to anomalies and threats. A science and technology investment in these areas will provide significant risk mitigation complementary to proposed major acquisition efforts such as the Coast Guard's Command 21 program. This increase will also provide tools and technologies to border security and law enforcement officers allowing for efficient, effective and safe vehicle and vessel inspections. These tools will improve Coast Guard boarding teams' and Border Agents' effectiveness and enhance officer/agent safety while searching vessels/vehicles.

Chemical and Biological

The fiscal year 2009 program decrease of $7.6 million from the fiscal year 2008 appropriation is in large part due to the BioWatch Gen 3 Detection Systems and Detect-to-Protect Triggers and Confirmers projects within the Surveillance and Detection R&D Program of the Biological Thrust area coming to an end in fiscal year 2009. Also, the Autonomous Rapid Facility Chemical Agent Monitor (ARFCAM) and Low Vapor Pressure Chemicals Detection System (LVPCDS) projects in the Detection program of the Chemical Thrust area are ramping down to end in fiscal year 2010.

Command, Control, and Interoperability

The fiscal year 2009 program increase of $5.4 million over the fiscal year 2008 appropriation funds the development of additional technologies for specific high priority customer-identified needs identified during the S&T Directorate's Capstone IPT process. The increase in Cyber Security R&D will allow the division to address Supervisory Control and Data Acquisition (SCADA) and Process Control Systems (PCS) security increasing the protection and improving the resiliency of the electric distribution grid. These systems will proactively manage threats by identifying and responding to vulnerabilities and threats before they are maliciously exploited to significantly impact critical infrastructure. They will also provide autonomy of operations that can quickly respond to natural disasters and security events and address new vulnerabilities.

Explosives

The increase in the fiscal year 2009 request of $32.4 million over the fiscal year 2008 request supports Counter-IED Research, which includes Vehicle Borne Improvised Explosive Device/Suicide Bomber Improvised Explosive Device (VBIED/SBIED) Program, the Render Safe Program, and the Detection and Neutralization Tools Program. The increase in funding in the Counter-IED Research will allow the Explosives division to improve large threat mass detection in such areas as the transit environment, special events and other large areas.

The implementation of Homeland Security Presidential Directive 19 (HSPD–19), *Combating Terrorist Use of Explosives in the United States*, requires new science and technology solutions to address critical capability gaps in the areas of deterring, predicting, detecting, defeating, and mitigating the use of IEDs in the United States. The Office for Bombing Prevention (OBP) is currently assessing the Nation's ability to address this threat and is developing a prioritized set of technology gaps. The S&T Directorate is working with OBP to support basic science and develop technologies for the following kill chain:

- Deter: Actionable Social and Behavioral Indicators of IED Attacks; Intent-based Countermeasures;
- Predict: IED Target Projections; IED Staging Area Projections; Anomalous Behavior Prediction; Suicide Bombing Prediction; Deceptive Behavior Screening; Multi-Modal Behavioral & Biometric Screening;
- Detect: Suicide Bomb Detection; Technology Demonstration & System Integration; VBIED Detection; Canine R&D; Tagging R&D; Standards;
- Defeat: Electronic Countermeasures; Robotics; Render Safe & Diagnostics; Directed Energy; Post Blast Forensics; Forensic Marking; Bomb Components; Outreach; and
- Mitigate: Blast Mitigation; Body Armor; Inerting.

We are performing valuable work to improve methods of detecting explosives threats on people, in personal items and in cargo. As part of the Checkpoint Program, S&T's Explosives Division is working with TSA to complete test and evaluation efforts on the Whole Body Imaging system that could help operators of checkpoints better identify potential threats. We are also conducting tests to enhance the screening of carried baggage and personal items. We are conducting Operational Test & Evaluation (OT&E) of the Fido II Explosives Detection System and currently have units deployed at multiple airports in the United States. The portable detection system has been enhanced to detect liquid explosive components and will be used by TSA to counter the growing threat liquid explosives pose to transit security. This effort is complemented by our significant work to characterize the homemade and liquid explosives threat, which has included live fire tests to assess potential damage and the efficacy of hardening materials.

In addition to addressing the risk of catastrophic loss resulting from IEDs in carry-on baggage or at public events, our Explosives Screening Program is identifying and developing the next generation of screening systems which will support continuous improvements toward the congressionally directed goal of 100 percent screening of aviation checked baggage by electronic or other approved means with minimum or no impact to the flow of people or commerce. We have continued our work on the Manhattan II and began test and evaluation efforts of the system's ability to identify real explosive devices, both homemade and conventional. We have also worked with industry to develop a common performance standard for coupling algorithms and hardware. Another part of our effort is the Air Cargo Explosives Detection pilot program. We began operations at San Francisco International Airport and at Cincinnati-Northern Kentucky International Airport, and launched and completed operations at Seattle-Tacoma International Airport. At all locations we are capturing vital information for TSA, including data on the costs of running a system capable of screening amounts of cargo above current levels, including equipment

needs, staff requirements, and system upkeep, in addition to the impacts of these upgrades to overall airport operations. This data can be extrapolated to airports nationally, based on, among other things, the amount of cargo they handle and airport size. It will also allow TSA to develop operational plans that incorporate proven ways to screen air cargo while maintaining an effective and efficient air transport system.

Human Factors

The budget request for fiscal year 2009 is $12.5 million, which is $1.7 million less than the amount enacted for fiscal year 2008. In fiscal year 2008, the Human Factors Division received funds for the Institute for Homeland Security Solutions (IHSS) to conduct applied technological and social science research. In fiscal year 2009, the Human Factors Division is not requesting any funds for IHSS. The Division still intends to support efforts that address high-priority capability gaps in biometrics and credentialing, suspicious behavior detection, hostile intent determination, group violent intent modeling, and radicalization deterrence as identified by customers through the Capstone Integrated Product Team (IPT) for People Screening and the Technology Oversight Group (TOG), chaired by the Deputy Secretary. Two other Capstone IPTs, Border Security and Explosives Prevention, also identified Suspicious Behavior Detection as critical to meeting their respective high-priority capability gaps.

Infrastructure and Geophysical

The fiscal year 2009 request of $37.8 million is an increase of $13.8 million over the fiscal year 2008 request to fund several new program areas specifically identified by our customers, with efforts focused on high priority technology gaps in the areas of Infrastructure Protection and Emergency Incident Management. Specifically, funded efforts will improve the protection of our critical infrastructure by providing technologies for hardening these vital critical infrastructure assets and for rapid response and recovery for critical infrastructure assets to limit damage and consequences and allow for normal operations to be resumed more quickly than would otherwise be possible.

Innovation

The fiscal year 2009 program increase of $12 million reflects an increase in scope of existing programs as they mature and might allow for additional projects that would address gaps identified by the S&T Capstone IPT process. These projects are high-risk in nature but would dramatically increase capabilities in responding to threats posed by terrorism and natural disasters. The high-risk factor means that the Office of the Director of Innovation requires flexibility in the projects it funds. These projects will reach critical decision points to continue or stop. New projects are always under consideration, and the fiscal year 2009 request will potentially fund new projects or current ones that justify further development based on results.

Laboratory Facilities

The fiscal year 2009 request of $146.9 million is an increase of $43.1 million over the fiscal year 2008 appropriations. The S&T Directorate intends to cover the fiscal year 2009 operations and maintenance (O&M) startup costs of the new NBACC facility. These costs include the installation and outfitting of portable laboratory equipment and furnishings and funding interim space lease. Also in fiscal year 2009, the S&T Directorate intends to move the remaining functions of EML into much smaller office space in the same building or another General Services Administration (GSA) facility in the New York area and pay for a one-time cost for final cleanup of EML space (e.g., final disposal of contaminated material, removal of fume hoods, large exhaust ducting, furnaces, and shielded spaces). Also, the Directorate will begin a detailed design of the National Bio and Agrodefense Facility (NBAF) which will support the initiation of construction in fiscal year 2010.

The increase also reflects a transfer of funds from Management and Administration to the Laboratory Facilities PPA to pay for salaries and benefits of FTEs located at the laboratories. All Homeland Security laboratory employees work on RDA&O products. The shift of laboratory FTEs into the RDA&O account better reflects the actual Science and Technology RDA&O program costs.

University Programs

In fiscal year 2009, the S&T Directorate is requesting $5.5 million less for its University Programs. This decrease reflects no funding request for the Naval Post Graduate School and a reduction to the educational programs within the S&T Directorate that fund scholars and fellows in homeland security-related fields.

Transition

The fiscal year 2009 program increase of $1.5 million will support a DHS competition for a new federally Funded Research and Development Center (FFRDC). The FFRDC will provide discreet, independent, and objective analysis to inform homeland security policies and programs and ensure continuity of FFRDC support.

Test Evaluation and Standards

The S&T Directorate requests $3.8 million less for fiscal year 2008 than enacted for fiscal year 2008. This decrease is the result of having initiated the independent peer review program in fiscal year 2008 and the program will therefore not need additional funding in fiscal year 2009. The S&T Directorate is also implementing a reallocation of funds by the TOG during the Capstone IPT process.

CONCLUSION

In conclusion, I am pleased to report that the S&T Directorate is well positioned today to mobilize the Nation's vast technical and scientific capabilities to enable solutions to detect, protect against and recover from catastrophic events.

We appreciate the many demands on the taxpayers' precious dollars and you have my continued commitment that the S&T Directorate will be wise stewards of the public moneys you have entrusted to us. We are steadfast in our resolve to serve the best interests of the Nation by investing in the talent and technology that will provide America with a sustainable capability to protect against acts of terror and other high-consequence events for generations to come.

Members of the committee, I thank you for the opportunity to meet with you today. I truly believe that through Science and Technology can come Security and Trust, and I look forward to working with you to meet our homeland security challenges with a renewed sense of purpose, mission and urgency in the last year of the administration.

Mr. LANGEVIN. Secretary, I want to thank you for your testimony, and look forward to a vigorous round of questions and I know substantive answers.

I remind each member that he or she will have 5 minutes to question the panel, and I will now recognize myself for 5 minutes for the purpose of questions.

Secretary, let me begin with this. Do you agree with the assessment of HSI that I expressed in my opening statement, namely that it appears not to have progressed sufficiently toward achieving more core competency in specific areas of interest to the Department of Homeland Security? With that, will you provide us with a comprehensive review justifying the need for a federally Funded Research and Development Center? Additionally, would you commit to openly compete the next contract if Congress does reauthorize HSI?

Mr. COHEN. Well, Congressman, or Chairman, I will answer those in reverse order.

First of all, if reauthorized, I will fully and openly compete HSI; and that is the process, as you know, I have used in all of our various selections.

To answer your first question, has it progressed sufficiently? The answer is, it is progressing. When I came on board, the model was much where HSI proposed projects. That is not my model. We needed to know the deficiencies, the shortcomings of the customer and then have HSI respond to those. So my model of HSI is much like the Center for Naval Analysis or the Naval War College. You give them a base program to bring on board the intellectual capital, but then you use mission funding from the customers for specific projects.

Finally, we will be glad to provide the accomplishments to date; and you will see how HSI, I believe, in the last year to year-and-

a-half has gotten it, but they will have to compete should it be reauthorized.

Mr. LANGEVIN. Thank you.

Let me turn to this. In the past, S&T directors placed an emphasis on countering threats such as biological and nuclear attacks which have low probability but high consequence. The bulk of S&T money has often gone to fund these projects, and this year we have heard that increased funding is needed for countering improvised explosive devices because of their high probability. Has your thinking changed on the relative importance of probability and consequence? On what basis should Congress and the administration determine the relative priorities of responses to different threats?

Mr. COHEN. Well, Chairman, that really is the $64,000 question; and we have discussed this previously. As you know, we would like to follow a risk-informed decisionmaking process. Today we have actuarial tables for fire and flooding and earthquakes, and they are based on history and the 500-year flood. But why do bad people do bad things to perfectly good bridges and roads and buildings and infrastructure? We don't know why.

So this is why I have gone—really at your behest, sir, and thank you for directing me—to the National Academy's Dr. Cicerone. We have met several times—I can provide for the record the letter following our last hearing—asking the National Academies to help us determine three areas that I think are unique to Homeland Security, hostile intent, psychology of terrorism, but, most importantly, what is the methodology for risk-informed decisionmaking?

When the Department was stood up, the budget in S&T was one-third nuclear, one-third biological and one-third everything else. DNDO has been spun off, as you are aware, and so I don't have nuclear radiological responsibilities. We have transitioned BioWatch 2, and we are very close on BioWatch 3, but other threats have developed.

I am very appreciative of the Congress for kick-starting in a very difficult year counter IEDs—it is a weapon of mass influence—with $15 million. The President added $35 million, as you know, in the fiscal year 2009 budget. So what we are trying to do is, based on real-world situations, intelligence and our experience, adjust the budget.

Bio was down slightly, by $202 million. IEDs are up in this budget by about $50 million. We are looking across the spectrum of threats. But this is an area that will remain a work in progress, and I look forward to the interaction and response from the National Academies.

Mr. LANGEVIN. Fair enough.

We have talked a lot about strategic plans here. Can you answer a few questions for us about the intent of the coordination document? Is it a strategic plan? How should Congress use this document? How is the interagency process working to get the Homeland Security Act strategic plan finished? What can Congress do to help move this process forward?

Mr. COHEN. Well, Chairman, as always, that is an excellent question. In enabling legislation, the Congress very wisely—and I testified to this—said that the S&T Directorate at Homeland Security was not to recreate National Institutes of Health, National

Science Foundation, DOD or DOE laboratories. But, in exchange, I got to leverage everything that they can do. I can't set their requirements. But to the extent they invest, I get to add my precious dollars to focus on my customers and the first responders.

When I testified last before this committee I explained to you that we had attempted more than a coordination document, as required by the enabling legislation, amongst all of the departments and agencies of government, and that that was a bar too high. We could not get concurrence. But what I was able to get and delivered to you last calendar year, as I committed that I would, was the concurrence of all the other departments for coordination.

So it is not a strategic plan. I do not advertise it as a strategic plan. I would tell you it is a first step. I think that it defines and allows all of those agencies to come to the table so that they can contribute to making the Nation safer.

We have two recent models, HSPD–19, which is counter-IEDs, executive order from the President. It said, for IEDs in the homeland, Department of Homeland Security and Department of Justice are responsible; and it put the principal S&T responsibility on me. That is why the Congress plussed me up $15 million and the President added $35 million in fiscal year 2009; and we are coming forward with very clear roadmaps, transitions, strategic plan for that.

But in HSPD–23, a much larger initiative, which is the national cybersecurity initiative, which affects all of government, there the responsibility falls with OSTP, the Office of Science and Technology Policy, Dr. Marburger; and there I am a player, I am a contributor.

So there are two models. If you want specific accountability for a defined narrow problem, then you give it to an agency, they coordinate with others. If you have a more massive problem without the authorities to direct other agencies or their budget, then the best you can do in our system—and I think the Founding Fathers were wise in this—is coordination. But then hold the lead department accountable.

So I hope that answers your question. But this coordination document was really to get it on the table, identify the needs, and then see where we can go in the next step.

Mr. LANGEVIN. What can Congress do to help you move the process forward?

Mr. COHEN. Well, Chairman, thank you for asking.

I think you and your staff are familiar with the Congressional Research report for Congress which came out on February 1, the DHS Directorate of Science and Technology Key Issues for Congress. I am a big fan of the Congressional Research Service; and Ron O'Rourke, as you know from our shipbuilding days, keeps a very close eye on what defense is doing.

I went and had Mr. Shea and Mr. Morgan for lunch the very next week to discuss their findings; and they, I think, correctly summarize in an objective way the structural problems that this 5-year-old agency—I call it this incredible experiment in nuclear fusion where we took 22 very disparate agencies and brought them together, and why we did that, we did that to eliminate seams, and that was the right thing to do, because terrorists and criminals will always take advantages of seams.

But we have built in some structural problems. The Congress is well aware, because of my challenges with commitments and obligations of getting money out the door, that in a matrixed organization if you don't control acquisition, as I enjoyed in Navy, so I was one-stop shopping, including, Congressman McCaul, other transaction authority, which rightfully needs to be very closely monitored—but we need to have it in S&T. If the matrixed organization doesn't understand that their success is based not only on their metrics as a contracts officer with Federal acquisition but also the supported components so that we can accomplish our mission, then you have difficulties in assigning accountability.

This is an area that I am personally engaged in. As you know, we brought our obligations up to over 75 percent in fiscal year 2007 because of the continuing resolution. I am a little bit behind. But the team effort—I call it leadership by embarrassment—I will get that team on board even though I don't have the authorities, so that by the end of the year our obligations are better than they were last year.

But we need to look at, as we come to the end of this administration, what the next round are for refinement of these processes that perhaps had been suboptimized in the Department.

Mr. LANGEVIN. Thank you, Secretary.

The Chair now recognizes the ranking member of the subcommittee, the gentleman from Texas, for 5 minutes.

Mr. MCCAUL. Thank you, Mr. Chairman; and thanks again, Admiral, for being here.

I want to—I enjoyed your testimony, particularly your reference to the acronym OPM, which I have not heard before, other people's money. I guess that is what we spend up here. I like it when you spend other people's money, not from our American taxpayer. That is very good news. I think that is great progress.

I also want to commend your director of R&D on cybersecurity. He is participating on the commission that Chairman Langevin and I started that is a nonpartisan commission to make recommendations to the next administration on cybersecurity. He is doing a fantastic job.

I had several questions, and I want to start with what you touched upon, another acronym, OTA, other transactional authority. I introduced a bill to reauthorize this ability for you to transact and contract with companies, maybe smaller businesses that aren't exactly traditional contractors. Could you tell this committee why that authority is important to your efforts and what could we do to improve it?

Mr. COHEN. Yes, sir.

S&T, science and technology, is unique in the Federal Government; and the Congress has recognized this over many, many decades. It is the strength of America. You have given S&T, independent of the Department, tools that other parts of research and development or acquisition may not enjoy.

Small Business Innovative Research, 2.3 percent. I love the program. It is ma and pa's in garages all around America. We go out with various fairs, et cetera. You may be familiar with the Dazzler. This has been shown on TV. It is the seasick machine. So now we have a nonlethal weapon that our first responders can use. Instead

of "Don't Tase me," people will say "Daze me." That came out of SBIR.

OTA, other transaction authority, is another one of these authorities that is critically important.

Congressman Pascrell in one of my very first hearings encouraged me, along with Congresswoman Lowey, to have a sense of urgency because we don't know when the next attack will come. Now I answered Mrs. Lowey and I reminded her we were both New Yorkers, which is close to New Jersey, sir, and I don't remember anyone using the word "patience" with a New Yorker. But OTA gets to the urgency of the problem.

Now as I remember—and I am not an acquisition specialist—there are three criteria for OTA. One is nontraditional performer. That company, independent of size, has not previously dealt with the Federal Government. They are hard to find, but when you find them they have got pearls to offer as solutions.

I used that once. I used that once in ONR; and that was for the X-Craft, the Sea Fighter. We went from keel laying to delivery in 2 years. Small little shipyard up in northwest Washington State.

The second criteria is where traditional performers provide offset. This is the OPM model. The law says, if they come—it can be a GE. It can be a Northrop Grumman. If they give the taxpayer a real 30 percent, $0.30 on the dollar offset, we can award the contract to them without competition to move forward to get us a capability.

Then, finally, national security, where on my own I can just do it. I must tell you, sir, the bombs would have to be falling on this hearing room for me to do that.

But the other two criteria I have used. I have used the 30 percent—I require more than that. In fact, we have done one, resilient electric grid for New York, where I required 40 percent offset.

So this is a tool. It can be abused if oversight is not there. But I must tell you the contracts people are very hesitant to use this. The IG is all over it. The lawyers are all over it. It has been critically important in my chem-bio area and in my interoperability area, and we can give you examples of that for the record. But we thank you for your support on that, and it does need to be reauthorized.

Mr. MCCAUL. Thank you for saying that.

Mr. Chairman, I hope we can, because that will expire at the end of this year. I hope this committee can reauthorize this important contracting provision that enables you to do some great things at the S&T.

Second, I wanted to bring up NBAF, which I know will be of great interest to a lot of Members on this committee who would love to have that in their districts. But let me just ask you, when do you anticipate a site selection will be made in that area?

Mr. COHEN. Yes, sir, and I see at least three members. You know, I started this process. I inherited 17 sites in 12 States, which reminded me that 24 senators were my best friends. Last July, I was down to 10 senators who would talk to me as we went to five States; and this October two may buy me a cup of coffee. So we are on schedule.

As you know, we are doing the environmental impact statements. We are doing the NEPA. We are out there. This is a critically important facility as you look at how the world is changing.

Nuclear weapons, they are the big threat. But today you either have to buy or steal a nuclear weapon. I don't think the probability of that today is high, but it could be. But because of genomics, because of the Internet, today all you need to have a pathogen to create a pandemic is a brain, a microscope and a basement. We suffered anthrax attacks shortly after 9/11. We were delivering death by mail, including to the Houses of Congress.

So the NBAF is critically important. It is going very well.

As you know, I am only using government service people for this. I flew to every site. I am a New York City boy. Congressman Pascrell will appreciate this. Growing up in Manhattan, I thought wildlife were squirrels, rats and pigeons. So I learned a lot traveling all around to these cow patches.

But we will make the announcement. My goal is October of this year. So far we appreciate the support of all the States, localities, and the Congress.

Mr. MCCAUL. Thank you.

Then, last, you mentioned the area where the priority is going up due to the threat was the infrastructure with the IED threat.

Mr. COHEN. Yes, sir.

Mr. MCCAUL. Two areas that are of interest to my constituents. One is probably to all of our constituents. One has to do with human factors in airport screening.

Second, of course, border technology at the border. We passed a border technology bill out of Science and Technology Committee that I helped move along, and we hope to mark it up in this subcommittee. Can you just—and I know our time is somewhat limited—can you comment on those two areas?

Mr. COHEN. Yes, sir. I will make those fairly short.

First of all, we thank you for that bill on cross-border technologies. I think if you map from Customs and Border Protection their high priority technology needs and you look at my investment portfolio you will see almost a one-to-one correspondence. But I appreciate the attention to that.

As you know, University of Texas El Paso was one of the co-leads recently announced for Centers of Excellence for the border. Arizona is the dry border. El Paso is the wet border. The culture is different in the two States across the border.

This is an area where I am following Customs and Border Protection and SBInet's lead. They went for the low-risk deployable system working with Boeing and DRS. So, on one hand, I am helping them with spiral development, hoping to move the towers, for instance, from 5-mile spacing to 7½-mile spacing. That would be spiral development.

But on the other hand in innovation, we are looking at unmanned aerial systems, day-night monitoring, persistent surveillance to embarrass the program of record. So this is why S&T is schizophrenic. We are helping the program of record, but for the next phase we are trying to show them a better way, and so that is what we are doing with the border.

I apologize——

Mr. MCCAUL. The human factors, airport screening.

Mr. COHEN. The human factors and the airport screening, hostile intent and psychology of terrorism are the two areas, in my opinion, which if I don't invest in I can't find anyone else in government that will; and so we created, as you know, the Human Factors Division. It is the smallest of my divisions, about 2 percent, but it will grow. It is the softer sciences. It is an area where, if we don't get it right, I don't believe there is any technology that can overcome our lack of understanding of what I call the human element.

So this is an area likewise that we have alignment from our universities. It is a growth area. It is one of my bigger investments in innovation, future attributes screening. I am very sensitive, as I know this committee understands with your help, to the privacy issues. We look at attributes, not at profiling. It is an open process.

So both items you have talked on are critically important, and they are the future.

Mr. MCCAUL. I think, last, our constituents are looking forward to the day they can board an airplane without taking their shoes off. So hopefully that glorious day will happen in the near future.

Mr. COHEN. Congressman, if you remember when I testified, I was sworn in on August 10, 2006. That was the day of the liquid explosives plot. Welcome aboard. We had some hearings about that. We came with the 3–1–1 rule. Now that is not a solution. That is risk mitigation.

But I am going out to Los Alamos this Friday to view what we call mag-vis, magnetic vision, where we are able to characterize liquids. Then through a very low-level, primary screening MRI, you will be able to do it in your carry-on. You won't have to take out the bag. You may not have to take out your computer. We can identify the liquids. Are they a potential threat, are they safe, or we don't know, meaning secondary screening?

In January of last year I was in line at Reagan Airport, myself, my wife. We were on travel. As I told the committee, during those months after August 10, 2006, traveling with my wife, of course I pay for her, I found out the real cost, the real value of liquids and gels, it was called cosmetics, which motivated me to get liquids back on board.

But here we are. It is January of last year. We are at Reagan. It is Friday afternoon, myself, my wife, and Chairman Bennie Thompson. We are in line going through screening, and Chairman Thompson turns to my wife. She is from lower Alabama. He is from Mississippi. They speak the same language. He said, Isn't this crazy? I am Chairman of the committee, your husband is the head of S&T, and we have got to take our shoes off. We got on the plane. We went on different planes. My wife said to me, you did okay with the liquids, but you are not leaving until you fix the shoes. We are testing a shoe screener next month, sir. So that is my goal. Thank you.

Mr. MCCAUL. That is very good news. Thank you, Admiral.

Mr. LANGEVIN. Before I go to the questions, I just wanted to mention something—two things. I am glad you are looking at the issue of profiling personality traits as opposed to racial profiling. I think that is a much better indicator of those that might—identi-

fying those who might have hostile intent, and it avoids the issue of racial profiling. Because I think that is a false sense of security if we go in that direction, and so I am pleased to see that.

There was just a report in the news—I believe it was last night—about the use of behavioral profiling. That is I believe a much better indicator of potential hostile intent of those who might wish to carry out a terrorist attack.

The other thing I wanted to mention, that, on OTA, I can understand why and how it can be of great benefit. But, again, while we are still evaluating whether or not the authority is going to be reauthorized—and we are very open-minded. We have asked GAO to update their report on OTA, and they will be getting back to us, to this committee shortly to tell us how effectively DHS has actually used this authority. That will, of course, weigh heavily on the decision whether or not to reauthorize it.

Mr. COHEN. Chairman, if I may, on the attribute screening, I feel so strongly, as do you, that my Human Factors Division on their own established what they call the Community Perception Group. These are people external to DHS, just citizens, various scholars, et cetera; and I had a chance to sit down with them about 3 weeks ago. It is for exactly those reasons. It is not just what we think is good science but how is it perceived by the population at large? So it is not a FACA, but it is important to us to have that kind of near-term response, as well as Privacy Office and all the other formal controls that are there.

Mr. LANGEVIN. Thank you for the comment.

The Chair will now recognize other members for questions they may wish to ask the witness. In accordance with our committee rules and practice, I will recognize members who were present at the start of the hearing based on seniority of the subcommittee, alternating between majority and minority. Those members coming in late will be recognized in the order of their arrival.

With that, the Chair now recognizes the gentleman from North Carolina, Mr. Etheridge, for 5 minutes.

Mr. ETHERIDGE. Thank you, Mr. Chairman.

Mr. Under Secretary, thank you for being with us today.

As you remember, in December 2007 you released the Coordination of Homeland Security Science and Technology document, which the committee looked for, because it articulates the Department's strategic view for science and technology in support of our strategic objectives for Homeland Security. In that report you highlight the importance of defense of animal, plant and foods against biological threat agents. You alluded to that a few minutes ago, whether they were introduced through terrorism, accident or natural means. Being someone who represents a pretty good chunk of an agricultural district in North Carolina, I am pleased that the Department as a whole and the S&T Directorate in particular is emphasizing the need for research and preparedness against biological threats. Because that I think is still an area we have to be prepared for. As you indicated earlier, North Carolina is one of those five finalists. So my question to you is threefold.

No. 1, how does the current research at Plum Island Animal Disease Center and the proposed research for NBAF fit into the broader work of the Science and Technology Directorate on Biological

Threats? Second, some of the work done at Plum Island is basic research, while other work is more applied. What do these facilities contribute to our ability in the area to rapidly respond to a biological threat? Finally, as you develop a national strategy for the biocontainment and biological research facilities, what precautions are being taken to assure the safety and security of the communities where these facilities are going to be built? Because, as you know, this will be one of those critical areas if we get there, we have got to let people know we are talking about containment.

Mr. COHEN. Even 50 minutes—5-0 minutes—would not do justice, but I will run through very quickly at a high level.

Plum Island is absolutely invaluable. Because of your biological background, Congressman Broun's, et cetera, you know, if we had a chart of the world and we looked at where we don't have foot-and-mouth disease it would be Canada, United States and Mexico. Everywhere else you have foot-and-mouth disease. For many years, 1950's and on, of course, the Department of Agriculture operated Plum Island with a focus on foot-and-mouth disease. I am so pleased with what they do there. I would tell you that, as we move forward, I believe the legacy of Plum Island will be an efficacious vaccine for foot-and-mouth disease. That will roll into the NBAF. NBAF will be at a biological security level four. Plum Island is at three.

There are other biological security level four laboratories in the country, some in Texas, elsewhere, but none of them deal with large animals. That's what we are talking about here are large animals. So Plum Island——

Yes, sir.

Mr. ETHERIDGE. None of the category fours deal with large animals currently?

Mr. COHEN. I say it another way. We have—that's correct. There is no large animal BSL4 lab. You can imagine the scale issues. Now BSL4 basically are diseases which if humans contracted we don't have a known cure. So that is, you know, very, very important.

You asked how Plum Island responds. They are my first responder for this. It wasn't very widely publicized, but about half-a-year ago in Minnesota there was some indications of a swine problem. It turned out it didn't exist. But we didn't know that at the time. Not only did my Centers of Excellence up there help immediately, but we flew samples to Plum Island. Now, of course, it is an island, and we had to take the ferry, et cetera, but they were very responsive and immediately turned that around.

In terms of the precautions, there will always be an element of risk. Nothing, nothing is foolproof. But as you go around the country—and I have had a chance to go inside some of these BSL and now BSL4 labs, we have learned a lot in 50 years. The construction methods. It is basically a lab within a lab. It is a negative ventilation system. It is very expensive to do. You are looking at probably half-a-billion-dollar or more facility.

But I can tell you the construction requirements are such that it would withstand, and I will demand this, the most probable high category tornado, which I see as the biggest threat. We can build around earthquakes and other kinds of things. But for some of the

States which are competing, tornadoes; and tornadoes seems seem to be growing around the country. So we will do the very best that we can.

But, you know, on Plum Island, it is an old facility. Even though it is an island—and I learned this when I visited there. I never knew what good swimmers deer were. You know, deer swim from Long Island over to Plum Island. They don't swim back because we don't allow any uncontrolled mammals other than humans to leave Plum Island. So we believe we have the technology, we have the methodology to make it safe on the mainland.

I know there are several initiatives by different committees, et cetera. We are working with USDA. I want to make it clear that my model of NBAF—and that is how we operate Plum Island, is the Congress transferred the facility to DHS. I think that was right in terms of a threat. But it is operated—I am the landlord, but it is USDA that operates it. It is a very good relationship. USDA is fully invested, embedded in the selection process for NBAF.

Mr. ETHERIDGE. Thank you, Mr. Chairman.

Mr. LANGEVIN. Thank you.

The Chair now recognizes the gentleman from Georgia, Mr. Broun, for 5 minutes.

Mr. BROUN. Mr. Secretary, Admiral, thank you for being here.

As you probably know, I live in Oconee County, Georgia. It is just outside of Athens, which is one of the selection areas for NBAF. We hope that it will come to Georgia. But if you would, please, I appreciate your comments about the safety. That is what I get in my community a tremendous amount of concern about, and I am sure you are getting that around the country. If you would comment about the major benefits of building the new facility on the mainland, as opposed to continuing research at Plum Island.

Mr. COHEN. Yes, sir; and I will try to make it as pithy as I can.

I have already described, based on the Minnesota incident, some of the difficulties, time delays of getting to Plum Island. The people at Plum Island, and they are government service employees, are really dedicated. But as we look at a new facility—and all of this is in the record of decision, so I am not giving away any secrets here—some of the criteria we looked at was not only community support but it is also the intellectual capital that a region might be able to bring; and we identified that as proximity to veterinary schools, medical colleges, et cetera. I didn't realize there are only 30 vet schools in the whole country, and they are fairly concentrated.

Proximity to an airport, so that we could rapidly, as the threat continues to grow and evolve—and we have seen that not just from terrorists, but we see it in nature. The world is getting smaller. The ability to have an airport to transport samples in and out, vaccines, et cetera. We need a secure environment to prevent terrorist attack on the facility. We need to make sure that there is reliable water, sewage, electricity.

The people who work there, because these are large animals, we need people in significant numbers to handle those animals. I must tell you this is a great challenge to me at Plum Island. When I was up there a year ago, and I lived for a while on Long Island, I didn't realize that small houses at the end of Long Island can cost

$850,000 to a million dollars. My animal handlers are GS–11, 12s. I can't afford, and perhaps Congressman McCaul could raise the limit on my pay along with the OTA.

But, be that as it may, that is very personal. Be that as it may, I have difficulty hiring the requisite people to do what needs to be done. The scientists who work there are actually sacrificing, based on their pay, to work there and have a reduced quality of life just because of the cost of living.

So as we looked around the country—and I must tell you in any of the five final sites that we looked at on the mainland, my God, you can live very well as a GS–11 or 12. So we think this will be a magnet to attract high-quality people and give us significant efficiencies. I don't have to pay for multiple ferries. You get the idea.

Mr. BROUN. Thank you, Admiral.

I want to change tracks a little bit, given that the S&T director is not the only R&D operation within DHS, how and when are the decisions made as to which office will take precedence on any particular object or particular topic?

I would particularly like for you to discuss cybersecurity, because I think that is one of the biggest issues, long term, that we face in this country.

Mr. COHEN. Yes, sir, it is an excellent question. The American model of science and technology, and this really evolved with World War II, is that in S&T—basic research, applied research, and advanced technology—we take risks with millions of dollars to prevent putting billions of dollars in acquisition. Acquisition is risk averse, and it should be.

So if in product transition I am working on a 3 to 5 megapixel improvement, in innovation I am working on the 100 megapixel prototype. If the 100 megapixel prototype fails, it failed in S&T, I didn't put the acquisition program at risk, and they are still better than they were.

S&T is the first step of research and development. Research and development is basically product improvement. Whether you are building a ship, an aircraft, a medical device, it is either in production or going into production, and now you are doing risk elimination to get it right, getting it right for the customer, getting it safer, underwrite the labs, et cetera.

So I live in a high-risk area. I cut across all of DHS, every area except for nuclear/radiological. When DNDO was stood up, it is cradle-to-grave, and I respect that. They have a different model. They are half-an-inch wide, a thousand miles deep. They are one-stop shopping. They are S&T through deployment and operation. My model, I am half-an-inch deep and a thousand miles wide. That is where I live.

So I have 12 Capstone IPTs, Integrated Product Teams. All 22 of the agencies and components sit in some combination on those 12. They are capability-focused. I then vary the time of delivery, the risk of my investment and the provider—whether it is university laboratory, industry, other components of government—but I am one-stop shopping except for nuclear/radiological.

Each component then, as they get into acquisition or into in-service support upgrades, et cetera, if they can handle that through a

normal acquisition, don't need risk reduction, they go and do that. That is R&D.

But if they have a higher-risk solution, they come to me and I spend the S&T dollars. It is not intuitive. I apologize. As a doctor, you understand this from Pfizer, et cetera. We use the term RDT&E; S&T is actually a subset of R&D. It is a stand-alone, and it is the first set.

Mr. BROUN. So is that coordination between the different departments working well on all of these different projects that you are doing?

Mr. COHEN. I think the short answer is yes, but I would defer to my customers to answer that. I am here to serve them.

One of the reasons we went to this model—and the Chairman knows this better than most—when I came on board and the components of DHS were asked, What is S&T doing for you, their general answer was, What is S&T? There was not an engagement methodology. We have corrected that.

Mr. BROUN. So are the problems that have been identified and that you need to correct—and what are you doing to correct those problems, develop this seamless R&D and Science and Technology focus on all of these different threats?

Mr. COHEN. Well, let me give you an example with cyber, because you referenced that initially, Congressman. Trying to solve cyber is like trying to solve world hunger. Where do you begin? How do you eat an elephant, you know, one bite at a time?

The model before HSPD–23, in my cyber investment, was to address challenges within DHS as a department of government. I am changing from that investment. I am now working with the other agencies in the Federal Government under Dr. Marburger, OSTP, to find out where we can best invest—not for the Department but for the Nation as a component—work with the Department of Justice, Department of Defense, Commerce, et cetera, as part of the greater solution.

Now, that is a macro example. All of the other areas, except for IEDs, where, again, I leverage Justice and Defense, I am very focused on just the components of DHS.

I think it is not seamless, but at least we are at the table talking, and I am aligning my budget to the customer needs. If the customer doesn't have a validated requirement, I don't invest.

Mr. LANGEVIN. The gentleman from New Jersey is recognized for 5 minutes.

Mr. PASCRELL. Thank you, Mr. Chairman.

Admiral Cohen, I believe that you are deserving of a tremendous amount of praise, and I have been quick to criticize many folks who are in your Department there. But you have done a great job in a very short period of time, really, with all the problems that you faced when you got there.

Very seldom do we hear any discussion about research into the psychology of terrorism. Maybe you folks are different; I haven't. I think this is critical to us in defending our Nation, our neighborhoods and our families.

I am reminded of a book I read way back when in college here, written by Eric Hoffer: The True Believer. We talked about what

sets folks into doing the craziest and most terrible things, horrific things, that one can imagine.

If we don't understand that, if we don't grasp the essence of it, I don't care how many bombs we build and how we threaten people or how we attach motivation to certain acts, it is not going to work. I don't think it will, anyway.

I salute you for that. I hope you will continue. I am interested to learn more about what you are finding.

One of my greatest concerns as a Member of this committee is the belief that we have not bridged the interoperability gap that our first responders tragically experienced on 9/11.

I was proud to join with David Reichert when we sponsored the 21st Century Emergency Communications Act of 2006. It elevated the Department of Homeland Security's interoperability focus by establishing a new Office of Emergency Communications, which is not under you directly, but we know that the office is not part of the Science and Technology Directorate. You do have an Office of Interoperability that is meant to supply this other office that we created with research and development technology, and your budget has increased slightly in your own interoperability. Hopefully this means we are finally starting to understand the urgency of this particular problem.

But the question, Admiral Cohen, is in your mind how far away are we—and try to be as definitive as possible—from truly bridging the interoperability gap—I mean, all over the country? That is the major problem I get.

Mr. COHEN. Congressman, I thank you for your leadership on this with Congressman Reichert.

As you have noted, I enjoy the Office of Interoperability and that is headed by my division director for Command, Control, and Interoperability, Dr. David Boyd, retired Army colonel and a real hero with the first responders around the country.

I think before we rationalized the Department, as you mentioned OEC, it would also be under me. But, you know, in my model I need a customer. So in chem-bio you wisely establish an Office of Health Affairs.

In this model, along with the FEMA realignment, OEC went to preparedness. So they set the requirements, they deal with State and local, they deal with first responders; and then David and I fulfill those requirements. That is a very good model, and we have been able to leverage that.

Interoperability is my No. 1 priority from the first responders. I hear that everywhere I go.

As you know, Dr. Boyd put out a survey several years ago. We got 20,000 out, 7,000 back. What we found was—and this surprised me—is that technology is not the problem in interoperability. It is culture.

So today if I have Verizon and you have T-Mobile, I have a PC, you have a Mac, I have Windows, you have Java, we can communicate. We do it all the time. It is called middleware. But what David found was we have communities—they will go unnamed—where the police chief only allows the police to talk with him. He then gives the information he wants to the fire marshal, who then

gives it to the firemen who are standing next to the police at the scene and they have the same model Motorola set.

Now that is something that I think in time we will work at. There are various rules for blue force trackers, where in some communities the police don't want to have tracking, et cetera.

So you asked for a definitive answer. I would tell you we are much better than we were. The efforts of you and Congressman Reichert and the Congress have helped us enormously. The grant program has helped. But at the end of the day—I came in with a swagger; well, I don't control grants, but I am Standards and Test and Evaluation, so maybe I should get to sign off on it. I find out we give $2 billion or $3 billion in grants, and the locals spend $10 billion or $12 billion.

Hi, I am from Washington, I am here to help. Buy a raffle, buy a muffin. That is how you help. This is America. It is how we are.

But we are making significant progress and with David Boyd—because this is really the focus of his life. We just went forward with an innovative program which I call Phone Home. I can't afford JTRS, the Joint Tactical Radio System that has every waveform, but this is fat-fingered because firemen wear gloves.

I am learning about tactics, techniques and procedures. They are not sailors and marines, they are first responders where, we believe, we are going to test about 1,000 of these, between 100 and 1,000, to show that they can pick up any frequency, any waveform, line of sight, et cetera, and we will be able to communicate.

So we are going to show the feasibility, but in the end, it is up to the communities to absorb it.

Mr. PASCRELL. Just a quick point here, Mr. Chairman, if I may, Admiral. I think that there is another reason for this, so I am asking the question. That is—and you may not agree with me—we have wasted a lot of money in trying to jump to that technology when, in fact, a solution was staring us in the face.

It is a culture that we have to deal with out there. We ought to say that, and we ought to address it so that we can come closer to doing what we want to do.

If this is the most important factor—and there are a lot of important factors—and whenever these are a priority, nothing is a priority. But there are a lot of important factors. If communications is the most important factor, then we have got to straighten this out, and whatever it takes, we have to do it. Money, obviously, is not the only answer. It is a devilish problem, it really is.

The second part of it is we need the total cooperation—and I don't if you deal with it with the FCC—because you are never going to solve this problem unless the proper broadband is there or unless you are all on the same frequency.

Mr. COHEN. Yes, sir.

Congressman, you have it exactly right. Communications is the No. 1 enabler and it is the No. 1 challenge. To date, I have not had problems with the FCC, but as you know, we are looking at a frequency spectrum, Auction, et cetera.

There are many proposals before the Congress. I am satisfied in your wisdom, in your oversight, you will do the right thing, sir.

Mr. PASCRELL. Thank you, Admiral, I appreciate it.

Thank you, Mr. Chairman.

Mr. LANGEVIN. I thank the gentleman. The gentlelady from Virgin Islands is now recognized for 5 minutes.

Mrs. CHRISTENSEN. Thank you, Chairman, and thank you, Admiral Cohen. I too want to commend you for moving the Department along quite a ways from where you met it when you came in.

I wanted to ask a question, sort of a general question to begin with, on the coordinating document, at a plan; because CRS has reported in what we have as preparation for this hearing, that it is really not a national Homeland Security R&D policy or a strategic plan. You yourself say that you never wanted for it to be, but it is a first step.

Is it your intention to take what you have and move it toward a national strategic plan, or do you feel that because of the nature of S&T and what your role is that a coordinating document is more fitting and you would just work from there and improve upon what you have?

Mr. COHEN. Well, Congresswoman, first of all I want to thank you for your longstanding support, and you are here at every hearing.

Mrs. CHRISTENSEN. That is right.

Mr. COHEN. So I look forward to seeing you. My wife and I look forward very much always——

Mrs. CHRISTENSEN. Coming to the Virgin Islands, great.

Mr. COHEN. Going to the Virgin Islands. It is either that or the lobster in Rhode Island or the barbecue—it is a tough call, it is a tough call—or the peach ice cream in Austin or in Fredericksburg.

I did the best I could do, and I have testified to that in a coordination document. I think it is an important first step.

But as the Chairman very rightly said, we are going to follow a quadrennial review process, which I think we have to embrace. I am very familiar with the Department of Defense, and at the end of the day it lays out the priorities, it lays out the responsibilities. I am a big believer in leadership by embarrassment.

You get what you inspect, not what you expect. If you shine a light on something, and people know they are going to be held accountable—I say, How will they read in the investigation? You know what? They put emphasis on it, they put people on it, and they bring resources to bear.

So that is why I felt that the Chairman pushing me to get that languishing document out, although it wasn't to the level he desired or I desired, just getting it out set a baseline. Now the quadrennial review, we will be able to build on that.

It would be my hope as a citizen that—and we are a new Department, 5 years old, we just had our birthday. I am sorry, I brought the appropriators cake, I didn't have any cake left for you—that it will grow into a unified document.

We know how to do that in government. It is difficult, but we know how to do it.

Mrs. CHRISTENSEN. Thank you.

I wanted to ask a question also about BIOWATCH because I am concerned about the current BIOWATCH system, as I understand it, that is employed by the Department. Given the speed of agents, biological and chemical, that we are concerned about, could you give us an update on the time—if you have been able to cut down

the time that it takes for BIOWATCH to identify threat agents and how much you have been able to cut it down?

I would also be interested in the rates of false negatives, false positives. Has that been narrowed as well? If the current technology covers viruses?

Mr. COHEN. Congresswoman, the existing system is called BIOWATCH II. It is an analog system. It is not even state-of-the-art. It was when we deployed it 3 years ago. It is in 30 major cities.

We have taken probably close to 4 million samples. It is analog, it is drawn over a cloth. Once a week we come, we collect the cloth. So it is time late. We go into the lab, we analyze it, et cetera.

In that time we have no known—no known false positives. We have about 2 dozen real positives. They were all environmental, we know where they came from, they weren't terrorists.

We are getting ready to deploy the initial deployment BIOWATCH III. Now, BIOWATCH III is state-of-the-art. In fact, there are some competing commercial variations of it. It is still about the size of a small refrigerator.

Mrs. CHRISTENSEN. We have chosen—you have made a decision on which one of those competing——

Mr. COHEN. No, no, I love competition. We happen to have a government—from the laboratories—solution, which we would make available to all offerors, recognizing of course the intellectual property and proprietary rights that we may have leveraged.

In this one, it is close to lab on a chip. It does near real-time, meaning minutes and hours analysis within the device, and it is wirelessly connected so that you don't have to collect and then analyze the sample separately.

Mrs. CHRISTENSEN. So your goal is to get near real-time notification of an agent, identifying of that agent within minutes to hours?

Mr. COHEN. Absolutely. That we are deploying on a trial basis this year. But that is not good enough for me. We have testified previously, our cell phones today have computing power that exceeds that of a supercomputer of 10 years ago. It has voice, it has text, it has video, it has a camera, it has GPS, and we do it all with a lithium battery.

We are looking in our innovation portfolio at something we call Cell-All. I am looking to put one chip, one small chip in here—maybe for anthrax, maybe for botulism, maybe for cobalt–60 radiation—in your pocket. If it alarms, 01, like a carbon monoxide detector, it sends a 911 message; time, location. All it says is "anthrax."

You are in McPherson Square station, and 911 gets it. It is a false alarm until 2 minutes go by and here is another one, another one, and it is at McPherson Square.

Now, we have the ability—technology exists in a cell, no matter who you subscribe to, to send you a warning message. This is the Virginia Tech kind of scenario that tells you that there is an anthrax event going on in McPherson Square station, please evacuate—and, oh, by the way, evacuate to the south because the plume model is taking the anthrax to the north. I got over 80 respondents for this broad agency announcement ranging from "I got the solution and it is patented," to some high-end wow stuff.

So there are 2.8 billion of these, Congresswoman. At the end of the day, wouldn't you like to have that protection—and it is random—in your pocket? Oh, by the way, for privacy, just like GPS, you don't want it, you can turn it off. You can turn it off.

This is an area we are making incredible progress. It is one-third of my budget. Over $200 million goes to chem-bio. This is where the Department of Energy labs with their background, like Lawrence Livermore and others, and the universities, are making an incredible contribution. Of course, we are leveraging HHS, National Institutes of Health, CDC, et cetera, et cetera. So I think this area, we will be looking at near real-time broad area surveillance coupled with plume modeling and sensors, but we are not there yet.

Mr. LANGEVIN. I thank the gentlelady for questions. Admiral, we are bringing the hearing to a close, and I want to thank you for your presence here today and your testimony.

What I did want to ask as a final parting question, as the S&T Directorate moves forward into the transition year, can you explain to us what plans are being developed to ensure smooth takeover between 2008 and 2009?

Mr. COHEN. Yes, sir. The short answer is, at some point I leave. As you remember, you didn't want me to leave ONR, and I was hesitant to, even after 5½ years, to leave the Office of Naval Research.

But, you know, we say in the Navy that if you are working for someone and they don't like you or you don't like them, just wait 18 months, one of the two of you will move on.

So in large measure, I have accomplished what the President, what Secretary Chertoff and the Congress—and I thank you all for the incredible support—asked me to accomplish; that was the people, the process, the partnerships, and get the product out the door.

As you well know, from Naval Research, they just announced $163 million broad agency announcement for free electron laser, something we had invested in at the $10 million range to bring to fruition. They are shooting an electromagnetic rail gun. We have the got the Mach 7 missile that I partnered with Tony Tether on. The list goes on and on and on.

So when you have the people, as we do, government service, you have the processes established and repetitive, when you have a 5-year budget—and that is what I have gone to, not the annual budget, so we won't be able to whip-saw S&T.

The Congress controls the money. We have the partnerships which are committed to us, and product is getting out the door. I believe we have created a market—nay, an addiction—to S&T by the customers, the 22 components of DHS at the government service, at the professional level, and the first responders.

So the transition is bright, and I believe 1 year or 2 or 3 from now, just if you are on the Defense committees, you would hear the continuation of those initiatives from Naval Research. I think you will be pleased with the foundations that we have set.

Mr. LANGEVIN. Admiral, I want to thank you for your questions—your answers to the questions today and your testimony. I particularly appreciate the answer on the question of the lady from the Virgin Islands on the biosensors.

I am anxious to have that next generation of biosensor deployed and operational as soon as possible. I share your concern about the potential that they offer to better protect the country. Again, I am anxious to see those deployed. Keep up the work, the pressure on everyone to get it done.

Again, I do appreciate your service to the country, and it is always a pleasure to have you before us on this subcommittee.

Mr. COHEN. Mr. Chairman, you and the committee are very kind. I would just like to remind everybody I am the head cheerleader and the chief fundraiser. It is the wonderful dedicated people that man the Science & Technology Directorate that make all of this possible, and I am indebted to them.

Mr. LANGEVIN. Well said, well said.

Again, thank you for your valuable testimony. I want to thank you for your answers to the questions.

The members of the subcommittee may have additional questions for the witness. We ask that you respond expeditiously in writing to those questions.

Hearing no further business, the subcommittee stands adjourned.

[Whereupon, at 3:37 p.m., the subcommittee was adjourned.]