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UNDERSTANDING THE BUDGET AND STRATEGIC AGENDA OF THE SCIENCE AND TECHNOLOGY DIRECTORATE

HEARING

BEFORE THE

SUBCOMMITTEE ON EMERGING THREATS, CYBERSECURITY AND SCIENCE AND TECHNOLOGY

OF THE

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UNDERSTANDING THE BUDGET AND STRATEGIC AGENDA OF THE SCIENCE AND TECHNOLOGY DIRECTORATE

Wednesday, February 14, 2007

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 call, at 2:35 p.m., in Room 2118, Rayburn House Office Building, Hon. James R. Langevin [chairman of the subcommittee] presiding.

Present: Representatives Langevin, Christensen, Etheridge, Thompson, McCaul, Lungren and Blackburn.

Mr. LANGEVIN. The subcommittee will come to order.

The subcommittee meeting today is to receive testimony on understanding the budget and strategic agenda of the Science and Technology Directorate.

Good afternoon and welcome to the first hearing of the Subcommittee on Emerging Threats, Cybersecurity, and Science and Technology in the 110th Congress.

I would like to begin by telling Ranking Member McCaul that I look forward to working with him in this Congress on the issues that I think we all agree are absolutely critical to improving national security.

I also welcome our two witnesses to the hearing today: Under Secretary for Science and Technology Jay Cohen, and S&T Chief Financial Officer Richard Williams. I would like to thank both of you for your service to our country and for your time today.

This hearing is entitled Understanding the Budget and Strategic Agenda of the Science and Technology Directorate because, for many years, neither the Congress nor the public nor the employees working within the S&T itself could understand what was going on in the S&T Directorate. Put simply, the absence of a clear mission within the Directorate and a lack of oversight by the Congress contributed to serious deficiencies.

Anecdotes shared by former S&T employees in 2006 offered a disturbing image of the Directorate. According to one former employee with whom my staff spoke in August last year, "what has occurred up to now at S&T is that, following an initial wonderful period when motivations and morale were super high, after a year or so turf battles developed, personal agendas dominated and many good people began to leave. Morale is now rock-bottom, and it ap-

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pears that many have lost sight of the mission: to defend the country, against the unspeakable."

Admiral Cohen, I understand that all this occurred before your confirmation, and I am well aware of your work in the Office of Naval Research and think very highly of your capabilities. I know you have testified many times in this very room where you have appeared before me and my work on the Armed Services Committee, and it is great to have you here again. You come to your new post with a great deal of credibility, and it is my hope that you will do for the S&T Directorate what you did for the Office of Naval Research.

But while I have a great deal of confidence in your ability to turn things around, as the chairman of this subcommittee I will be diligent in ensuring that the widespread problems that existed prior to your tenure are corrected.

I recognize that you have only been on the job for 6 months now, but it does trouble me that we still don't have the strategic plan for the S&T Directorate, even though that was required by the Homeland Security Act in 2002.

Admiral Cohen, I understand that you have been working on completing this report, and we look forward to hearing more on this report and receiving it.

I do suggest to you that a strategic plan that does not include efforts to improve morale, minimize turnover, strengthen workforce recruitment and secure institutional memory is not a good plan. I suggest to you that a strategic plan that does not include a formal, Department-wide coordination plan on R&D, policy and procurement not be a good plan; and I suggest to you that a strategic plan that does not include the method by which RDT&E is prioritized and funded by S&T is not a good plan.

It has also come to my attention that the Department has weak performance measures for the S&T divisions. I have taken the time to read the Performance and Accountability Report sections devoted to the S&T Directorate in 2005 and 2006; and I believe that the goals and measurements used to evaluate some of the programs are, by and large, weak and, in some cases, meaningless. I hope that you can improve on some of these measurements during your tenure.

Finally, there is the issue of the budget.

Admiral Cohen, I understand that your new R&D budget reflects the transfer of operations portions out of the S&T Directorate, but these transfers don't change the fact that the 2008 budget is almost $100 million less than last year.

During our hearing last week, Chairman Thompson warned Secretary Chertoff about homeland security on the cheap. These are critically important areas of research and development, and I am concerned that the President isn't focusing his priorities on the areas that are truly important to securing our Nation.

For instance, when I look at your cuts in cybersecurity and the infrastructure and geophysical division, for instance, I am concerned that this is homeland security on the cheap. Now, we can't be satisfied with putting pennies into securing our Nation.

I am sure that we will dive into these issues a little bit more today, but I want to conclude by thanking both of you for appearing today, and we look forward to hearing your testimony.

The Chair now recognizes the ranking member of the subcommittee, the gentleman from Texas, Mr. McCaul, for an opening statement.

Mr. MCCAUL. Thank you, Mr. Chairman.

It was an honor to serve with you last Congress on this important committee, and I look forward to working with you as the ranking member on this subcommittee, and I know that we will do great work together in a bipartisan spirit.

I know that you bring a lot of experience on nuclear and biological threats that enables us to more fully explore these and other means of attack, but we must also devote more attention to potential attacks, targets of attack, ensure our Nation has the technical capability to thwart terrorists' efforts to exploit vulnerabilities in our transportation systems, information and telecommunication networks, fixed infrastructure and borders.

Under Secretary Cohen and Mr. Williams, I want to welcome you here today and thank you for your testimony; and I applaud you, also, on your choice of colors for your tie on Valentine's Day, which matches with the chairman. I apparently didn't get the memo on that today.

But I look forward to hearing your testimony and vision for building a robust homeland security S&T capability and turning around a Directorate that has been plagued by personnel turnover and mismanagement, budget fluctuations and priority shifts.

I would like to walk away with confidence that the Nation is making the most of its science and technology resources to bolster our homeland security strategy.

We sit here today more than 5 years removed from September the 11th and 4 years since the Congress authorized the creation of the Department of Homeland Security. The attacks of 9/11 and the release of anthrax spores just weeks after revealed enormous vulnerabilities in this country, particularly in our surveillance, detection and public health response capabilities.

During the 109th Congress, the committee focused much on the Department's efforts to implement HSPD 10, the Biodefense for the 21st Century.

It is an important—part of the strategy is the detection of biological agent for which S&T Directorate plays a lead role. The biological program within the chem/bio division in fact consumes a large portion of the Directorate's budget. It is $60 million in 2008, and this is after the transfer of the operational aspects to the Office of Health Affairs. This is more funding than most of the other divisions and involves only a single program.

Currently, the biodetection technology is very time—and labor-intensive and not cost-effective, in my view; and I encourage you to continue pursuit of next-generation technologies which will be automated in near real-time. Because, in this game, timing is crucial. It is the difference between the detecting to treat and detecting to warn. It is a difference that will result in the saving of countless lives.

Another Presidential Directive released just last week is HSPD 18, the Medical Countermeasures Against Weapons of Mass Destruction. As the Directorate looks ahead at ways to implement this Directive, it should leverage its experience in conducting material threat assessments and material threat determinations under Project BioShield.

The Directorate's threat and risk assessment process should not be limited only to guiding acquisition of medical countermeasures as required, but clearly it can be also applied to prioritizing mid—and long-term research and development of such countermeasures by identifying risks ranging from immediate ones to those potentially emerging.

Admiral Cohen, to borrow two out of your four Bs, technology is important not only in detecting bugs but also in detecting bad guys across our borders. With the long border such as that of my State of Texas to protect, the Custom and Border Patrol relies on the S&T Directorate to provide the technology they need to do their job effectively.

Technology such as acoustic seismic magnetic and thermal infrared sensors, visual and infrared cameras, electromagnetic radiometry can detect people, vehicles and tunnels. It is not enough just to improve these technologies individually. We must also focus on research and development creating an effective border security system where sensors and surveillance technologies are interconnected in a smart network.

Interoperability of information and communication technologies is a nationwide concern. The border communications present unique challenges that may require tailored technical solutions. We need to do a better job at securing our borders from illegal immigration, terrorism and drugs. Technology is part of the solution; and this Directorate, the S&T, is positioned to play a key role in that.

In an effort to secure our borders beyond our shores, the Directorate should also place greater focus on developing and integrating biometric-based information and tamper-proof credentialing technologies in order to identify and authenticate travelers through better security scrutiny and reduced false alarms.

The payoff of these efforts will be realized in supporting several homeland security missions such as TWIK for port workers, real ID for U.S. drivers and future passports and tamper-proof IDs. Biometric technologies will also enable the full benefits of the use of U.S. Visa Program by implementing the exit element, ensuring more complete tracking of our international visitors.

I mentioned earlier the need for an interconnected network of systems. However, it is this interconnective nature of the Internet and information infrastructure that also makes us vulnerable to a cyberattack. Information technology is fast advancing. It is a fast-advancing technological field, and R&D activities will be needed to improve cybersecurity products and services to ensure we keep pace with changes in risk and advances in this technology.

I have just touched on a few of these technologies that should be on your agenda today and should consume major portions of your budget. But I want to know about tomorrow. When certain counterterrorism technologies have become so sophisticated that terrorists

change tactics in order to evade them and while the Directorate needs to have short—and long-term strategic direction, it must be remain agile enough to keep ahead of the terrorists and readily adapt to an ever-changing threat landscape.

They say agility comes with use, so I applaud the Directorate's continued investment in the Scholars and Fellows Program which trains the next generation of public-service-oriented scientists and engineers. This effort is needed to build a strong science and technology community that will provide a critical advantage in the development and implementation of counterterrorist measures and other DHS objectives.

Other vital university programs is the Homeland Security Centers of Excellence, which harnesses the Nation's scientific knowledge and technological expertise in areas critical to homeland security.

With the largest center just down the road from me at Texas A&M, I can attest that the National Center for Foreign Animal and Zoonotic Disease Defense draws upon the Nation's leading experts and researchers to protect against the introduction of such high-consequences diseases.

I am also concerned about the 20 percent reduction, though, in these university programs in the budget for 2008. With four new centers expected to come on line, I hope that existing centers' funding won't be compromised. The Directorate must continue to also not only invest in these centers but select through them a competitive merit-based process that awards the best in science.

We have enormous scientific and technological expertise in this country that exists in our universities, the national labs and in the private sector. As you bring a customer focus to S&T, I hope the Directorate finds its niche as enablers of technology, and that is the link between the experts in the labs and the universities who are on the cutting edge of science and the customers—or the end users—who rely upon that science to translate it into useable and effective technology.

In conclusion, let me say that I know we visited last week and I must say I was very impressed, and I do think the Department is very lucky to have a man of your caliber on board in this critical position. You weren't hired for an easy job, and my job is to make sure your job doesn't get any easier.

But what I mean is, if you and I do our jobs right and raise the standard of excellence and reinvigorate this Directorate to think in new terms, generate innovative ideas and breakthrough technologies, then you will face tough decisions but the struggle will no longer be about correcting past mistakes and regaining confidence in the Congress but about deciding which technologies to pursue from an abundance of promising revolutionary ideas to better protect this nation.

Thank you.

Mr. LANGEVIN. Thank you, Ranking Member.

The Chair now recognizes the chairman of the full committee, the gentleman from Mississippi, Mr. Thompson, for the purpose of an opening statement.

Mr. THOMPSON. Thank you very much, Mr. Chairman.

First of all, I would like to congratulate you on your first hearing as chairman of the subcommittee. The jurisdiction of this subcommittee is important, and I have every confidence that you will drive legislation and perform the oversight that these critical issues deserve for this subcommittee.

As you pointed out, also, Mr. Chairman, the Department's Science and Technology Directorate has struggled and underperformed pretty much since its inception. The Science and Technology Directorate has been criticized for being a hobby shop, where research and development are not driven by operational requirements but by the interests of the researchers.

The Government Accountability Office has identified significant financial management deficiencies within S&T.

Last year, the House Appropriations Committee referred to the Science and Technology Directorate as a rudderless ship where the committee decided to cut funding to the Directorate.

Well, I suppose when you have a rudderless ship it makes sense to bring in an Admiral to fix the problem. I would like to welcome you here, Admiral; and I hope you like my pun, also.

But, also, Mr. Williams, I want to recognize you and welcome you. We could stand significant help, as you know, on the financial side.

I want you to give us your honest opinion today in your testimony. We have a lot of situations to address, but I think the issue that we have speaks to credibility of the operation. It speaks to real-time ideas being brought forward in a reasonable period of time.

Companies come to us all the time saying I wish DHS was like DOD, kind of pushing new ideas out, invest in them in a real-time situation. We can see some return on investment, rather than just never hearing from them.

So, Admiral, you have a real job ahead of you. I think you will find this committee both at the subcommittee and full committee level willing to work with you, want to move forward. I share our ranking member's concern about Centers of Excellence. I have a question a little later on it. But, at this point, they have done a wonderful job. We just need to expand the participation mode in those Centers of Excellence to include all of our institutions, not just a precious few.

So, Mr. Chairman, I look forward to the comments from the witnesses and my opportunity to ask them some questions, and I yield back.

Mr. LANGEVIN. Mr. Chairman, thank you very much for your opening statement and your comments. I appreciate your leadership and look forward to working with you as well.

Other Members of the subcommittee are reminded of the committee rules. Opening statements may be submitted for the record.

I welcome the first panel of witnesses here today.

First witness, the Honorable Jay Cohen, the Under Secretary of Science and Technology at the Department of Homeland Security. Jay M. Cohen is a Native of New York. He was commissioned in 1968 as an ensign upon graduation from the United States Naval Academy.

He holds a joint ocean/engineering degree from the Massachusetts Institute of Technology and Woods Hole Oceanographic Institute and masters of science in marine engineering and naval architecture from MIT.

Admiral Cohen 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 of 1997. Prior to his arrival at the S&T, he served as Chief of Naval Research, where he coordinated investments with other U.S. and international S&T providers to rapidly meet warfighter combat needs.

Under Secretary Cohen was sworn in to his current position at the Department of Homeland Security on August 10, 2006.

Our second witness, Mr. Richard Williams, is the Director for Strategy, Policy and Budget and the Chief Financial Officer of the Science and Technology Directorate.

Prior to coming to S&T, Mr. Williams established and served as the original Director of the Department of Homeland Security Office of Program Analysis and Evaluation from May, 2003, to August, 2006.

Like Admiral Cohen, he is a Navy veteran. From 1988 to 2003, he served on the staff of the Director, Naval Propulsion Program, work run jointly by the Department of the Navy and the Department of Energy. During his tenure there, he held various positions, including Director of Operating Nuclear Fleet Budget Division, Director of the Finance Division and Director of the Fiscal Division.

From 1983 to 1993, he served on board two nuclear-powered submarines, the USS Kamehameha and the USS Pasadena.

I understand that you have both collaborated on your testimony. So, without objection, the full witnesses' statement will be inserted into the record; and I now ask the witnesses to summarize their statement in 5 minutes.

STATEMENT OF HON. JAY COHEN, UNDER SECRETARY, SCIENCE AND TECHNOLOGY, U.S. DEPARTMENT OF HOMELAND SECURITY

Mr. LANGEVIN. Admiral Cohen, the floor is now yours.

Mr. COHEN. Good afternoon, Chairman Langevin and Chairman Thompson, Congressman McCaul, Congresswoman Christensen and Congressman Etheridge.

First, I would like to congratulate you all on your new assignment; and we look forward very much to working with you. It is a personal honor for me to appear before you today and to update you on the progress that I believe we have made to date in the Department of Homeland Security Science and Technology Directorate and also to discuss the President's budget request for fiscal year 2008 and how I believe it will position us to develop and transition technology to better protect the Nation from catastrophic efforts.

I thank you for entering my testimony into the record; and, for the that reason, I have very short remarks.

I would like to especially thank Chairman Thompson.

Just before coming here, my people shared with me a press release where you acknowledged the work and the dedication of the

men and women of the Department of Homeland Security and your commitment to them to give them the tools and the oversight to make their job more effective. We all serve not just for our Department but also for the Nation and thank you for that consideration on behalf of the those men and women.

Today, I am joined, as the chairman has indicated, by my Chief Financial Officer, Dick Williams. We both reported to the Department of Homeland Security on 10 August. That was a momentous day. That was the day of the liquid explosives plot that was discovered in the United Kingdom, and it hasn't slowed down since then.

When we talk about the value of science and technology, we, as you all know from testimony that I gave in September on the 11th of August, established the rapid response team to address this very important threat. The liquid explosives engaged not only our Department of Energy labs, which you in the enabling legislation very wisely have shared with the Department of Homeland Security, but also our Center of Excellence in the universities as well as my small laboratories, including the Transportation Security Laboratory in Atlantic City, New Jersey.

And based on the efforts, the testing, the overture that we made to industry, testing real time both in Socorro, New Mexico, against real-world formulae and at Tyndall Air Force Base with the Transportation Security Authority using their screening devices, Kip Hawley, the Director of the Transportation Security Agency, was able in about 2 months to issue what is now known as a 311 rule which was able to get small amounts, approximately three ounces of liquids, back on board our aircraft carrier, board luggage and to help relieve the congestion that had developed in the checked baggage arena.

So that is just one small example of how S&T can make a difference with risk-benefit analysis.

The S&T Directorate is committed to serving our customers. Who are our customers? They are the Department of Homeland Security components, the 22 agencies and operating components that you so wisely put together in the enabling legislation.

They are my customers. But I am also sensitive to the customer of my customers, and there I have two sets. In legislation, I have the first responders, our true heroes, the police, the firemen and EMT. But I also have, in the Coast Guard, the guardsmen, and, in TSA, the screeners, and, in Customs and Border Protection, the Border Patrol agents. They are the customer of my customers, and we interact with them, and we provide for them.

I appreciate very much the leadership and the support of the Congress, the bipartisan support. The decision that you took in an election year to restore the fiscal year 2007 funding to the President's requested level late in the congressional session is enormously helpful to my efforts to realign, refocus the Directorate, to develop a robust S&T capability for the Nation and with the continued bipartisan support that I have received since the election from both the Members and the staff; and I am very appreciative of that. I know that together we will enjoy further success.

I would like to focus in my first 6 months on the job in laying the foundation to realign the Directorate so that it may excel in what I think are four key areas. I shared these with you back in

September, and I have remained focused on them ever since, and that was the four "gets": getting the organization, getting the books, getting the people all right. And when you do that, you are able to get the content right so that we can make the Nation safer.

As Congressman McCaul indicated, he talked about two of the Bs I have indicated, that those threats are bombs, borders, bugs and business, where business is the underlying cyber that enables everything we do.

I think you will see that we have made good progress in this in 6 months. But we have a long way to go. We are striving to help the S&T Directorate become customer-focused and output-oriented. This is a cultural change, as you have already indicated. The S&T management organization should be as the Congress intended and the Nation deserves.

To share just a few of the highlights of the realignment—and I briefed you on this previously—we have realigned in the six divisions and three portfolio investment areas. I am as concerned as you are about morale. This is a significant challenge. It comes down to leadership. We welcomed 20 new highly qualified experts and professionals on board. We are manned up to about 66 percent of the 100 percent staffing that I desire to have in place, and we will be there by the end of 2007. We have welcomed back four government-service employees who left earlier in the year and have asked to come back on board the S&T team; and, of course, we have welcomed them on board.

I have been personally proactive in my outreach, as Chairman Thompson has indicated, welcoming businesses, large and small universities and vendors through SBI or Ma and Pa. I don't know where good ideas come from, but they are welcome at our door, and I have an open door policy.

I believe you will see we have made significant progress in getting the books right; and, in terms of our obligations, we have committed as of today 47 percent of our fiscal year 2007 budget. That compares with 6 percent the same time last year, which explains some of the language that was developing and was put into legislation last year by the Congress.

We have enabled the customers through an integrated product team—my time is short. I know you will address this in many of your questions. I look forward to those, but I will tell you, if you are wondering how we are doing and the progress we have made, I encourage you—and I know you will in your oversight role—to ask my customers in DHS, are we meeting their needs? To ask the universities and laboratories, are they fully engaged and enabled? And to ask the entrepreneurs in this great country and around the world, are we providing the resources that they need in order to be agile and make a difference?

So, again, I am honored to be before you today on Valentine's Day. I welcome your oversight. I look forward to your questions and your concerns and working throughout the year with you and your staff to make the Nation safer. Again, thank you so much so much.

Mr. LANGEVIN. Admiral, thank you for your opening statement; and I want to thank, again, all the witnesses for their testimony today.

[The statement of Mr. Cohen and Mr. Williams follows:]

PREPARED JOINT STATEMENT OF THE HONORABLE JAY M. COHEN AND RICHARD WILLIAMS

Introduction

Good Morning Chairman Langevin, Ranking Member McCaul, and distinguished Members of the Committee. It is an honor 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) and discuss how the President's Budget Request for Fiscal Year 2008 will position us to develop and transition technology to protect the Nation from catastrophic events. Also invited to testify and joining me today is Mr. Richard Williams, Chief Financial Officer and Director of the S&T Strategy, Programming and Budget Division. Mr. Williams will testify about improvements to S&T's financial management processes.

The S&T Directorate is committed to serving our customers, the components that comprise the Department of Homeland Security—and their customers—the hard-working 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 am very appreciative of the leadership of the Congress in its support of the S&T Directorate, and of me personally, as I assumed the role of Under Secretary for Science and Technology last August. The informed counsel of Committee Members with homeland security oversight, and that of their staffs, has been invaluable to my efforts to position the S&T Directorate for accountability, tangible results and success, both for today and in the future.

Also, thank you for your vote of confidence in the Directorate, evidenced by the decision to appropriate $848 million in FY 2007. This has been enormously helpful in my efforts to better align people with our mission to develop a robust science and technology capability to protect the Nation as Congress envisioned in the enabling legislation for the Department. We look forward to working with the 110th Congress in a bipartisan and non-partisan manner to use science to better secure the Nation.

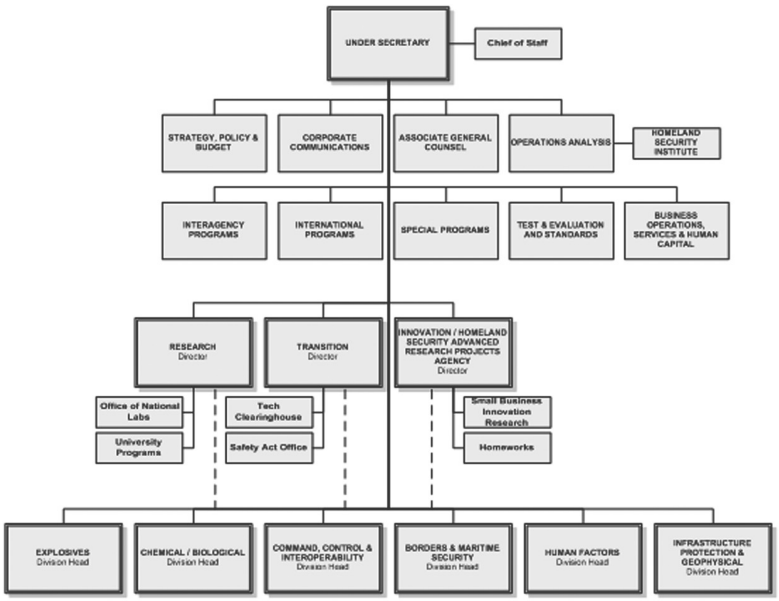
I am also grateful for the leadership of the President and Homeland Security Secretary Michael Chertoff and for the vision and guidance that the Secretary and Deputy Secretary Michael Jackson have contributed to the realignment process.

The First 180 Days—Aligned and Open for business

My first six months on the job have been focused on laying the foundation in organization, people, and processes to enable the Directorate to skillfully apply the resources you have wisely provided in ways that best serve the American people and better secure our homeland. I am pleased to report that we are "open for business," and your support of the President's FY 2008 Budget Request will allow us to build upon that momentum.

As I've said on many occasions, the S&T Directorate must excel in four key areas if we are to accomplish these goals: We must get the organization, the people, the books, and the program content right. These four "gets" are the cornerstones of the realignment effort and we've made significant progress in each of these areas. In addition to the four gets, the four Bs—bombs, borders, bugs and business—provide the thematic approach to help keep us focused on the priority areas for the S&T Directorate.

I have realigned the S&T Directorate to help it fulfill its potential of becoming the customer-focused, output-oriented, science and technology management organization that Congress intended it to be and the Nation deserves. I thank Congress for its support of the new organizational structure that, in turn, is supportive of 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. We have organized our program management into six technical divisions that are led by veteran S&T Directorate staff members and linked to three research investment portfolio directors in a "matrix management"structure. The technical divisions are focused on the enduring homeland security disciplines of Explosives; Chemical and Biological; Command, Control & Interoperability; Borders and Maritime Security; Human Factors; and Infrastructure Protection and Geophysical Sciences. The portfolio directors—Director of Research, Director of Transition, and Director of Innovation/Homeland Security Advanced Research Projects Agency (HSARPA)—provide cross-cutting coordination of their respective aspects of the investment strategy within the technical divisions.



I am pleased to report that today the S&T Directorate has a strong leadership team in place with all key positions filled. Since August, we have also welcomed 20 new highly qualified subject matter experts and professionals to the S&T Directorate, including three former DHS S&T employees who had previously left the Directorate and who have returned. Overall, we are 66 percent staffed and plan to have 100 percent of staff in place by the end of 2007.

I have made significant strides in "getting the books right" by holding the S&T Directorate to a high standard of fiscal responsibility. Toward this end, I have established an Office of Strategy, Policy & Budget Division led by the S&T Chief Financial Officer that has put in place the systems and protocols that will enable the S&T Directorate to be fully responsive and transparent in the budget development process and in the sound fiscal management of S&T appropriations. This new office is enhancing the efficiency of S&T operations by integrating related functions of policy, planning, programming, budgeting and execution. Centralizing financial oversight has enabled the S&T Directorate to implement corrective actions to address financial management deficiencies and accelerate the distribution of funds to DHS Laboratories, Department of Energy National Laboratories, private industry and academia. As a result, the S&T Directorate has committed 47 percent of its FY 2007 budget compared to 6 percent at the same time last year, significantly accelerating the distribution of funds to DHS Labs, DOE Labs, industry and academia, which will result in accelerated technology development and delivery to keep our Nation safer.

In other developments, I have added a director of Special Programs to work in select, mission-critical areas. And a new director of Test & Evaluation and Standards is building upon the S&T Directorate's previous work in homeland security standards and adding test and evaluation capabilities to advance this effort and draw greater industry participation in developing new technologies for homeland security applications throughout DHS. We have also established a Corporate Communications Office to inform and engage our customers and their customers in the S&T Directorate's broad investment portfolios.

I also know that we must look beyond our Department, indeed beyond our nation's borders, for solutions in combating domestic terrorism. Therefore, consistent with DHS enabling legislation, I have established Interagency and International Program Offices responsible for, respectively, coordinating with other Executive Branch agencies to reduce duplication and identify unmet needs, and coordinating our international outreach efforts to help us tap into science and technology communities across the globe for solutions to counter domestic terrorism. Embedded S&T Directorate liaisons in Europe, the Americas and Pacific/Asia are casting a wide

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global net to identify the most viable homeland security solutions and their providers.

Last December, we saw the "physical manifestation" of our restructuring plan spring to life with the relocation of 340 of our staff members within the Directorate. Staff are now physically co-located within their new organizational alignments. At the same time, I issued the first S&T Organization and Requirements Manual (STORM) that defines functions, duties and responsibilities for the administration and management of the Directorate. The STORM tells our customers who we are and how we function so they may better understand the capabilities we can bring to bear in support of their protective missions.

Throughout this process, it was very important to me personally that S&T staff be kept informed of our plans for the realignment and that they have a forum for asking questions and expressing their views and concerns. Since last August, I have held four "All Hands" meetings at regular intervals to brief all S&T staff, including teleconference links with staff in other locations such as the Transportation Security Laboratory in Atlantic City, Plum Island Animal Disease Center, and the Environmental Measurements Laboratory in New York City. 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 excellent work and for all the cooperation, support and patience they have exhibited during this transitional period.

During the first six months of my tenure as Under Secretary for Science and Technology, I have focused on building the organization, team and processes that are necessary for any science and technology management organization to succeed. While our effort to completely institutionalize these changes continue, we now have a foundation in place that allows us to focus on delivering products to our customers as we execute our FY 2007 appropriation. The S&T Directorate is striving to be effective, cost-efficient, responsive, agile and flexible, and with your support of the President's FY 2008 Budget Request we will build on our current momentum.

CUSTOMER/OUTPUT FOCUSED

The S&T Directorate functions as the science and technology manager within the Department. We invest in science and technology that supports DHS components in their efforts to protect our homeland against catastrophic events—technology that makes the Nation safer. In the last six months, we have established meaningful working relationships with our DHS operational component customers. As they appear before you this year, I encourage you to ask them about the ways that S&T is addressing their operational needs. Thanks to the support of the Congress and the leadership of the Department, we are gaining significant momentum, and I humbly ask for your continued trust and support so that we can build on those efforts.

The S&T Directorate develops and manages an integrated program of science and technology, from basic research through technology transition to customers that are the operating components of DHS, State, local and tribal governments, first responders and private sector entities. The managers of this program are predominantly active scientists and engineers in the many disciplines relevant to Homeland Security. They are guided by a multi-tiered investment strategy and review process based on higher guidance, the stated needs of our customers, and technology opportunities.

The President's FY 2008 Budget Request includes $86 million for the basic research portfolio which addresses the long-term R&D needs for the Department in sciences of enduring relevance to Homeland Security. The transition portfolio, designed to provide mission-capability relevant technology in support of the Department's acquisition programs, is driven by customer needs through a DHS customer-led IPT process. The President has requested $343 million in FY 2008 for this effort. The Director of HSARPA administers the $73 million innovation portfolio (includes the Small Business Innovation Research program) to promote revolutionary changes in technologies with a focus on prototyping and deploying technologies critical to homeland security. This portfolio, balanced around risk, cost, impact and time to delivery, produces capabilities of high technical quality responsive to homeland security requirements.

DHS Science & Technology Investment Portfolio

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

Product Transition (0–3 yrs) • Focused on delivering near-term products/enhancements to acquisition • Customer IPT controlled • Cost, schedule, capability metrics	**Innovative Capabilities (2–5 yrs)** • High-risk/High payoff • ''Game changer/Leap ahead'' • Prototype, Test and Deploy • HSARPA
Basic Research (>8 yrs) • Enables future paradigm changes • University fundamental research • Gov't lab discovery and invention	**Other (0–8+ years)** • Test & Evaluation and Standards • Laboratory Operations & Congstructor • Management & Administration

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.

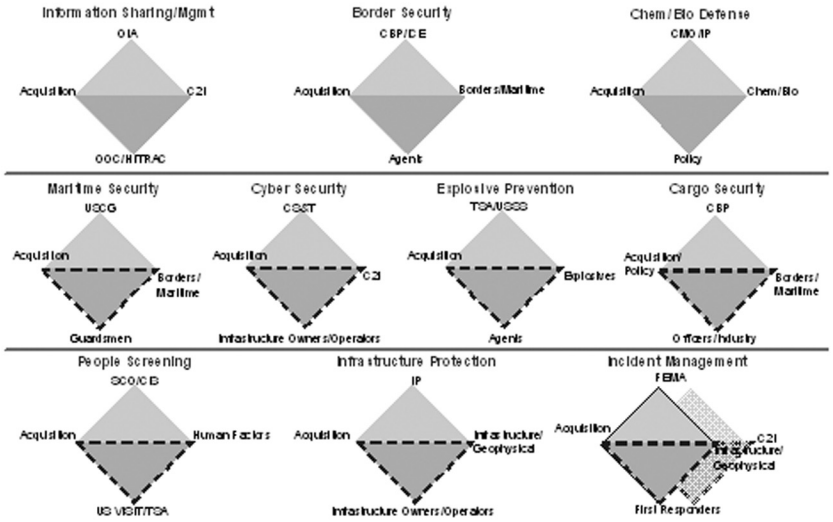
The S&T Directorate's basic research program enables fundamental research at our universities, government laboratories and in the private sector. Approximately $95 million is allocated for basic research in FY 2007 and $86 million, 13 percent, is allocated in FY 2008. Eventually, I would like up to 20 percent of the S&T Directorate budget allocated for basic research. It is critical 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 and prevent technological surprise.

Product Transition (0 to 3 years)

The centerpiece of the S&T Directorate's product transition portfolio are Capstone Integrated Product Teams (IPT) 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 technical division heads, and end users as appropriate in our product research, development, transition and acquisition activities.

The 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 three years.

Capstone IPTs have been established in 10 major areas: Information Sharing/Management; Cyber Security; People Screening; Border Security; Chemical/Biological Defense; Maritime Security; Explosive Prevention; Cargo Security; Infrastructure Protection; and Incident Management (includes first responder interoperability).



The S&T Directorate's product transition/IPT process ensures that appropriate technologies are engineered and integrated into the DHS acquisition system for our customers. Approximately $343 million is allocated for product transition for FY 2008, a little over 50 percent of my budget.

The IPT process has created an excellent forum for the S&T Directorate to gain a better understanding of the most important issues of our customer agencies. Another tangible benefit of this Capstone IPT process has been improved coordination in addressing common functional challenges across the Department. This is due in large measure to the enthusiastic participation of DHS agency heads such as TSA Administrator Kip Hawley, Secret Service Director Mark Sullivan, and Border Patrol Chief David Aguilar and many other DHS leaders who have all personally chaired the IPTs relevant to their interests.

In FY 2008, the S&T Directorate plans to transition or transfer four programs that pre-date the IPT process. These programs have reached technical maturity and will be transferred to other DHS agencies who will be responsible for their continued operation. The budget request reflects the transfer to the Office of Health Affairs of the operations portions of BioWatch 1 & 2, the Biological Warning and Incident Characterization (BWIC) system, and the Rapidly Deployable Chemical Detection System, totaling $84.1 million. Moving the operations portions of BioWatch out of S&T allows us to focus on completing the development of BioWatch 3. BioWatch is a bio-aerosol monitoring system designed to provide cities the earliest possible detection of a biological attack. BWIC interprets warning signals from BioWatch and public health surveillance data using incident characterization tools (e.g., plume and epidemiological models) to quickly determine the potential impacts a release may have. Together, these two systems provide emergency personnel with the information they need to respond effectively and initiate life-saving medical countermeasures. In addition, the FY 2008 budget request reflects the transfer of the SAFECOM program to the National Protection and Programs Directorate, totaling $5.0 million.

It is important that the S&T Directorate also engage the emergency responder community and address operational issues to help them do their jobs more quickly, effectively and safely. S&T's Technology Clearinghouse and TechSolutions initiatives provide direct support to emergency responders' technology needs. The Technology Clearinghouse, created in accordance with a provision of the *Homeland Security Act of 2002,* is designed to be a "one-stop shop" for access to technology information for Federal, State, and local public safety and first responder communities. TechSolutions provides a Web-based mechanism for responders to register their input regarding capability gaps that need to be addressed to help them in their jobs. S&T responds by identifying existing technology that may meet the need, or if nothing is available, proceeding with the rapid prototyping of an appropriate solution to be fielded in less than 18 months. S&T also houses the Office for Interoperability

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and Communications, which aims to increase levels of emergency responder interoperability by developing tools and methodologies, as well as advancing standards that emergency response agencies can put into effect.

Innovative Capabilities (2 to 5 years)

S&T's Innovation/HSARPA portfolio supports a key goal of mine for the Directorate in its efforts to put advanced capabilities into the hands of our customers as soon as possible. It has made important inroads in research areas aligned with our DHS customers. Toward this end, S&T has introduced two important new initiatives. One of these, Homeland Innovative Prototypical Solutions (HIPS) are designed to deliver prototype-level demonstrations of game-changing technologies within two to five years.

The second initiative, High Impact Technology Solutions (HITS), is designed to provide proof-of-concept solutions within one to three years that could result in high-payoff technology breakthroughs. While these projects are very high-risk, they offer the potential for "leap-ahead" gains in capability should they succeed. While projects are separately budgeted in "Innovation/HSARPA" (based on moderate to high risk with a high payoff, if successful), ALL are executed within the six technical divisions.

The S&T Directorate also continues to manage an active Small Business Innovative Research (SBIR) program on behalf of DHS that currently issues two solicitations each year and generates multiple awards for the small business community. The first solicitation for FY 2007 opens 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 six technical divisions.

The Innovation/HSARPA portfolio is receiving $60 million in FY 2008 funding for the innovative/leap-ahead HIPS and HITS projects. Because of the short timeline for HIPS and HITS, we anticipate that these projects will respond to the urgent needs of the DHS components for solutions to fill capability gaps.

Enabling U.S. Leadership in Science & Technology

University Based Centers of Excellence

The S&T Directorate is developing a robust, results-oriented network of Homeland Security Centers of Excellence (COEs) to leverage the independent thinking and ground-breaking capabilities of the Nation's colleges and universities. The COEs are conducting multidisciplinary research and education, each focused on an area critical to homeland security. The Office of University Programs is providing the communications and infrastructure to produce, share, and transition the Centers' research results, data, and technology to customers and end users.

Currently, seven pre-existing COEs connect experts and researchers at more than 80 colleges and universities, including several Minority Serving Institutions (MSI). More than 20 partners representing industry, laboratories, think tanks, nonprofit organizations, and other agencies also participate. University Programs is coordinating COE efforts with other S&T Directorate-sponsored, university-based initiatives. Under the new S&T organizational construct, existing COEs are being strategically aligned with at least one S&T division, or to Directorate-wide activities such as Operations Analysis and the Homeland Security Institute, in a structure that will best support the Divisions' fundamental research and development activities and other requirements.

We are proceeding with plans to establish four additional COEs over the next two fiscal years to help round-out the Directorate's need for university-based fundamental research. The new COEs will combine the research missions of some existing COEs and add new research areas under the division-aligned construct to meet DHS needs. S&T has released Broad Agency Announcements (BAAs) regarding plans to establish new COEs in the areas of explosives detection, mitigation, and response; border security and immigration; maritime, island, and extreme/remote environment security; and natural disasters, coastal infrastructure and emergency management. The competitive selection process is designed to ensure that institutions of high quality and academic merit participate from as many areas of the United States as practicable.

DHS Scholars and Fellows Program

DHS education programs are helping to attract and nurture future scientific leaders for the homeland security workforce and to strengthen the expertise of our existing labor pool. University Programs is engaging high-performing students through the DHS Scholars and Fellows program. Increasingly, S&T's scholarships and fellowships will become aligned to the Centers of Excellence and to the DHS mission. During this period of transition, we will honor our commitments to all currently participating Scholars and Fellows.

The FY 2008 budget requests $38.7 million for S&T's University Programs, which includes the Homeland Security Centers of Excellence and the Scholars and Fellows Program.

Office of National Laboratories

In carrying out its mission, the S&T Directorate works to develop, sustain, and renew a coordinated network of DOE National Laboratories, Federal laboratories and University Centers, the infrastructure needed by multi-disciplinary teams of scientists, engineers and academics to discover, develop and transition homeland security capabilities to operational end-users.

The FY 2008 budget request includes $88.8 million for the Office for National Laboratories (ONL), through which the S&T Directorate's laboratory facilities programs are executed. ONL provides the Nation with a coordinated, enduring core of productive science, technology and engineering laboratories, organizations and institutions, which can supply knowledge and technology required to secure our homeland. In addition to oversight of laboratory operations in direct support of the Department and its missions, ONL also has the specific responsibility for coordinating homeland security-related activities and laboratory-directed research conducted within the DOE National Laboratories.

Industry Participation in DHS Science & Technology

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 seeking expertise in tunnel detection technologies, container security (SAFECON program), and a mobile screening laboratory to support human screening R&D in the field.

Innovation/HSARPA plans to release six additional BAAs shortly to address areas that include critical infrastructure protection, hostile intent detection and other key areas. No later than spring 2007, we intend to issue a BAA for longer-term efforts that cover our complete innovation topic area portfolio.

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. This is a culture I am working to instill throughout the DHS S&T Directorate.

The Support Anti-terrorism by Fostering Effective Technologies (SAFETY) Act of 2002, administered in the S&T Directorate, is proving to be a valuable tool in expanding the creation, proliferation and use of cutting edge anti-terrorism technologies throughout the United States. Over the past year we have made significant improvements in implementing the Act, including a revised, streamlined Application Kit; new coverage for emerging technologies that are undergoing test and evaluation; increased use of pre-application teleconferences between SAFETY Act technology evaluators and applicants to review requirements and answer questions prior to submitting a full application; and procedures to expedite applications for technologies involved with pending government procurements. In 2006, 65 unique technologies and services were approved for coverage under the Act, with approximately 40 currently under evaluation. 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 is hosting the first Homeland Security Science & Technology Stakeholders Conference, May 21—24. The conference will inform government, industry and academia of the direction, emphasis, and scope of the research investments by the S&T Directorate, and provide information about business opportunities. The conference will present the Directorate's new organization, explain how to do business with the DHS S&T research enterprise, and provide visibility into new and emerging technologies through an Innovation Gateway Marketplace. I hope you will join us for this event at the Ronald Reagan Building and International Trade Center.

FY 2008 BUDGET OVERVIEW

Science and Technology Directorate's budget request of $799.1 million includes $142.6 million for Management and Administration (M&A) and $656.5 million for research, development, testing and evaluation. M&A funds federal employees' salaries, benefits, travel, and other expenses at Headquarters and the S&T laboratories. This staff maintains oversight of S&T's extensive day-to-day technical and administrative operations. M&A also funds business operations, including working capital fund, and management support. Research, Development, Acquisition and Operations supports the needs of the operational components of the Department and is categorized to match the new S&T organization.

• The $25.9 million requested for *Borders and Maritime Security* will support technology development for the Secure Border Initiative (SBI), a comprehensive multi-year plan to secure America's borders. This Division is providing the tools, processes, and manpower to ensure SBI implementation is effective and affordable. We are working directly with the SBI program executive office to provide a transformation strategy for SBI; develop the next generation of modeling and analysis tools for strategic planning; and provide systems engineering support. The Division will also develop and transition technologies to industry to reduce risk and support border security programs like SBInet, a technology acquisition program under the Customs and Border Protection SBInet Program Management Office.

We are also developing technologies to ensure the integrity of cargo shipments with known origins, and to better target suspicious shipments, and to enhance the end-to-end security of the supply chain—from the manufacturer of goods to final delivery. One of the most significant potential terrorist threats to the Nation is the vast numbers of shipping containers that flow through our borders each year, most of which enter without physical inspection. Technologies and processes developed within this area will assure government customs and shippers of the integrity of shipping containers and its cargo and communicate the container's status as well as security information. By employing a system-of-systems approach, this will deliver technological capabilities to DHS customers and end users that address supply chain vulnerabilities. These capabilities are directed toward enhanced physical security and information management, and bound by a security architecture which encompasses the world's supply chain.

• The $228.9 million requested for *Chemical and Biological* will provide the basic knowledge, technologies and systems needed to protect against possible chemical and biological attacks on the Nation's population, agriculture or infrastructure. The greatest emphasis is on those biological attacks that have the greatest potential for widespread catastrophic damage to the population. These include—but are not limited to—aerosolized anthrax, and smallpox.

The Division conducts material threat and risk assessments on both naturally occurring and engineered agents; conducts experiments to close major scientific knowledge gaps that could have a large impact on how the Nation responds to a biological attack; and provides scientific support to the intelligence community. As such, the primary output is an intelligence-informed, scientific characterization and prioritization of the bio-terrorist risks to be used by the Homeland Security Council and partnering agencies (e.g. DHHS, EPA, USDA, and the Intelligence Community).

Based on this knowledge, we are developing effective measures for deterrence, detection, and mitigation of biological terrorism acts against the U.S. population, infrastructure, and agricultural system. This includes developing tools to meet Federal, State, and, local emergency responder needs such as operational models to support Interagency Modeling and Atmospheric Assessment Center (IMAAC).

The Division is developing next-generation, biological-threat-agent detectors that recognize the signatures or fingerprints of biological agents. These detectors will be incorporated into the BioWatch system to substantially increase the system's capabilities and significantly reduce the response time. Other significant program activities include developing biological aerosol detection and sensor systems for monitoring the Nation's critical infrastructure such as government buildings, airports, subways, office buildings, shopping malls, sports arenas, hotels and hospitals. These "detect-to-protect" systems detect biological agents within minutes (acting as reliable 'smoke alarms') to protect high value facilities and their occupants. Many of the technologies being developed in this program will be manufactured and used by the private sector.

Chemical countermeasures work enhances the Nation's capability to anticipate, prevent, protect from, respond to and recover from chemical terrorist attacks. The chemical threat spectrum comprises a broad array of chemicals, to include chemical warfare agents, toxic industrial chemicals, and non-traditional agents (NTAs). NTAs include highly toxic materials that have seen development interest by foreign entities but are not yet fully developed as weapons. The barrier to proliferation of critical NTA information into rogue states and terrorists is increasingly thin. Existing and emerging chemical warfare agents can potentially be used against virtually any civilian target resulting in significant loss of life and impedance in the use of key infrastructure. Chemical countermeasures addresses these threats by: enabling comprehensive understanding and analyses of chemical threats; developing pre-event assessment, discovery, and interdiction for chemical threats; developing warning, notification, and timely analysis of chemical attacks; optimizing technology and process for recovery from chemical attacks; and enhancing the capability to identify a chemical attack's source.

• The $63.6 million requested for *Command, Control and Interoperability* will fund programs focused on cyber security; communications, compatibility and interoperability; and knowledge management.

Cyber security research, development, testing and evaluation is focused on improving the security of the existing cyber infrastructure and providing a foundation for a more secure infrastructure through coordinated efforts with other Government agencies and private industry. Cyber attacks on U.S. information networks can have serious consequences such as disrupting critical operations, causing loss of revenue and intellectual property, or loss of life. The Division also addresses cyber security requirements from internal Department customers in support of the DHS's operational missions in critical infrastructure protection. It also addresses related aspects of national security and emergency preparedness telecommunications.

Communications, interoperability and compatibility programs within Command, Control and Interoperability strengthen interoperable wireless communications, improve effective information sharing, and develop tools to enhance overall coordination and planning at all levels of government. Currently, the Nation's capacity for interoperable communications is hindered by suboptimized planning and coordination, and Office for Interoperability and Compatibility, and Integrated Federal, State and local information sharing are working to strengthen and integrate interoperability and compatibility.

We are also developing knowledge management tools to reduce the risk of terrorist attacks and to prepare for and respond to natural and man-made disasters. This will provide new capabilities for the DHS Intelligence & Analysis Directorate and the DHS information enterprise for the integration, management, analysis, and dissemination of actionable information. This knowledge management research provides tools and methods to handle massive amounts of information that is widely dispersed in a great variety of forms. Being able to find such information, understand its meaning, and then use it to assess an actual threat and determine the level of risk before an attack or incident occurs is the best way to save lives and preserve our way of life.

• The $63.7 million requested for **Explosives** will fund programs focused on the detection, mitigation, and response to explosives threats such as improvised explosive devices (IEDs) and suicide bombers. The Division employs a broad range of existing and emerging approaches to detect and lessen the impact of explosive materials. These include baggage-screening devices as well as the capability to identify explosives residue. Terrorist events like the Madrid rail bombing, the London Underground attack, and the recent disclosure of planned attacks on U.S.-bound flights from the United Kingdom, all involved explosive threats. Those events underscore the operational need for a unified approach to the detection of, response to, and mitigation of explosive threats across all modes of transportation.

In explosives detection, we are improving existing explosive detection methods, developing new technologies, and integrating improvements and technological developments into both deployed and new systems. Detection is a key defense against successful attacks. For example, the Check Point Program applies to multiple venues where real or virtual portals exist. Historically, airports have received the most attention, but similar portal situations can be found at rail stations and cruise ship terminals. Check point programs address suicide bombers, carry-ons, leave-behind IEDs, and vehicle-borne IEDs. The two other principal programs in this area are checked baggage and cargo. Like aviation, rail and ship modes share checked baggage and cargo screening challenges.

The check point program addresses the risk of catastrophic loss of mass transit resulting from small IEDs detonated in passenger cabins and the catastrophic loss or hostile takeover of mass transit resulting from the presence of certain weapons in passenger cabins. The principal objective of the program is developing advanced technology for integration with future check point systems to detect explosives and concealed weapons, while meeting requirements for automation, efficiency, and cost reduction. Longer-term objectives include applying systems integration and a seamless flow of information with reduced impact to the checkpoint operations environment. The program also strives to upgrade currently deployed technologies to address emerging threats and concealment methods.

The checked baggage program identifies and develops the next generation of checked baggage screening systems, and supports 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. Checked baggage will focus on continuing work with Manhattan II by conducting system development and integration of the Manhattan-II

checked baggage program, complete the preliminary system architecture test and evaluation, and conduct detection-technology test and evaluation.

The cargo program is developing the next generation of air cargo screening systems, with transition targeted for FY 2011.

• The $12.6 million requested for *Human Factors* will apply the social and behavioral sciences to improve detection, analysis, and the understanding of threats posed by individuals, groups, and radical movements. This knowledge will support the preparedness, response and recovery of communities impacted by catastrophic events and to advance national security by integrating human factors into homeland security technologies. Further this will enhance the capability to control movement of individuals into and out of the United States and its critical assets through accurate, timely, and easy-to-use biometric identification and credentialing validation tools.

• The $24.0 million requested for *Infrastructure and Geophysical* will develop technical solutions and reach-back capabilities to improve State, local, tribal, and private sector preparedness for and response to all hazardous events impacting the population and critical infrastructure.

The Division's focus is on identifying and mitigating the vulnerabilities of the 17 critical infrastructure sectors and key assets that keep our society and economy functional. The Division models and simulates the Nation's critical infrastructures to determine how various scenarios will affect each sector, provides decision support tools to guide decision makers in identifying gaps and vulnerabilities, and develops predictive tools and methods to aid in preparing for and responding to various catastrophes. Additionally, the Division focuses on responder preparedness and response capabilities that improve the ability of the Nation to prepare for, respond to, and recover from all-hazards emergencies. Applying the best available science and technology for the safety and security our emergency responders and homeland security professionals ensures they may effectively perform their jobs—saving lives and restoring critical services.

The Division is also developing a capability that will enable owners and operators of the most vital critical infrastructure sites to implement affordable and reliable blast and projectile mitigation measures improving capabilities to withstand these threats. The program is developing suites of advanced materials, design procedures, and innovative construction methods that can be used to protect critical infrastructure and key resources.

In addition, the Division is developing decision-making and information-sharing tools to aid responders. This will dramatically enhance the information management and information sharing capabilities of incident commanders and emergency responders as emergencies increasingly demand more highly coordinated responses.

• The $73 million requested for *Innovation/HSARPA, 59.9 million of which* will focus on homeland security research and development (R&D) that poses a risk of failure, but if successful would lead to significant technology breakthroughs that would greatly enhance DHS operations; the remainder includes the SBIR program. HSARPA carries out its activities in two areas: (1) Homeland Innovative Prototypical Solutions, which are designed to deliver prototype-level demonstrations of game-changing technologies in two to five years. These programs are moderate risk, but offer high pay-off and (2) High Impact Technology Solutions, which are designed to provide proof-of-concept answers that could result in high-payoff technology breakthroughs. Though there is a considerable risk of failure, these projects offer the potential for significant gains resulting from success.

The $88.8 million requested for *Laboratory Facilities* will fund operation of the S&T laboratory facilities, including Plum Island, the Transportation Security Lab, Environmental Measurements Laboratory, the Chemical Security Analysis Center, and the National Biodefense Analysis and Countermeasures Center. Laboratory Facilities also funds design work on the National Bio and Agrodefense Facility and upgrade of the Plum Island facility.

• The $25.5 million requested for *Test & Evaluation and Standards* funds two areas Test and Evaluation (T&E) and Standards. T&E works across DHS and ensures that systems meet the capability needs of users, validates performance and provides measurable improvement to operational capabilities. Effective testing and evaluation programs provide crucial information to decision makers for acquisition and deployment of technology. Standards are consensus based measures—from basic specifications to performance criteria—that give DHS and its customers confidence that technology and systems will perform as required. The S&T Directorate works across DHS and with numerous external partners to build consensus and support development of needed standards.

• The $24.7 million requested for *Transition* programs will expedite technology transition to deliver near-term products and technologies to meet DHS component

requirements. This area also funds the Office of the SAFETY Act Implementation, transition support programs such as the Technology Clearinghouse, and the S&T Directorate's international and interagency programs.

• The $38.7 million requested for *University Programs* will allow the S&T Directorate to engage the academic community to support current DHS priorities and enhance homeland security capabilities by providing ground-breaking research, analyses and educational approaches. The program is designed to bring together the best scientific talent and resources from U.S. academic institutions to help solve complex and technologically challenging homeland security problems facing our Nation. Program activities simultaneously focus on building homeland security expertise in the academic community, creating strategic partnerships, and fostering a new generation of homeland security experts.

The program works to:

• Strengthen U.S. scientific leadership in homeland security research;

• Generate and disseminate knowledge and technical advances to aid homeland security frontline professionals;

• Foster a homeland security culture within the academic community through research and education programs; and

• Build a highly-trained science and engineering workforce dedicated to homeland security that will sustain progress over time.

This program invests in two areas: the university-based Centers of Excellence, and student Scholarships and Fellowships intended to build and develop the next generation of academic researchers in disciplines that are relevant and essential to homeland security.

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.

Our plans for restructuring the organization have been implemented and it is indeed gratifying to see that they appear to be working as we advance to the critical phase of product transition. Increasingly, our DHS customers are recognizing the substantial value that S&T's technical expertise brings to their operations. We have engaged them, eliciting participation at the highest levels, to join us at the table to work constructively on solutions for countering the formidable threats this nation faces.

We appreciate the many demands on the taxpayers' precious dollars and you have my commitment that the S&T Directorate will be wise stewards of the public monies 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 to discuss a newly realigned Science & Technology Directorate that is meeting homeland security challenges with a renewed sense of purpose and mission. I look forward to working with you throughout the 110th Congress.

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

Admiral with respect to personnel and morale problems at the S&T Directorate, Admiral Cohen, I have a question about these issues. A government agency, as you know, is only as good as its employees; and we are seeing some extremely disturbing trends in the Department, as I said in the past. The recently released Office of Personnel Management survey ranked DHS at or near the bottom in job performance and job satisfaction.

Though I know that the Department's employees are, by and large, extraordinarily capable and dedicated, I am concerned that the best and the brightest are either no longer willing to come to the agency or are leaving in droves because they are fed up with poor management.

Anecdotes shared by former S&T employees are disturbing, as you can imagine. Committee staff has spoken with several former

employees last year, admittedly at the early stages of your tenure, which I acknowledge. Most spoke about their high hopes for the organization. Which eventually yielded the disappointing realities of deficient leadership and bureaucratic morass.

Now I mentioned the quote by the former employee in August , 2006, which deeply concerns me. I am also concerned about the Department's efforts to hire more government workers and less contractors.

In reviewing your budget, I see that there are a large number of employees at the GS–14 level, actually, about 133 employees, and GS–13 employees, 89 or so on the scale, compared to employees at the middle levels of the schedule.

You previously stated that one of your priorities is to establish an organization composed primarily—or predominantly, rather—of government employees, with a small number of contracting support staff and IPAs. I am concerned that the current organization, composed mostly of upper-level employees, does not encourage long-term stability.

So my question is this, will you provide the subcommittee will your plan to improve morale, minimize turnover, strengthen workforce recruitment and secure institutional memory within your Directorate?

Mr. COHEN. Yes, sir.

Mr. LANGEVIN. Thank you, Admiral. Good answer. Thank you.

Let me turn now to delay of issuing the national S&T strategic plans. Homeland Security Act, section 302, part 2, that suggests that Congress pass the 2002, requires the Secretary to develop, one, a national policy on homeland security science and technology and, two, a strategic plan for the Science and Technology Directorate.

Unfortunately, neither of these plans has ever been produced. I understand that the S&T strategic plan, but not the national plan, will finally be delivered to the Congress by the end of March. I think this strategic plan must explain the method by which long-term and short-term projects are prioritized and funded within the Directorate.

As you know, the S&T is working with a very limited budget right now. S&T needs to make sure that its investments will more than likely lead to procurement requests by the Department components. Similarly, the Department components need to be able to discuss their requirements with S&T through the process to ensure that S&T is providing them with what they need. Therefore, there must be some formalized Department-wide coordination on R&D policy and procurement.

Now I studied your Integrated Project Team, IPT, structure; and I believe that this is a definitely a step in the right defection. The IPT allows the communication between acquisition component and S&T program manager to make sure that everyone is working together. But I would like to see some formal documents or agreements that S&T and the components enter into to really ensure that the expectations of both parties are clearly spelled out ahead of time. So I would like to know how these projects would be prioritized. I think that we were all bewildered, actually, last sum-

mer when we found that liquid explosives were not a high-priority issue for the Department at the time.

So the strategic plan must explain how projects are prioritized on the corporate review board, which oversees large acquisitions, and the old Management Directive 1400, which previously recreated coordination between S&T and the components.

So my questions are these:

First, will these issues be addressed by your strategic plan; and, second, when can we expect the release of the national plan for science and technology?

Mr. COHEN. Well, chairman, first of all, as you know, I believe in full transparency. The enabling legislation indicates that the vast majority of the S&T and the research that I do in my Directorate be unclassified. We have provided, as you know, in the new organizational construct for special access programs and classified programs, but I believe that my priorities and the adjustment portfolio needs to be transparent so that the best can contribute.

Concerning the National Research and Development Plan, I have had a chance to review that draft, and it is quite thick, as you can imagine, because it involves almost all of the Federal agencies that was prepared in both 2005 and 2006. I will make that available to the Congress. I have no participation in that.

But the enabling legislation was very wise. You did not intend, as I read those 19 pages, to have me recreate the National Institutes of Health, the National Science Foundation, the DOD or the DOE labs; and I believe that was a very good model. You did give me access to leverage, and I appreciate that very much, the DOE labs and my own small labs.

But you did want and encourage me and the other departments of government to have me leverage their tens of billions of dollars of S&T science and technology investment, whether it is basic research, applied research or advanced technology, without further investment by me so that I could then harvest it and apply it to the needs of the homeland security mission.

I cannot specify to those other departments where or how they invest. They have their own requirements process. They have their own appropriations law and oversight. But, to the extent they do, they give that to me; and then I can leverage that.

Our integrated product team, for instance, we have the Technology Support Working Group, TSWG, which is the central focus in the Department of Defense, at the table offering technologies to my customer. We have brought the Department of Energy and others, HHS, USDA, on board likewise.

So the national plan had difficulty—and I am going now on information that I have received—in getting approval by all of the departments throughout the Federal Government because there was a perception—I believe an incorrect perception—that the S&T Directorate in Homeland Security was trying to mandate how and where they should invest, which is not provided for in the enabling legislation.

So on the national plan, I will work—as you know, in my organization I have a liaison for agencies and a foreign liaison who are already very active in doing this—to bring to you a coordinated plan that leverages what they are doing but focused on homeland

security; and I hope to do that under Dr. Marburger, who is responsible, in large measure, for coordinating S&T across the government.

As for my strategic plan, I have put in place in the last 6 months an organizational construct and processes which, as we did in Navy, very quickly aligned to the goals and the requirements of the customer and the mission of the organization. Then what we do is we take excursions, whether that is an innovation, higher risks, sometimes too high a risk, for acquisition, but also where we can't solve problems or we don't have the enabling technology, that is the basis for basic research. That is where we invest in the universities and the laboratories.

So what you will see—and you will get this no later June of 2007—my strategic plan as we go forward—and it will be comprehensive—addressing the concerns that you have addressed this afternoon, because I share those concerns—you will see would follow the processes I have put in place.

Finally, we have been going very fast, as you know, because the Nation is at war and I want to get the deliverables to my customers and the customer of my customers. Organizationally, I have established—and it is in writing, and it will become a Management Directive—what I call the STORM, Science and Technology Organization Regulation Manual; and it clearly specifies in writing without question what the roles and responsibilities are to support the organization. I briefed the committee and you on that.

We are operating under—that is the basis for our budget, that the Congress very kindly allowed me to come in with an omnibus reprogramming for fiscal year 2007 to initiate these programs as well as OMB, who aligned the 2008 budget to do this.

But we in the IPT process, which we have in large measure taken from what we did in the Navy, we have informal documents now. We are glad to provide to you the memorandums of understanding.

We are in the fourth round now in all of the capstone—11 capstone integrated product teams, with Kip Hawley, Mark Sullivan, Vice Admiral Johnson, Chief Aguilar, sit as the customer. They have not delegated this. They sit there. They tell us their needs. We tell them when the money—we will translate that into a Management Directive now that we have Paul Schneider, the new Under Secretary from management on board; and I am so pleased to be working with him because he and I had the same tag team in Navy and we expect the same results in Homeland Security.

So we will give you the formal documents, but I will not allow the administration and the bureaucracy to get in the way of the deliverables for my customer.

Mr. LANGEVIN. Thank you, Admiral. I have great confidence in you and look forward to our working with you.

It is now my pleasure to recognize my ranking member of the subcommittee, the gentleman from Texas, for 5 minutes.

Mr. MCCAUL. Thank you, Mr. Chairman.

I want to welcome the witnesses again. Admiral Cohen, after our visit last week, I am convinced the Department has hired the right man at the right time; and I know, as we say in the Navy, you will be able to turn this ship around.

I come from a State, as you know, that has more international border with Mexico than any other; and it has one of the largest ports in the world, Port of Houston. I think our greatest fear on this, sitting on this committee, is the thought that a weapon of mass destruction could somehow get into this country. I know you share that concern, which is why you are where you are doing the great service you are to this country.

I want to hit on three areas that I want you to address from a technology standpoint but also from a budgetary standpoint in terms of what you intend to do about it.

The first has to do with detection capabilities. I know that DNDO is primarily focused on nuclear detection at the ports and at the border. They had made some progress which I am happy to see. But BioWatch obviously is a program that is under your jurisdiction that has to do with detecting biological weapons possibly getting in either through ports or at the ports of entry, land ports.

The second issue is the biometric and credentialing technologies that I believe are so important to determine who is coming into this country, how can we keep track of these individuals, and how can we enforce an exit program which I think is severely lacking, if you will, today. And if we are going to discuss any sort of temporary worker program, that is obviously going to be a key element to that.

Then, finally, as you know, we passed in the last Congress a Secure Fence Act which does call for physical barriers at strategic points on the border. I have always been a believer that technology can be our best friend here and technology between those barriers can provide a virtual wall, and we are just not quite there yet.

If you can comment on the status of that. I know I am throwing a lot in into one question. Comment on these three key points and where are we in terms of budgeting for these issues?

Mr. COHEN. Yes, sir.

Well, all of these, of course, are very, very important issues that the Congress has shown leadership and worked closely with the administration on. You have indicated that in the nuclear radiological area that the Domestic Nuclear Detection Office, DNDO, which with the concurrence of the Congress under section 872, was divested from the S&T Directorate last year and now stands as a cradle-to-grave organization very similar to naval reactors in the Department of the Navy.

I know that Vayl Oxford, who heads DNDO, testified with me last year. I am sure he will testify with me again and independently of me this year. And I know that Secretary Chertoff in the hearings he has already had this year has addressed the significant efforts that we have made in nuclear radiological screening at the ports, not only seaports but the port of entry and the plans to go forward over the next couple of years.

I know that there have been some press articles on this for some of the experimentation which I salute Vayl Oxford for leaning forward in the New York City area. But, as I briefed you, I have responsibility. While Vayl is inch wide and a thousand miles deep, I am one inch deep and a thousand miles wide. That is the nature of S&T, and I think that is appropriate.

So in our innovation portfolio, under what I call our homeland innovative prototypical solutions, we have proposed in the budget that I go forward with an initiative which we call SAFECON, for safe container. We have to be mindful not only of the security but also of the economic impacts of what we do.

So in the 30 seconds it takes for the claw to take that 20—or 40-foot container off a ship and then land it on the trailer as we go forward, it is my goal, in at least two different ports, to go ahead and experiment with nuclear radiological scanners which we will ask DNDO to help us with, but also chemical, biological as well as explosives, meaning conventional explosives, and also looking for stowaways, looking for people who are illegally trying to come into the country through these means. So that in the 30 seconds that a claw is on that container, as it is being moved it will do all of those scans.

It may require that we have a composite top instead of a steel top on containers. But we know how to do that in legislation. It may require that there be rubber-sealed puncture holes at specified points where probes can go in and sense what is inside the container. But the goal would be in the 30 seconds all these scans would be done.

If the operator gets a green light, it is clear. It lands. Commerce goes on.

If the operator gets a yellow light, it means scanning complete. It goes to the holding area. We inspect it by other means.

If they get a red light, it means there is something nefarious; and in my mind, although I am not operational, it will go back on the ship and we will consider the ship's sailing. There are a lot of people who don't like that solution, but there are other things you can do. The ship doesn't necessarily have to sail.

So that is what we are looking to do to bring technology to bear.

Now some people have told me some of these technologies don't exist. Others may take 30 hours, others may take 30 minutes. I am a big believer in competition. Leadership by embarrassment. Build it and they will come. So if we can't get everything in 30 seconds it tells me where I need to change my basic research. It goes to the chairman's point of how do we focus where we invest to find a phenomenology.

You asked about biometrics. This is a very important area. The Secretary, Secretary Chertoff, has already testified to the desire to get the 10 fingerprints. Candidly, I didn't understand why you needed 10 fingerprints before I came to the Department. But I do now understand that there are so many latent fingerprints, you know, that are unidentified that now with 10 fingerprints we can better identify identities to events, crimes, other events that have occurred, as part of keeping one of Secretary Chertoff's top priorities, bad people, out of the United States.

We are committed to this. And I think if you ask the Commandant of the Coast Guard, he will share with you, if he hasn't already, a testimony. His handheld detector that we provided that they take on board ships, it takes a picture of the individual. In his case, it takes one finger. We are going to give him 10 fingers here before too long. Ideally, we will give him 10 fingers without even having to touch the screen, and they are then connected wire-

lessly. The Commandant has told me that he gets a 14 percent hit rate with individuals that they are scanning as they board ships who are people of interest.

And I will leave it at that.

Finally, a secure fence area, the Secretary has testified that under SBInet he drove for proven technologies, and that was to get the solution out there at a reasonable and a predictable cost. Boeing and others subs went ahead and won that contract, and they are in the process of putting that solution in place.

But, Congressman, you have it exactly right. We can go a lot farther in technology.

Again, with what we are doing, we talked a little bit about a Project CLOE, and there are other things to bring unmanned aerial vehicles, persistent surveillance. I think the Under Secretary has testified that, by using microwave radars between two mountain peaks, that Customs and Border Protection were able to identify day and night everybody going through and then with helicopters and vans able to intercept everybody.

So I think your focus is very well defined. We have investments in all of those areas, and we are pushing them pretty hard, sir.

Mr. MCCAUL. Well, thank you, Admiral.

Thank you, Mr. Chairman.

Mr. LANGEVIN. Thank you.

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

It is now my pleasure to recognize for 5 minutes the gentleman from North Carolina, Mr. Etheridge, for 5 minutes.

Mr. ETHERIDGE. Thank you, Mr. Chairman.

Admiral, welcome. Thank you for being here. I know you have been working hard to reorganize the S&T Directorate, and we appreciate that. Obviously, a lot of issues have come up as the best way to utilize the S&T personnel, and we are appreciative of that also.

Let me ask you a question about some particular issues with the use of Intergovernmental Personnel Act employees, known as the IPAs. Because there is—as you just said, we can deal with all the gadgets we want, but at the end of the day it really comes back to the people we have in our agency who work with us.

This committee is familiar with the December 05 GAO report that describes the significant problems with the way that S&T handled its IPAs. As you know, IPAs are paid by the Department of Homeland Security but actually are not employees of the DHS. They are essentially on loan to the Federal Government from universities or State and local government.

This is a great way of not paying in and—I think you agree—to utilize the expertise and get the much-needed talent into the Department that we need very quickly; and we are thankful for the hard work that many of these IPAs have brought to the staff and the work that they do every day.

Unfortunately, as the GAO points out, the Department does not have adequate ethical procedures or ethics procedures to utilize these IPAs. In response to a query by committee staff, DHS legislative affairs wrote October 12, 2006, and I quote, S&T is working with the Chief Human Capital Officer and the Office of General Counsel on a guide that will provide the comprehensive information needed for the hiring of IPA detailees and administering their assignments.

My question to you is this: What are your plans for integrating IPAs into DHS workforce? Number two, how do IPAs fit into your overall strategy for reorganizing the Directorate? Third, has a guide been produced? And, if it has, has it enabled you to fully utilize these IPAs? And if it has been provided and produced, will you please provide the committee with a copy of that type?

Mr. COHEN. Yes, sir.

First of all, I would like to thank the Congress for providing for the Interagency Personnel Act. This is invaluable, not just in science and technology but throughout the government, to get the best of the best, as you have indicated, on a rotational basis, whether it is from laboratories or universities. In my case, the enabling legislation very wisely paralleled the legislation, unique legislation, for the defense advance research projects and you allowed me to have DARPA like IPAs; and I am fully utilizing that in my innovation portfolio.

But I was very familiar with IPAs when I got to the Office of Naval Research; and, as you know, I was there for 6 years. And in the 6 years I was there I reduced IPAs from 60 to under 30. We produced a Management Directive—I will use the DHS term instead of the Navy term—that was very clear, and I brought that Directive with me to the Department of Homeland Security. Because if you don't apply the highest ethics and the highest standards to the IPA program, while you may not have a statutory problem, you certainly have a perception problem.

So when individuals come as IPAs to my organization, they must sign clear nondisclosure to their parent organization. They must recuse themselves from any dealings, whether it is contractual or otherwise, with the parent organization. But, even with those constraints, the IPAs are far too important to the safety of the Nation for us not to utilize those.

Mr. COHEN. So I will as soon as I turn my Navy management directive, which I have been following, vetted by the OGC, vetted by the IG, et cetera, and let me just say, Chairman Langevin, so you understand, as we talk about integrated product teams or anything else I do, I have invited the DHS IG, and they have willingly and actively sat in as observers to all the processes I have put in plan, and I extend that invitation, as I did in Navy, to the staff majority and minority, whenever is convenient for them, whether it is my budget reviews, anything that is not executive department proprietary, which is very small in my portfolio, they are welcome to see how these things work.

I have already reduced the number of IPAs in Homeland Security by five. IPAs are well worth what we pay for them, but the very ability of the cost is significant depending upon who their sponsor might be. We can end up paying twice or more the salary

that the individual is getting for overhead at the parent organization, and as a custodian of the taxpayers' precious investment and with the limits that I have on my M&A account, I just cannot afford that. So I will share with you the directive that I use if you will accept the Navy version first. I am glad you can hold me accountable for that. I will then put it into DHS language. But I have my director of research has come to me from Los Alamos. Many of you know Dr. John Vitko, created the world class BioWatch program which, you know, 3 years ago, was poorly received and now just transitioned to the Office of Health Affairs. I have in test and evaluation, an area that is critically important, a world expert that comes from southern Maryland; he actually comes to me on the cheap.

So they are peppered throughout the organization, but everyone knows who they are, and we are going by the letter of the law, and I welcome the oversight.

Mr. ETHERIDGE. Thank you very much. We would welcome the material, and you are a breath of fresh air.

Thank you, sir.

Mr. LANGEVIN. The gentlelady from Tennessee, Ms. Blackburn.

Mrs. BLACKBURN. Thank you, Mr. Chairman, and thank you to our witnesses for being here. Admiral, I love hearing you talk about deliverables and talk about the expectations that we and you have. And I think that is an important dialog for us to continue because our constituents certainly are concerned about security. I would say it is the number one issue as they look at the security of this Nation, both home an abroad. And we appreciate the work that you are doing and the task you have taken.

I loved your enthusiasm when you were talking about the ten fingers and getting the print there as we fight—look for our bio vulnerabilities if you will and BioWatch. And I recently had the opportunity to view the new vein imaging technology that is coming online and was amazed with the accuracy rate with that. I am hopeful, as you are, that there are possibilities there.

I want to discuss four separate areas with you, one is the IEDs and then another one is SBI Net, the screenings and then cyber security. So we will go through these as far as we get in the 5 minutes allowed. We will submit to you in writing if we don't get through them. Looking at your testimony and considering IEDs, and you spoke to this a little bit talking about your cargo screening, and I imagine some of the technology that you are using there looking through, looking at screening cargo and then at cargo carrier protection, you are also applying that to vehicles. And I would like to know if you are or what you are doing that would look at the vehicle protection.

Mr. COHEN. Yes, ma'am. As you are well aware, IEDs and vehicle-borne IEDs are in large measure the weapon of choice today by terrorists around the world. You see the carnage that they are causing in Iraq. I am not in DOD anymore, but in the paper they indicate upwards of 70 percent of all the casualties are associated with IEDs.

The Congress has been very generous with General Montgomery Migs and the joint IED task force in the Department of Defense. I believe you have invested over $6 billion over the last—

Mrs. BLACKBURN. If I may interrupt, sir. Specifically what are you all doing, what are you targeting there? Are you at liberty to tell us what kind of timeline you are on for producing something that will give extra protection to vehicles for these explosive devices?

Mr. COHEN. The short answer is that the $6 billion has been spent on the here and now, what you would call the low-hanging fruit. And we have had enormous success, but the leakage, the leakage, and I will leave it at that without percentages, still causes the carnage that you see.

I had lunch with Secretary Gordon England in December at his request. As you know, he was secretary of the Navy, then deputy secretary of Homeland Security, then back and forth and 3 years ago, he started what he called the Manhattan Project to predict, detect, defeat and destroy IEDs at range. That includes vehicle IEDs, and he defined it as 100 yards.

The reason that he wanted to do that was to change the calculus so that we and our first responders as well as our military would be able to detect, and while there still might be collateral damage with these explosions, they would be set off when we desired, not when the bomber desired.

This is an area we today do not yet have the technology, and so why I have budgeted for this and what I am working with DOD is for me to take the basic research working with our laboratories, DOE, working with our universities, in short, Congresswoman, I am looking to replicate a dog's nose that our first responders can use to go ahead and do this. The technology is not there today. We have many means to thwart IEDs, but we have got to do better, and I am committed to that.

Mrs. BLACKBURN. Okay. Then on the SBI Net, are you all coordinating with Boeing on the SBI Net project?

Mr. COHEN. Yes, ma'am. As you are well aware, this comes under customs and border protection, Boeing is the prime. And as one of my 11 capstone IPTs, I have border protection. Chief Aguilar and Director Basham sit as the customer on that. They then provide to me what their capability gaps are that perhaps the SBI Net is not fulfilling or were too high-risk for that contract. And they then direct me to slave my S&T dollars to de-risk and provide examples, proof of concept, so that they then can offer that with adequate risk tolerance to Boeing to include in the technologies used on the border.

So we are in a one-to-one correspondence.

Mrs. BLACKBURN. Mr. Chairman, I will submit my screening questions. I did have one on the article today in USA Today on the rail test and then some questions on practices and processes with cybersecurity.

Thank you, Mr. Chairman.

Mr. LANGEVIN. The gentlelady from the Virgin Islands, Ms. Christensen, is now recognized for 5 minutes.

Mrs. CHRISTENSEN. Thank you, Mr. Chairman.

I would like to welcome the witnesses.

Admiral Cohen, I am impressed with some of the progress that you have reported thus far, especially when you talk about people coming back, asking to come back to the Directorate.

I notice, under your budget, the proposed budget for 2008, under chem and bio, there is a drop that, if my BlackBerry calculator is working correctly, is about 28 percent. I am concerned about that drop, especially given the problems we are having with BioShield, the slowness of developing new counter agents to respond to biological terrorism and also decrease in bioterrorism preparedness funding. It seems to put a lot of responsibility on your Department for surveillance, detection, protection, and you have those three areas, ag, bio and chem to fit into that.

As you looked at what the budget was providing you for your Directorate, did you have to sacrifice some of your objectives to fit within that budget? And as you are answering, I am also not clear what exactly is left after—what did BioWatch take away and leave because we are still talking about surveillance and detection under the Directorate.

Mr. COHEN. Yes, ma'am. As in our personal lives and our professional lives, we always have to make a balance in our investments. But I would like to address the chem-bio because you very accurately represented what has happened. The Congress last year, I believe, very wisely established the Office of Health Affairs which now has Dr. Runge as the chief medical officer, and you also established the Office of Emergency Communications.

Now one of the problems that you have in S&T is it can become a self-licking ice cream cone. If in S&T we are responsible for not only discovering the solutions, then maturing the solutions, but also operating the solutions beyond prototypical demonstration, operations are time intensive and take a disproportionate amount of money. And so without the Office of Health Affairs, and this is why I thank you for it, I didn't have a customer for my BioWatch. And as you know, BioWatch 2 has been largely successful, and it is in 30 of our major cities. We have had over 3 million samples of which we have had, I think, 15 or 16 positives which have been reacted to. And in fact, just a month ago, the stink bomb that occurred in New York City, within an hour of that, Mayor Bloomberg was able to say to the good people of New York: We don't know what it is, but we know it is not hazardous, and in part, that was because of the BioWatch investment.

So what I did was, and it is in a one-time adjustment to my budget, was an $81 million transfer, which is totally the operational cost of BioWatch 2 to the Office of Health Affairs under Dr. Runge. And what it does is allows Dr. Vitko and his good people and my laboratories to now focus on BioWatch 3, which we think will be four times cheaper to operate. It will be real-time microchip determination as opposed to what we have now, the little disks that have to be collected and analyzed, and it will be wireless connected so that we will be able to cover many more cities in real time.

So I would prefer to have the $81 million on top of my S&T, but it was not S&T, and what we have done is a one-time proper alignment.

Mrs. CHRISTENSEN. I really think that is what you are to do, to do the research, and then once the product is developed, turn it over to your customer. Is there any work being done at S&T on shortening the time from the time an agent presents itself to devel-

oping counter measures? We have introduced some legislation before, thinking about introducing it again to foster and support that kind of research. Are you doing anything like that now?

Mr. COHEN. Absolutely. In fact, on Monday, I was at Plum Island where we do foot-and-mouth disease. Genomics and what we see around the country and in so many of the States represented here is an incredible growth industry, and the rate of problem-solving is increasing exponentially.

So I am very encouraged and very enthusiastic. I am not sure legislation is required here. In a free-market society, you see what is happening, you see where the jobs are being created.

Mrs. CHRISTENSEN. I just wasn't sure it was being done. And knowing that it has in the past taken a long time and we don't know what we are going to be faced with specifically, it becomes increasingly important to shorten the time to be able to provide something to treat or a vaccine to a newly developed or mutated agent.

Mr. COHEN. You are exactly right, and one of the exciting areas is what we call DNA, or it has been renamed now agile vaccines, that do exactly what you are talking about. Because of genomics, we can analyze what the pathogen is, and we then can design or tailor the vaccine, and then when the bad guys modify it, which regrettably more people and more people have access to in a flat world, we then can rapidly respond. There is an area that DOD has been very active on, but it is spilling over into all areas.

Mrs. CHRISTENSEN. Thank you very much.

Mr. LANGEVIN. I am pleased to recognize now the gentleman from California, Mr. Lungren, for 5 minutes.

Mr. LUNGREN. Thank you very much, Mr. Chairman.

Thank you both for testifying and thank you for your service. Admiral, can you tell me what the Department's plan for cybersecurity research and development is? This is an area that, among other areas, I think needs a lot of work both here on the Hill and also within the Department and within the private sector.

Mr. COHEN. Yes, sir. As you know, this is the fourth of my Bs; the bombs, borders and bugs are tangible, but the business is not tangible. And I don't know, I am close to it, but I don't have personal knowledge, but the papers say that we live in a negative savings rate society, which means we live from ATM withdrawal to ATM withdrawal; 401(k)s now are all in cyber. Everything we do is enabled by cyber, not only our security but the underpinnings of our society.

And so while we can't touch or feel it, we understand the consequences of it, and this is an area where, again, because the world is flat, there are a lot of evil people who would like to do damage to our society and to our economy. So this is an area that we take very seriously.

As you know, in Homeland Security, we now have a cyber czar. This represents one of the 11 Capstone IPTs, Integrated Product Teams, where my command, control and interoperability division is focused. Interestingly enough, the leadership of Homeland Security made me bifurcate this particular IPT even though it falls under FEMA, and the reason they did that, and this was with the input of the bipartisan staff from the Congress, was it was concerned

that if I had interoperability competing with cybersecurity, that interoperability would take all the money. And whether that is true or not, we have put protections in place.

And so, as I have indicated in the integrated product teams with the cyber czar sitting, Mr. Salazar, in fact sitting as my customer, I have a prioritized list from him with a cut line as to what we can afford that go to secure protocols, process control systems, wireless security, automated vulnerability, discovery tools, lack of worldwide data for research continuity, and I could go on, but the bottom line, sir, is that I expect my customer to hold me accountable in S&T for cost, schedule and technology readiness level metrics which we review together on a semi-annual basis. And to deliver, I get to take risk with millions to prevent putting their systems and their acquisition at risk in billions so that we can provide the solutions they need. But this is an area that we must stay on top, and the challenges will only get greater, not less.

Mr. LUNGREN. Let me ask you a question about cyber security and innovation. As I look at the budget, out of the $20 million designated for cyber security, about 38 percent are directed towards innovation, $7.5 million. That is the highest, at least on my cursory look, percentage of any of the program areas; a third of funding for cybersecurity directed towards innovation. But then there don't appear to be any projects within the innovation office that are focused on cybersecurity. That seems to be inconsistent. Is there any way to clear up my confusion?

Mr. COHEN. What I have done here in the command, control and interoperability, and that is the supporting of my six divisions and divisions that support cybersecurity and HITS on that integrated process team along with infrastructure protection because interoperability is shown mostly under command, control and interoperability, but the Department views cybersecurity more as an infrastructure protection issue. What we have done is laid out the change detection for what we may see, people attempting the physical attacks on cybersecurity, because it is copper; it is fiber optics; it is wireless, et cetera. But I will take that for the record so that we can get you the specific details.

I will tell you that, in the 6 months I have been on board, the definition of innovation has been a little bit of a challenge. My definition of innovation is where we have a known need and we take a higher risk in a shorter period of time than acquisition might be able to ingest, but we de-risk it and then bring it in where acquisition can use it.

The customary definition of innovation before I got to this Directorate was anything that didn't have a customer. That is not an adequate definition of innovation. So I will take this for the record, and I am glad to come by, talk with you or your staff, and I welcome your input in this area, sir.

Mr. LANGEVIN. With the agreement of the ranking member, we are going to go for a second round if you will bear with us.

Mr. COHEN. Absolutely,

Mr. LANGEVIN. Admiral, we have already sunk nearly $300 million into the Counter-MANPADS Program, and we now have the technology ready to deploy and no interest among the commercial carriers to use it mostly due to the cost figures of around $1 million

per airplane to install. And then you have the maintenance and add fuel costs on top of that. I know that you are looking at other ways to protect commercial aircraft. What is the point of your doing this research and testing this equipment if the airline industry won't partner with us just to keep their own airplanes safe.

And so my other question is would you say it is just a $300 million boondoggle, and will your new management structure ensure this doesn't happen again?

Mr. COHEN. Well, the short answer is, I am not into boondoggles. And in my setup, as you know, I believe in transparency, and so I think if I would suggest something like that, you would nip it in well in advance of that investment.

My understanding, as a citizen watching this before I came to the Department, I think this was one of the mandates jointly from the Congress and from the administration because of the threat, the credible threat of MANPAD shoulder-fired weapons against commercial as well as military aircraft. As you are well aware from your other committee assignments, on the military side, we have advanced counter measures and systems that are already deployed and employed and just get better. And so this was to show the efficacy of this for commercial aviation.

The counter measures do work. We have demonstrated those. The $300 million was in large measure used—as I understand it, this pre-dates me—to apply that to wide body and other commercial aircraft, both cargo and now passenger. I think, as you are aware, last year, shortly after I came on board, there was an alternative solution at the $10 million level, again, encouraged by the Congress to look at alternative solutions because of the resistance of the airlines for all the reasons that you said to equipping the planes with this, and we in fact went to contract on that. I think the three providers are Northrup Gruman, BAE and Raytheon, if my memory serves me right, a total of $10 million. They are looking at a ground-based off-plane solution but we are looking as you know, and we have presented in this fiscal year 2008 budget as an off-plane solution but using persistent surveillance flying above and airport where we can use a high-performance, high-endurance unmanned vehicle as a decoy, so to speak, and if that is successful in testing, we may be able to offer the Congress, the administration, Federal Aviation and the industry an alternative solution which would give us not only the counter-MANPADS using the technologies that we demonstrated on the plane but, now on the UAV, would also give us the ability for the more advanced MANPADS to have a decoy which would allow the MANPADS to operate to exhaustion, fuel exhaustion, without putting the landing and taking off planes at risk. So I think this is an area where we are taking a slightly different approach than DOD did, this is an area of innovation. I am excited about it. Will it work? Stay tuned. I can't address whether $300 million is a boondoggle, and I certainly can't address why the aviation industry has not embraced it to date. I will leave that to others.

Mr. LANGEVIN. Just a point, not to ask another question on this topic, but obviously, closer working with the customers ensures that once we feel that they are actually going to take us up on it and work with us to implement it. Admiral, just briefly, your budg-

et request includes 20 percent reduction in university programs, at the same time you are touting the creation of four new university Centers of Excellence. I know that the existing centers are forward funded with 3-year money, but it is my understanding that you are going to abandon this practice for annual appropriations. I would like to ask—I would like to see these new centers succeed, but I am also worried that you may end up spreading yourself too thin. And both the new and existing centers will suffer. Can you explain how this is supposed to work?

Mr. COHEN. Yes, sir, Mr. Chairman.

As you are aware, as I came into the job in August, there was some very strong language in the pending appropriations bills relative to the Centers of Excellence. For whatever reason, my Directorate was not able to show the alignment of the Centers of Excellence that existed at that time with the mission requirements of not only the Department but also the Directorate. And there was also great concern throughout the Congress in a bipartisan way that the Centers of Excellence did not adequately represent the intellectual basis around the country, and I won't get into the details of that. This was the perception on the Hill, and it was reflected in the legislation.

As you know from our prior dealings and public statements I have made, I feel very strongly about the responsibility I have. It is one of my three strategic goals, and that is to proactively invest in the underlying workforce development. This includes the student bodies.

We are in crisis in this country in science and technology. People in middle schools in all States are turning away from science and math. My understanding is 80 percent of all science and math today in the middle schools and high schools are taught by good teachers, but 80 percent of them are not trained as science and math teachers.

So this is an area we have got to turn around. To the extent that I can dual-use the precious dollars that you give me for universities, for students, for fellowships and scholarships, I want to make the most of that and, again, I want it to be transparent. And so working with both sides of the aisle and both the other body and the House in August and September, I think you are aware we were able to come to a proposal that aligned the Centers of Excellence, which all of the existing Centers of Excellence enthusiastically, I met with all of the directors—in September, as you know, we had a display here on the Hill in the middle of September. And because I had six enduring divisions, which you are familiar with, they aligned to one or more of those divisions. And what that did was it gave me an underlying foundation so that, as we have said, with the customer if I didn't have a technology solution, I could now go to a Center of Excellence or to a laboratory to do the underlying basic research. You don't know what you don't know, and that is a very important area of what we do.

And so I found that two of my areas didn't have aligned Centers of Excellence, and I had several in bio of a wide variety, several in communications, command and control, and interoperability, and so we asked them to combine and align while establishing four new Centers of Excellence which were aligned and will be aligned. Now

those broad agency announcements are out there. We look forward to the competition. In my model, I want to see universities aligned with national labs, because they bring so much to that, but on top of that, I am also aligning my fellowship and my scholarships, which were totally independent of the COEs. Here I have 82 universities and colleges who stepped up to the plate, who established curricula that was supportive of the mission needs of Homeland Security in their universities, and I was not aligning my fellowship and scholarships to those schools. That didn't make any sense to me.

So what I have done now is, we are going to use, and I am not going to do it all, we will work with you, 60–40, 70–30. I don't know what the number will be, but I want to give those fellowships and scholarships to the COEs and associated had colleges and universities for them to invest in the students that are taking those courses. For the other students who go to other universities that I don't want to disenfranchise, we will go ahead and make sure they get fellowships and scholarships, as we did in Navy, but they must take Homeland Security related curricula.

Now, in the area of minority-serving institutions, when I came on board I can tell you, and all you have to do is look at the universities who are associated with the COEs, they were significantly under represented. And when I met with the students, I wasn't seeing the face of America. And we have got to go to the best of the best. You are very familiar with what we did in Navy with the summer intern program which allowed students to come with a $3,000 to $5,000 stipend to the warfare center at Newport, Rhode Island, and Pax River and elsewhere on an annual basis. And we went to almost 70 universities all around the country.

It is not surprising that the best of the best at University of Houston were Hispanic and the best of the best after Hampton University were African-American. So we had the face of America just by throwing out a broader net. This is critically important, and so one of the things I did in the 2007 budget, with the help of the Hill and the OMB, was we set aside, and I think it was appropriate, $4 million focused on minority-serving institutions to kick start this new paradigm. And in the 2008 budget, that is $3.75 million.

Now you asked why I had a 20 percent reduction. The reason was with the language on the Hill, with the lack of alignment of student programs and COEs to the output function of the Department of Homeland Security, Homeland Security leadership had also lost confidence in this program. And so I was fighting a two-front battle. Number one, I had to restore the confidence of the Congress in these important programs. And now as you know, sir, we have divided all of the COEs into a class system very similar to the Congress where every 2 years one-third will be up for a 6-year recompetition. And as I was required to and did brief the Appropriations Committees within 60 days after the passage of the fiscal year 2007 appropriations law, they will be able to recompete for one 6-year term, but then we have term-limited them to 12. And I was following the manufacturing technology model of 5 years, but 6 years was more appropriate for the universities.

We will continue to fund—when we commit to that 6 years, we will fund at agreed-upon levels, assuming the appropriations from the Congress, to those levels for those COEs. But we now have strong minority-serving commitment that I am personally committed to do and in the broad agency a announcements that he we just put out we strongly encourage not only the participation but the leadership of MSIs as appropriate, whether it is on borders, explosives or in other areas.

So I brought back, B-R-O-U-G-H-T, a lot of the money to get us to 80 percent of where we were previously, and I look forward based on the success of the program to continue to grow that part of my portfolio.

Mr. LANGEVIN. I recognize the ranking member, the gentlemen from Texas, Mr. McCaul, for 5 minutes.

Mr. MCCAUL. Thank you, Mr. Chairman.

I, too, share your concerns over the cut in funding for the Centers of Excellence, and Admiral, I know you agree with that. You submitted—had a budget that was higher. I have several universities in my district, one close by that isn't a Center of Excellence. I think it is a great symbiotic relationship with the Department.

I think, given your realignment of fellowships and scholarships, your leadership, perhaps it will restore the confidence of the Congress and the administration so we can look at restoring that funding for you.

Also to echo my colleague from California, the concern over cybersecurity, I think most people don't understand the grave threat that cyberspace can pose to not only this country but the world, far more than a single weapon of mass destruction. It could shut down this entire country.

So I am glad to hear that you provide the leadership on that as well. In terms of the cybersecurity czar, I would continue to ask that you make that a priority under your watch. I understand that you do have a briefing that will be a closed door briefing for the members of this subcommittee, and I look forward to that briefing as well.

The other members have touched on most of the topics. The other one I wanted to mention was interoperability. This comes up a lot for us when we go back home in our districts. Why, more than 5 years since September 11th, have we not been able to become interoperable? If you could answer that question, but also as it deals with technology, is this a technology issue, our problem, or is it a human turf problem or maybe both is my guess?

Admiral?

Mr. COHEN. Congressman, it is a combination, and I know because of your interest in this area that you are familiar with the scorecard that came out at Christmas, and because it is not an area that I was focused on, we are 20 years in the Department of Defense under Goldwater-Nichols, and we still have interoperability challenges. Some of those are technical, and some of those are cultural.

But I just didn't appreciate the governance issues with the first responders. When I look at the scale issues that I have, I have to deal with the sheriff of Mayberry. And I have to deal with the New York City Police Department. And I have to deal with a volunteer

fireman on a tribal reservation with a 1939 LaFrance pumper, and I have to deal with the Chicago Fire Department. Those scale issues are significant.

The technology is there. Today, if we wanted to buy it, we can buy digital programable radios, but I wouldn't begin to suggest either to the administration or to the Congress that we refurbish all of the 35,000 fire departments in this country, of which 80 percent are volunteer, or the more than 7,000,000 uniformed policemen that we have. It would be a temporary fix.

Today, if you can get on the internet, and some of you probably have voice-over IP. If you can get there by copper, by fiber, by radio frequency, by any means, it doesn't matter if you are Windows or Mac, we have interoperability. Where I am focused now is really in the RF. And Secretary Chertoff has committed that we will be interoperable in voice by the end of this administration, but we are also looking, and this is S&T, at data, which is bandwidth, and streaming video, which gives you the common operating picture. Today with iPod and V-Cast we have the technical capability.

And so I am most focused on the disenfranchised user. This is the individual where we have to worry about the last mile. And it always comes down to the last mile. And whether it is the rural policemen or the Border Patrol, once we can get them, and it is generally by radio frequency, onto the Internet backbone by any means, which has vulnerabilities and cyber challenges, we are doing okay.

The governance issue that I found and I think shining light on this will help enormously is we have some chiefs of police in their cities where the patrolmen and firemen have the ability to talk to one another technically, but the governance requires the police only to talk to police headquarters and the chief of police to the fire marshal, who then passes the information down to the firemen. That is not how you win wars, even wars against terror.

So I think the score card will suffer as well, but it will be a balance of technology and governance. And we look forward to your leadership in this area to help.

Mr. LANGEVIN. The gentleman from North Carolina is recognized for 5 minutes.

Mr. ETHERIDGE. Thank you, Mr. Chairman.

Admiral again, thank you. Talking about score cards and that last mile and the person out there at the end, let me ask a question on that for just a moment because I know that you have done much to reorganize as you pursue the S&T Directorate as you developed it to make it work better, I commend you for that and thank can you for it. I understand, as you put your new organization structure together, it is designed to serve those people in the organization that make use of the technologies and capabilities to use to protect the homeland. And I applaud your effort in that and thank you for it.

But the first responders and others who use Homeland Security in the field, they also appreciate the effort for those they get, the efforts they get, because they really are the front line when it comes to protecting the homeland. I remind my colleagues, and I don't need to remind you because, you know, because if someone has a fire or emergency or something happens in their community,

whether it be manmade or natural, and they dial 911, it normally does not ring up here; it rings in their hometown.

So with that, let me ask you how are you are ensuring that the work is in fact aligned with local needs. In particular, I know that you are establishing integrated project teams that are making excellent progress in defining customer needs. However, in looking at the IPT membership, it looks like your customer base is Federal. There are no stakeholders outside the Department.

So my question is three-fold: How are you involving State and local governments? And number two, do you have the ability to form an IPT with a non-governmental agency, such as a private sector owner of critical infrastructure? Thirdly, can you give me some examples of your IPT's, priorities and what gaps that are there that may need to be addressed or something we may need to help with?

Mr. COHEN. Yes, sir. The short answer is I can form an IPT with just about anybody, and again, the enabling legislation, I think, was very, very wise. As you know, in my organizational construct, I do have a directorate for agency and foreign liaison. Initially, it was my intent to also have, as I discussed, association liaison, because I talked about the scale. It is much better for me to deal with fraternal order of police or fire prevention or firemen organizations, and they are well represented of course in the Congress. But what I found out in DHS was a common complaint from State and local as well as first responders—and first responders are our heroes; they are my customers—was that there were too many entry points. There were too many people trying to engage with them, and there was great confusion. And of course, the first responders are focused on providing the mission that they do, and this was part of overhead. And so I am satisfied now that I have gotten smarter on the construct of the Department of Homeland Security that we have the appropriate organizational people who come from that background, whether they are the Paulsens or the Forsemans or others who understand how to deal with State and local communities as well as associations, and so then while they are not formally identified in my IPT structure. I can deal with them and get to the first responders and the associations without causing this left hand, right hand problem.

But that is not enough for me. We have to be able to empower the first responders. They have to have faith that the science and technology is there for them and not just the bureaucracy of Homeland Security. And so one of the things I did in Navy, because I had this same challenge, there my customer was the system commands that procure the items and maintain the weapons systems in ships but also the sailor and Marine. And we established a Web-based text solutions, that is what we called it, and made it available with 1 percent of my budget where they could come in on the web, and these kids are smart, and they know solutions. And they read Popular Science and Popular Mechanics, and they have been there, and they have college degrees, et cetera. And they would then come in and tell me the problems they had, offer solutions if they knew, I would then broker that to my warfare centers in Navy, we would stay in touch with that sailor, and we then would provide the solution.

And the Chairman is familiar with one of these. We had a young kid from the Persian Gulf. It is very hot in the Persian Gulf in summer, 130 degrees. He is on an aircraft carrier, and he says, you know, 4.5 acres takes several hundred people to degrease the flight deck, and it is really dirty work, like holystoning the old sailing ships. He said, I am from Boston. And when I go to the Bruins, he said, after each period, they have got a Zamboni, and they resurface the ice. Why can't we have a degreasing Zamboni?

I have got to tell you, this was right on the edge of S&T. And I justified it, not that we were developing a Zamboni. We weren't, but we had to treat the petrochemicals and not put them over the side. And so we spent a million dollars, and God bless, through our warfare centers and industry, we provided a degreasing Zamboni to that aircraft carrier. Now you can imagine this young sailor never had to buy another beer with that crew in his life.

So that was an example. What I am telling you is, I have now established text solutions. We have the Web site for first responders. We are getting the word out. And I will do with my DOE labs, with national labs and my own labs the same thing for first responders that I did for the sailors, but that is not enough. You very wisely provided for a tech clearinghouse. Now, this, regrettably, was not fully enabled by my Directorate. I am very pleased that I understand that the tech clearing house has hired a very good person who knows how to do this from Sandia labs. I look forward to sitting down with this person. We are going to take the unspent moneys, which are considerable, and we are going to focus directly on the first responders.

So we are going to take a two-faced approach, and I will be glad to get back to you on the details of those projects, but they will come from the first responders, not from me.

Mr. ETHERIDGE. Good. Thank you very much.

Mr. LANGEVIN. Finally, the gentleman from California, Mr. Lungren is recognized for 5 minutes.

Mr. LUNGREN. I didn't know how we were going to get into Zambonis. A friend of mine is actually the nephew of Mr. Zamboni who owns the Paramount ice rink in Paramount, California who figured out somebody had to figure out how to do the resurfacing of the ice rather than doing it the old way. I am glad to see it also helped in the Navy.

Admiral I see that you commanded the USS Hyman Rickover, and I notice that you graduated from Naval Academy the same time I graduated from Notre Dame. Did you ever undergo the famous Admiral Rickover interview?

Mr. COHEN. Yes, sir, I did, and I would like to publicly acknowledge that, in the entire time I have been in the Navy, which was 1964 through 2006, Navy played Notre Dame every year, and we have yet to defeat you, sir.

Mr. LUNGREN. I know.

Mr. COHEN. So I congratulate you. But I did go through the interview.

Mr. LUNGREN. My good friend, Admiral Tom Lynch, was the captain of the last team to beat Notre Dame.

Mr. COHEN. 1963.

Mr. LUNGREN. We don't forget those things. I am not an expert on this but I am starting to look at it, the configuration of the internet IPV4 versus IPV6. We are the ones who invented the Internet. We are stuck in the old protocols, so to speak. It is limited compared to the tremendous expansion of what I would just call very simply Internet Web sites, for want of a better term. It appears that is the nature of the future. It also gives us, because of its expanded volume, tremendous opportunity in the area of security and yet do you think that we have the emphasis in the Federal Government to move in that direction. And the reason I ask that is we have made a decision in the television industry to move to digital so that we can open up bandwidth. We as a Federal Government have made decisions that basically are going to result in the American people buying new televisions or having convertors because we thought that was important from a standpoint of opening up bandwidth and also product improvement to the public. But from my standpoint, this other issue is a far more serious issue in terms of potential security needs. And are we going to, in that new world, build in the kind of security we need against terrorist attacks on cyber security that we didn't when we first started with the Internet because, frankly, we weren't in that world? And what is your office doing to take this challenge seriously?

Mr. COHEN. Congressman, I would like to thank you for your personal interest in this area. This is critically important, and there is always a balance between access and security and putting a damper on innovation by regulation, et cetera. This is the wild, wild west, and this curve hasn't even started bend over. In fact, I think it is accelerating, and it is exciting. And the same advantages that we have that enable the business, regrettably, give the terrorists access to do widespread harm, as you have indicated. I don't know if our government is organized for this new world and this new threat. And I am glad to work with the Congress and with the administration to help, and anyone else, industry of course. In the enabling legislation, you made me responsible for standards, standards Department-wide. We talked a little bit about interoperability, and I am having to balance IEEE versus ANCI versus NIST standards, and what you find is people are coming to me and saying, look, in some ways, standards are things of the past. With middle wear, it doesn't matter what standard. We can design a program that will give us the interoperability. So I have 6 pages from the IPT, from my cyber czar customer, many of which, Congressman Lungren, address exactly the issues you are talking about. And we were able to fund about half of these, and half I have budgeted in the out years because this fund, as you know, zero to 3 years, refreshes itself.

I think this issue is much bigger than this particular hearing and might be best if we discussed this off line, and I am glad to do that, sir.

Mr. LUNGREN. Thank you. Thank you, Mr. Chairman.

Mr. LANGEVIN. I want to thank the witnesses for very valuable testimony and the members for their questions.

Admiral on a personal note, I am glad that my first hearing as chairman of this subcommittee was with you as our witness. Thank you for your testimony.

The members of the committee may have additional questions for the witnesses, and we ask that you respond expeditiously in writing to those questions. Hearing no further business, this committee stands adjourned.

[Whereupon, at 4:22 p.m., the subcommittee was adjourned.]

Appendix A: Additional Questions and Responses

QUESTIONS FROM THE HONORABLE JAMES R. LANGEVIN, CHAIRMAN, SUBCOMMITTEE ON EMERGING THREATS, CYBERSECURITY, AND SCIENCE TECHNOLOGY

RESPONSES FROM THE HONORABLE JAY M. COHEN, UNDER SECRETARY, SCIENCE AND TECHNOLOGY

Question 1.: Regarding cuts in funding, last year, Congressional appropriators expressed frustration with the Directorate's production by slashing the budget and withholding funds.[1] An August 2006 article in the *Washington Post* said that the organization is "hobbled by poor leadership, weak financial management and inadequate technology,' stating that S&T "has struggled with turnover, reorganizations and raids on its budget."[2] The President's budget included some reductions in the areas of University Programs (which includes the University Centers of Excellence) and the Infrastructure and Geophysical programs (including the Southeast Regional Research Initiative (SERRI) and the Community Based Critical Infrastructure Protection Institute).

Can you explain why these programs were singled out for such large cuts?

Response: Program level increases and decreases in FY 2008 are a reflection of the transition or transfer of mature technologies to other DHS Components, the completion of programs, reduction of funding needs for construction and laboratory operations, and better alignment of some programs and leveraging of others.

The Department will continue to balance research and development needs and funding resources so that the S&T Directorate's budget reflects the priorities of the Department. The development of new technologies and measuring the potential impact they have on our operations and acquisitions are more critical as we are committed to operate more efficiently and accomplish more with fewer resources.

Question 2.: Regarding cybersecurity, the President's budget cuts cybersecurity R&D funding this year from its request of $22.7m last year.

In light of all of the executive reports that have been released highlighting the importance of spending federal dollars on cybersecurity R&D, how can this Administration continue to justify its meager spending in the field?

Cybersecurity research and development (R&D) has been and will continue to be a priority in the President's budget, the Department of Homeland Security and in the newly formed Command, Control and Interoperability Division within the S&T Directorate. The FY 2008 cybersecurity R&D request is $14.88 million, a 32 percent increase over the FY 2007 enacted level. Based on the capability gaps that have been generated by the Department and other Federal agencies, the S&T Directorate in coordination with the DHS Assistant Secretary for Cyber Security and Communications has developed a focused budget that addresses the Nation's critical cybersecurity needs where the government can have the greatest impact.

Question 3.: Regarding basic research, S&T seeks to balance risk, cost, impact, and time to delivery. Your goal for Basic Research investment is 20% of the budget. When we talked with your staff, they expressed how this particular area is difficult for the customer to envision the long term investment needed in basic research.

[1] "The Committee is extremely disappointed with the manner in which S&T is being managed within the Department of Homeland Security. Despite the efforts of the Acting head of S&T, this component is a rudderless ship without a clear way to get back on course." The Committee directs the Secretary to immediately develop a 5-year research plan, including performance measures, which reflect DHS's research and funding priorities, and brief the Committee no later than 60 days after the date of enactment of this act. Developing and implementing this 5-year plan is the only way S&T will be successful.

[2] Washington Post, Aug. 20, 2006.

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How will you get your customers to understand the importance and support Basic Research investment?

Response: The S&T Directorate is working closely with its customers to build an understanding of the importance of basic research. For example, the S&T Directorate, in its interactions with customers through a capstone Integrated Product Team (IPT) process, is providing guidance on which types of research are likely to produce results that will lead to technology development that will fill customer's needs. Basic research may be required when:

- The S&T Directorate's Transition program may only be able to fulfill a partial gap requirement and would require basic research to develop a deeper understanding of the science and technology needed to fulfill the entire gap; or
- There may not be current or near term technical solutions available to address identified future threats. A basic research program would investigate science to provide the fundamental understanding that could be used by scientist and engineers to develop practical solutions.

We are educating our customers about our capability to quickly tap into areas of basic research that can be exploited for homeland security solutions. The basic research program is attuned to new scientific developments in many communities through domestic and international technical exchanges, symposia, various publications and leverages science used to develop solutions and funds projects of specific interest to exploit collaborative and interdisciplinary relationships to solve fundamental issues to advance needed technologies.

Question 4.: Regarding contracting officers, for FY 2006 funds, S&T had a $125m rescission because they were not committing and obligating funds in a timely manner. I understand that one of your top priorities is for S&T to become more efficient at executing their FY 2007 funds with a goal of 100% commitments by the end of May. It seems that you are making good progress and I commend you for that. S&T, and the Department in general, has historically had trouble getting money out the door due, in part, to limited numbers of DHS contracting officers available.

Do you have an adequate number of DHS contracting officers assigned to S&T to execute in a timely manner?

The DHS S&T Directorate and the Office of Procurement Operations (OPO) have agreed to a staffing plan that will serve all of the S&T Directorate's needs. OPO is currently hiring to fill that staffing plan.

Question 5.: I understand that DHS Contracting Officers are detailed to various component agencies including S&T. The Contracting Officers are on-site to S&T, but their performance assessments do not include input by S&T. **How can you effectively work with DHS contracting officers detailed to S&T if the process does not allow for S&T's input regarding their performance?**

Response: The DHS Office of Procurement Operations (OCO) personnel, assigned to DHS S&T, are collocated with the S&T organization; the S&T Directorate has provided working space for contracting offices at the Vermont Avenue location. This day-to-day working arrangement provides opportunity for the contracting officers to quickly gain familiarity with the S&T Directorate's mission and objectives and address issues as they arise—all within a team environment. The performance goals flow directly from the goals of Chief Procurement Officer to the Head of the Contracting Activity to the contracting specialists. S&T leadership does provide evaluation commentary and feedback on those collocated at Vermont Avenue. However, OPO believes that the evaluation of the quality of the work performed by contracting professionals is best performed by other contracting professionals because of the complexities involved in the work. The OPO branch chiefs, division directors and oversight team provide a significant portion of the input on the performance of the contracting professionals. Additionally, the contracting professionals are thoroughly trained and certified in accordance with the Department of Homeland Security Management Directives. Further, the OPO workforce management team monitors the contracting professionals' initial training as well as determines required skills currency training.

Question 6.: Regarding integrated project teams, the Integrated Project Teams (IPT) established and currently ongoing are making excellent progress in defining customer needs. In looking at the IPT membership, your customer base is Federal; there are no stakeholders outside of the Department. I have questions about the following:

How are you involving State and Local governments?

Do you have the ability to form an IPT with a non-government agency, such as private sector owners of critical infrastructure?

Can you give me some examples of your IPTs priorities and what gaps they address?

What parts of the customer's mission is the IPT priority addressing?

I know you have introduced the IPT concept to ensure customer collaboration and buy-in.

What is the formal agreement in an IPT? Do all members of the IPT sign an MOU, for instance?

Response: (1) The first phase of establishing Capstone Integrated Product Teams (IPTs) focused on developing and strengthening the relationship with Departmental component customers to ensure that the S&T Directorate focused on technology that would best support DHS components? strategic mission priorities. We know that the DHS components have long-standing relations with their appropriate State and local representatives and interest groups that already address the mission requirements and capability gaps in the IPT functional areas and therefore felt it was best at the beginning of the IPT process to have the Departmental Components choose how to address the priority needs of their customers.

As the Capstone IPT process is maturing, the S&T Directorate is reaching out to the National Guard Association and other representative State and local groups to communicate technology requirements and priority mission capability gaps as identified by Departmental Components. The S&T Directorate has invited these groups to join the IPT process to ensure that the capability gaps of the end-user community are properly understood as well as ensure these organizations understand the process by which technology requirements are vetted and prioritized for science and technology investments. From a procurement integrity standpoint, some caution must be exercised about involvement of contractors in the requirements-setting phase of contracting. The IPT can and will obtain the best ideas of the private sector, but must be careful not to create a competitive advantage by involving only a few contractors in this process.

First Responder and State and local governments can also make their technology requirements known to the S&T Directorate through the Tech Solutions program where their input on current capability gaps and technology requirements is received by the S&T Directorate via a website. We will pursue technology solutions directly through this approach, as well as bring forward these requirements to the appropriate Capstone IPT for inclusion in the Capstone IPT process.

(2) At this stage, the S&T Directorate has not included private sector organizations in its formation of IPTs; however, when appropriate, input from the private sector is sought and incorporated into the IPT process. For example, the S&T Directorate's Infrastructure Protection Division brought into the Capstone IPT process the priority requirements generated with the 17 Sector-Specific Agencies, which represent the private sector's critical infrastructure priorities. These requirements were then addressed within the appropriate Capstone IPTs to ensure the private sector owners' priorities are known and considered.

(3) Attached are representative technical priorities for each of the 11 Capstone IPTs and the mission capability gaps that these solutions will address. These priorities have been set by the component leads of the IPTs. (See attachment A)

(4) The customer-led Capstone IPTs are addressing those parts of the mission space where customers believe that technology is a significant contribution and provides value to their operations. Attached is a list of focus areas that the IPTs addressed during their discussions. The Capstone IPTs are focused on identifying programs that will develop near-term (0—3 years) deliverables that improve mission capability. (See attachment B)

(5) Charters will be executed for each Capstone IPT that will identify the representatives and mission areas under that IPT's authority. Technology Transition Agreements (TTAs) will be executed between the S&T Directorate and the project customer to formalize in detail the technologies to be transitioned to the customer. Additionally, the S&T Directorate is drafting a Management Directive for consideration by the Department that will codify this process.

Question 7.: Regarding personnel problems within S&T, he recently released OPM (Office of Personnel Management) Survey ranked the Department at or near the bottom in four major personnel categories, including performance and job satisfaction. During the hearing, Under Secretary Cohen stated that that he will provide the Committee with a plan to improve morale, minimize turnover, strengthen workforce recruitment and secure institutional memory within the Directorate.

When will that plan reach the Committee?

Response: The S&T Directorate received the results from the Chief Human Capital office for the Office of Personnel Management Federal Human Capital Survey on January 30, 2007. We reviewed both the Departmental responses and the S&T

Directorate's responses and were able to identify four findings that point to areas in the S&T Directorate that require improvement. Below you will find the plan which identifies the four findings, actions taken to improve dissatisfaction, and metrics for measuring our success.

The first area cited is lack of respect for and honesty conveyed by senior leaders. To improve in this area of dissatisfaction, senior leadership has taken proactive measures to communicate the S&T Directorate's vision, mission, and path forward as well as provided feedback opportunities for all staff by:

- Holding regular "All Hands" staff meetings every four to six weeks (previous meetings have been held August 11, September 12, October 20, December 19, and February 9);
- Holding weekly "Corporate Board" meetings composed of senior staff, which began on October 25, 2006;
- Releasing *S&T Snippets,* a newsletter touting recent S&T Directorate activities;
- Published a "Corporate Calendar" in January 2007; and

We will measure our success using input received from these meetings, releases and publications, which, to date, have been very positive.

The second finding is the lack of recognition for performance, to include promotions/raises/awards not based on merit. To improve in this area of dissatisfaction, we are providing training for all employees in performance management and leadership. We offered Performance Leadership Training, Goal Writing Training and Performance Training. The S&T Directorate's leadership team has also initiated the presentation of awards to employees at the "All Hands" meetings. To date, we have given five awards and will continue to acknowledge the special performance of employees at other "All Hands" meetings.

The third finding is lack of sufficient personnel on board to get the job done. To improve on this problem, we are currently developing a staffing plan to address critical needs and gaps to fulfill our mission requirements. The S&T Directorate intends to measure the staffing plan through execution and will continue to evaluate and seek the needed resources for staff to do their jobs.

The final area of concern is the lack of opportunity to improve skills. The S&T Directorate is committed to employee development and has launched an aggressive set of initiatives to develop learning opportunities for staff. We have implemented a training initiative that encourages and facilitates employee training. For example, the S&T Directorate encourages employees to participate in program management training opportunities such as the S&T's new Homeland Security Acquisition Course 101, which was piloted in November 2006, and offered again in March, and April, and slated for June. We had several other learning and development opportunities available to S&T Directorate employees, to include the Graduate Education Program, Senior Executive Service (SES) Development Program, Fellowships, and the SES Career Development Program. The S&T Directorate has approved 30 requests for employees to take job related training in fiscal year FY 2007. Finally, we are in the early stages of discussion concerning intern development opportunities and student hiring plans. We will measure the success of the training program by the number of employees who avail themselves of the training, obligation/expenditure rates, and program review results (cost, schedule, and capability); however it is too early to provide results at this time.

In conclusion, we believe that the actions taken to date as well as future measures to improve the satisfaction level of staff will result in positive feedback and improvement over time. We expect that results from the next DHS survey, anticipated for September 2007, will show a marked improvement in the Directorate's survey scores.

Question 8.: We believe it is important to have a Federal workforce within the Department, especially in a directorate like S&T where institutional knowledge is needed. Instead, we see an over-reliance on contractors with just a few Federal project managers. **Are you committed to shifting from such a contractor-based operating picture to one that hires and grooms Federal workers? Are you actively recruiting younger members and not just proven program managers?**

Response: The S&T Directorate agrees that institutional knowledge is critical to meeting the mission of Directorate and DHS. The S&T Directorate initiated a realignment that is structured not only to develop a workforce with the skill sets to meet our mission, but also to provide a supportive structure to ensure a collaborative team focused environment.

The S&T Directorate is allocated 383 (FY 2007)/ 381 (FY 2008) full-time equivalents (FTE). Our goal is to reach the level either on hand or in the hiring pipeline

by the end of the year. The S&T Directorate relies on contract support and the talent brought to the organization through detailees from other Federal agencies and those members through the Inter-Governmental Personnel Act. These various methods of bringing onboard the leading talent in the Nation to address new issues in areas of research, development, test and evaluation helps the S&T Directorate maintain a highly skilled, flexible and agile workforce. This mix of highly skilled talent is critical in creating a dynamic environment; one in which employees will thrive. To enhance the recruitment process the S&T Directorate developed Scholars (undergraduate) and Fellowship (graduate) programs aimed at students with backgrounds in the science and technology areas. In addition, the S&T Directorate is in the early discussion/planning stage to develop an internship program.

Question 9.: Regarding personnel (ethics) issues at the S&T Directorate, this Committee is familiar with the December 2005 GAO report that described the significant problems with the way that S&T handles its IPA (Intergovernmental Personnel Act) employees. The IPA issue is important to resolve because IPAs are actually not employees of the Department of Homeland Security, but are essentially on loan to the federal government from universities or state/local government. The Department usually pays their salary. This is a great way to get much-needed talent into the Department, and we are thankful for the hard work that many of the IPAs that are on your staff put in every day. Unfortunately, as the GAO pointed out, the Department does not have adequate ethics procedures to utilize their IPAs. In response to a query by Committee staff, DHS Legislative Affairs wrote on Oct. 12, 2006, that "S&T is working with the Chief Human Capital Officer and the Office of General Counsel on a guide that will provide the comprehensive information needed for the hiring of IPA detailees and administering their assignments."

Will you please provide the Committee with that guide?

Response: Intergovernmental Personnel Act (IPA) employees are a critical component of the S&T Directorate's workforce and have been since the organizational was created. The Directorate is aware of the ethics issues that may occur in this talent sharing relationship between the Federal sector and universities/national laboratories/state and local entities. The S&T Directorate has developed and drafted several process documents and/or guides to assist managers and our partners in understanding the requirements involved in an IPA position. In developing these documents the S&T Directorate collaborated with the DHS Chief Human Capital Office (CHCO) and the Office of General Counsel (OGC) representatives matrixed to the S&T Directorate. In addition to the ethics program the guide addresses a broad range of administrative requirements including travel. The Directorate believes the best practices have been captured as they relate to the S&T Directorate's environment. The draft IPA policies and procedures were developed f7ollowing the Office of Personnel Management (OPM) guidance and by benchmarking best practices across the Federal agencies. The S&T Directorate analyzed and compared the IPA policies and procedures used by the Department of Energy, National Aeronautics and Space Administration, National Science Foundation, National Institutes of Health and the Office of Naval Research. These are the premiere users of Intergovernmental Personnel Act and have the most mature policies and procedures. Currently, the S&T Directorate is testing the adequacy of the draft guidance as we await the publishing of the DHS Management Directive on the IPA program. The S&T Directorate is pleased to share with you our draft guide with the understanding that revisions may result from further review. (See Attachment C)[1]

Question 10.: Interoperability depends on several factors, one of which is technology. Others have to do with governance and standard operating protocols. Last year you made technology recommendations on how to fix the problem. **Can you explain what the technology solution you outlined and what needs to be done to finally fix this problem?**

Do you have any role in that process, or do you feel that you have now made your recommendation and it is up to others to implement?

In the Fall of 2006, the Under Secretary Cohen testified before the House Homeland Security Subcommittee on Emergency Preparedness, Science, and Technology on the reorganization of the Department's Science and Technology (S&T) Directorate. In his testimony, Under Secretary Cohen discussed the establishment of technological standards for interoperable communication among emergency responders. Technological differences in equipment have become a major factor that cripples the ability of the Nation's emergency responders to communicate during a crisis.

[1] U.S. Department of Homeland Security, '*Intergovernmental Personnel Act (IPA) Program Reference Guide*, April 30, 2007. [Maintained in the Committee file.]

To combat this problem, the Office for Interoperability and Compatibility (OIC) within the S&T Directorate has been actively involved in Project 25 (P25) standards development, an initiative that will help produce voice communications equipment that is interoperable and compatible, regardless of manufacturer. OIC was established to serve as the office within the S&T Directorate to strengthen and integrate interoperability and compatibility efforts to improve Federal, State, local, and tribal emergency response preparedness and recovery. The P25 suite of interface standards is a major building block for achieving interoperable communications. P25 is part of a *voluntary consensus* standards development process led by the Telecommunications Industry Association (TIA). Over 20 interested parties (government and commercial entities) meet regularly to negotiate and document the P25 standards suite. While OIC promotes the acceleration, completion, and wide-spread adoption of P25 standards, neither OIC nor DHS has the authority to set standards.

With support from Congress, the S&T Directorate's OIC has worked closely with the National Institute of Standards and Technology (NIST) to establish a clear vision and communicated key priorities for standards. As a result, industry has dramatically accelerated the development of key standards. OIC has helped develop initial standards for six of the eight major system interfaces associated with P25. All key component standards that comprise the P25 suite are nearing completion and work continues on test protocols to validate interoperability. Through the work of OIC and NIST, the P25 standards suite should be completed within the next 18—24 months.

Since October 2005, OIC has also worked with NIST to develop a P25 Compliance Assessment Program. This program will ensure that equipment from different manufacturers not only interoperates, but also meets minimal requirements for performance and conformance. In addition, the program will work with manufacturers so that their voice communications products supposed to comply with published P25 standards actually do. Finally the program will help ensure that Federal grant dollars are being used appropriately by State and local governments.

Though the S&T Directorate's OIC has made significant progress toward standards development, the work is far from complete. As standards are developed and tested, OIC will continue to actively engage stakeholders and congressional leaders. With continued cooperation of industry, the emergency response community, and the Federal Government, interoperable P25 equipment will be available across the Nation.

Question 11.: I have a question about the method by which the Department evaluates the performance of the programs within your Directorate. Every year, the Department provides the President and Congress with the Performance and Accountability Report, also known as the "PAR," which is an audit conducted each year by KPMG designed to assess the effectiveness of the Department's mission performance and stewardship of resources. The goals and measurements used to write the 2005 and 2006 reports are, by and large, weak and meaningless. Allow me to offer a few examples to explain what we mean. For example, the PAR looks at the Explosives Countermeasures portfolio, where the stated performance goal is to "improve explosives countermeasures technologies and procedures to prevent attacks on critical infrastructure, key assets, and the public." That's a good goal. But the performance measure is to count "the number of pilot programs that the Department has initiated." KPMG explained that the Explosives Countermeasures portfolio met their performance goal because they initiated 4 pilot programs. My point is that the number of pilot programs initiated, by itself, is not a significant measurement of how this program is performing. This measurement, coupled with follow-on measures or reporting on how these pilots have positively impacted running the program would make this reporting more meaningful. Here's another example from your Directorate. The SAFETY Act performance measure is to count "the percentage of full applications that receive SAFETY Act coverage? The target in 2006 was 65%. Again, this measurement is meaningless. Who is to say that these applicants even merited SAFETY Act coverage? We want to judge the SAFETY Act Office by how many applications were filed, or how many applicants found the application process to be user-friendly, or how quickly the Department is able to turn around applications. So again we have an example of a meaningless performance measurement.

I have the following questions:

What efforts are underway at S&T to modify the way that some of these programs are being assessed?

Are you discussing ways to improve these assessments with KPMG?

How can you evaluate performance over time if you have a constantly changing baseline?

Can you provide us with your future goals and where are these documented or stated?

Response: Performance measures are a key piece in our efforts to get the content right and to that the end the S&T Directorate has initiated a number of changes to ensure that programs are assessed in a more meaningful manner. For example, a set of basic cost, schedule and performance measures have been developed that will be used to assess the health and progress of programs and projects across the S&T Directorate. These measures are to be tracked in the S&T Plan Database, a new system used to manage, track and execute customer driven S&T Directorate investments.

A more effective way to assess programs across the S&T Directorate is to measure how well they meet customer-driven milestones. Achieving milestones and delivering capabilities to our customers are key to the overall performance of the S&T Directorate. Therefore, the S&T Directorate has developed a consistent measure across each of the new budget lines that ties directly to the work and milestones identified in its comprehensive Execution Plan for FY 2007—2008. For example, Chemical and Biological Countermeasures has identified several milestones in the FY 2007—2008 Execution Plan such as:

- Completing BioWatch (Gen 3) studies and working with local BioWatch users to develop preliminary concepts of operation (CONOPS) to better characterize and respond to biological attacks.
- Completing the Project BioShield material threat determinations for all traditional bio-threat agents of significant public health concern.
- Initiating the prototypes of an integrated CB detection systems—the system is targeted for use in subways, high-profile office buildings, and for deployment at special events.

The S&T Directorate will measure how well it is meeting the program milestones and goal as identified in the document, and will provide this information to Congress in its performance-related documents such as the Future Years Homeland Security Program (FYHSP), Performance Budget Overview (PBO), and the Performance and Accountability Report (PAR). This information, coupled with specific programmatic measures, will enable a comprehensive assessment of how well the Directorate is executing its programs and meeting its customer's needs.

To help ensure we meet customer needs, the S&T Directorate has established the Capstone Integrated Product Teams (IPTs) to identify our customers' needs and transition near-term capabilities for addressing those needs. The Capstone IPTs engage DHS customers, acquisition partners, S&T Directorate technical division heads, and end-users in our product research, development, transition and acquisition activities. This process, which began late in 2006, will provide a way to measure the success of the programs via the development of Technology Transition Agreements (TTAs). TTAs document the technologies to be transitioned to the customer, and commit the customer to funding to deployment of technologies that the S&T Directorate develops. The technologies available for transition either have to be accepted or meet user-defined criteria. This funding commitment by the customers will provide a clear indication of customer satisfaction with the products developed by the S&T Directorate.

Finally, the S&T Directorate is currently outlining its business model, which addresses plans for program performance, in the Five-year Research and Development (R&D) plan required by the Department of Homeland Security (DHS) Appropriations Act, 2007 which will be delivered to Congress in early summer 2007. The S&T Directorate considers performance vital to the management of strong programs and will continue to review and evaluate performance throughout the year as well as during the S&T mid-year review. The S&T Directorate will also develop processes and measures for different levels and types of performance-related, data-based reviews of programs and projects. The S&T Directorate plans to work with KPMG through the Department's Program Analysis and Evaluation office to ensure that they are aware of the changes that are being implemented and seek input throughout the yearly assessment.

Question 12.: Regarding the PART, I also have a question about the effectiveness of some of your S&T programs. You are no doubt familiar with the OMB's Program Assessment Rating Tool (PART), which was developed to assess and improve program performance so that the Federal government can achieve better results. Severak S&T programs have been rated by this tool, and the results have varied from "Effective" to "Results not Demonstrated." For example, the Biological Division has been rated "Effective," while University Fellowships, Rapid Prototyping, and Emerging Threat Detection are all "Moderately Effective." Threat and Vulnerability,

Testing and Assessment received a "Results not Demonstrated." In each report, an Improvement Plan is outlined.

What is S&T doing now to address these areas, so they are all considered "Effective"?

Are Improvement Plan suggestions part of the measures within the Performance Accountability Report or other document?

Response: The S&T Directorate is taking actions to address the scores and results of the Performance Assessment Rating Tool (PART). In addition to the improvements being made at the program level, the S&T Directorate is implementing several Directorate-wide initiatives to ensure that all of its programs are managed efficiently and effectively.

To better address overall program management, the S&T Directorate has designed an information tool, the S&T Plan Database (PDB) that enables more efficient management of research and development (R&D) budget resources. The PDB is part of the S&T Directorate's "one set of books" and will be used to manage, track and execute customer- driven R&D investments. The S&T Directorate is also implementing program management training that will include modules on financial and budget processes. This will ensure that all program managers in the S&T Directorate are well trained for the management of their programs.

To better address performance measures and the results, the S&T Directorate, through the PDB, will collect and report performance on schedule, cost, technical maturity and customer satisfaction. It will also report on how closely programs are adhering to their plans for milestones and deliverables. Progress on these detailed project-level milestones and deliverables will in turn be linked to higher level PART milestones and outcomes. The ultimate measure of effectiveness of our work will be how well we meet the needs of our customers.

To help ensure we meet customer needs, the S&T Directorate has established the Capstone Integrated Product Teams (IPTs) to identify our customers' needs and enable and transition near-term capabilities for addressing those needs. The Capstone IPTs engage DHS customers, acquisition partners, S&T Directorate technical division heads, and end users in our product research, development, transition and acquisition activities. This process not only provides a clear customer, but will provide a way to measure the success of the programs via the development of Technology Transition Agreements (TTAs). TTAs formalize in detail the technologies to be transitioned to the customer, and commit to the customer to funding to deployment of technologies that the S&T Directorate develops. This funding commitment by the customers will provide clear indications of customer satisfaction with the products developed by the S&T Directorate.

The following is a chart summarizing the scores and improvement actions that have been taken to ensure that these programs become stronger and managed efficiently and effectively. (**Chart—Attachment' D**)

Question 13.: Regarding minority serving institutions, on an application for scholarship and fellowship programs for students there is a list for "Fields of Study with Codes."

Is this list deemed an exhaustive list of Homeland Security-related curricula?

If it is, why is foreign language not included?

If it is not an exhaustive list, please provide us with a copy of such list.

Response: For the current year, the list of Homeland Security-related curricular is exhaustive, but the S&T Directorate will revisit the list for 2008. Specific to foreign language, since they are considered humanities they are outside the scope of the S&T Directorate's mandate. However, linguistics studies of the interaction of language and terrorism would fall within the accepted social science disciplines. Additionally, having a foreign language component of some disciplines, such as computer science-based textual analysis, would also fall within the scope.

Question 14.: Admiral Cohen, you have indicated that you have significant interest in ensuring quality partnerships with minority-serving institutions ("MSIs") and Centers of Excellence ("COEs"). However, in addition to the overall twenty percent reduction to university programs, MSIs generally receive a very small portion of funding given to the various COEs (i.e. tens of thousands as compared to the hundreds of thousands).

If MSIs are not given the funding to be "quality partners," how do you expect MSIs to become stronger partners with less funding available?

Response: The COE program has evolved since its establishment. The solicitations for the first COEs did not explicitly encourage MSI partners, nor did they include meaningful participation of MSIs as an evaluation criterion to ensure that the homeland security mission is bolstered by the diversity of viewpoints and research

MSIs may offer. As a result, when the first consortia were formed, MSIs were not explicitly sought by lead institutions as partners. UP issued later solicitations which encouraged MSIs to compete and submit proposals with the result that the last two COEs both have MSI partnerships.

All new and extended COEs are encouraged to have meaningful partnerships with MSIs and MSIs are encouraged to submit competitive proposals to lead new COEs. Demonstrated ability and commitment to establishing meaningful partnerships with MSIs is now an explicit criterion for evaluating new COE applications and awarding extensions. Of course, MSIs should also submit proposals to serve as lead institutions. The evaluation criteria for new COEs include the following language:

> *Minority Serving Institution Partnerships:* The demonstrated ability and commitment to establish meaningful partnerships with MSIs to develop a quality MSI research and training program, and the quality of the proposed program. The application should demonstrate the proposed COE's ability to create a high-quality and enduring education and research program capabilities at minority-serving institutions in disciplinary areas important to homeland security. [NOTE: Lead institutions seeking MSI partners and MSI researchers wanting to participate in this COE should register their respective needs and qualifications at: *www.sciencetosecurity.org*.

Further, we encourage MSI's to submit proposals as lead organizations for our future COEs, and we will encourage all new COEs to have substantial partnerships with MSIs.

Question 15.: For FY 2007, you implemented a targeted outreach plan to MSIs. **Can you provide a copy of your current MSI outreach plan that includes your accomplishments?**

How has MSI participation increased since you began the outreach plan?

Response: The Science and Technology (S&T) Directorate's Minority Serving Institutions (MSI) strategy is a flexible approach to develop new initiatives, retain those that work, and modify others based on feedback from MSIs. The MSI program has a number of components, described below, to increase MSI involvement in the S&T Directorate's activities.

In 2005 and 2006, University Programs (UP), within the S&T Directorate, held a series of regional MSI workshops to introduce MSI opportunities and encourage MSIs to work with UP. In the summer of 2005, as a result of these workshops, ten teams of faculty and students participated in the MSI Summer Research Team (SRT) program. This program provides opportunities for teams of MSI students and faculty to spend 10 to 12 weeks conducting a research project at a DHS Center of Excellence (COE) facility. Similarly, in 2006, six teams participated in a redesigned SRT program. Moreover, these outreach efforts contributed to the development of additional criteria for newer COEs. As a result, the most recent COE at John Hopkins University (JHU) had two MSI partners with significant roles included in the grant applications, compared with no proposed MSI partners at the first COEs, when such participation was not explicitly encouraged.

In 2007, following establishment of a new MSI Program by Under Secretary Cohen, UP hosted three regional MSI workshops, which took place on February 4 in Baltimore targeting Historically Black Colleges and Universities (HBCUs), on February 21 at Broward Community College (Florida) targeting Hispanic Serving Institutions (HSIs), HBCUs and MSI community colleges and on February 28 at USC (California) targeting HSIs and tribal Colleges. At these workshops, DHS:

- Introduced the MSIs to the new COE solicitations, explained the opportunities those represent and encouraged the MSIs to participate, including as lead institutions,
- Explained the ideas and expectations for the new MSI program that U/S Cohen initiated, and solicit the MSIs input. Note: UP revamped the MSI Leadership Grant program significantly in response to comments received from MSIs at these workshops,
- Described the 2007 Summer Research Team program,
- Described DHS Scholarship and Fellowship Programs and the DHS Postdoctoral Research Associateship Program, and
- Invited the MSIs to a ten-day summer workshop on teaching terrorism (SWOTT) specifically developed for MSIs. Note: DHS is supporting the attendance of interested MSI faculty to this workshop until capacity is reached.

Other UP MSI Activities have included:

- Participation in the White House Initiative on HSIs' conference planning committee in Fall 2006;

- Meeting with Hispanic Association of Colleges and Universities and HBCUs at their annual meetings and at UP's requests on ways to disseminate information, engage HSIs and HBCUs, and present at their major conferences;
- Participation in a workshop for Native Americans on the risk of terrorism for Casinos;
- Meeting with a number of other Federal agencies on ways to collaborate and leverage MSI resources;
- Collaboration with the White House Initiatives on HBCUs and TCUs on ways to disseminate information and provide speaking opportunities at their key venues; and
- Reaching out to MSIs to encourage MSI students to apply for DHS Scholarships and Fellowships.

Question 16.: Regarding "Get Backs" from the hearing, please provide the Committee with dates for the release of the following items that the Under Secretary pledged to provide the Committee:

Science and Technology strategic plan (required by Homeland Security Act)

Copy of Science and Technology Organization Regulation Manual (STORM)

Date for National Homeland Security R&D plan (required by Homeland Security Act)

IPA Directive (the Under Secretary mentioned that this might come in a Management Directive, though in the meantime he would provide the Committee with the language he used while at the Office of Naval Research)

Response: The Science and Technology's (S&T's) 5 year R&D Plan required within 180 days of enactment of the FY 2007 Homeland Security Appropriations Act is in development. The S&T Directorate received a two month extension from the Senate Committee on Appropriations. The report is scheduled to be delivered in June 2007.

The Science and Technology Organization Regulation Manual (STORM) is available. A copy has been provided to your staff.

The National Homeland Security Research and Development plan will be available in June of 2007.

Intergovernmental Personnel Act (IPA) employees are a critical component of the S&T Directorate's workforce and have been since the organizational was created. The Directorate is aware of the ethics issues that may occur in this talent sharing relationship between the Federal sector and universities/national laboratories/state and local entities. The S&T Directorate has developed and drafted several process documents and/or guides to assist managers and our partners in understanding the requirements involved in an IPA position. In developing these documents the S&T Directorate collaborated with the DHS Chief Human Capital Office (CHCO) and the Office of General Council (OGC) representatives matrixed to the S&T Directorate. In addition to the ethics program the guide addresses a broad range of administrative requirements including travel. The Directorate believes the best practices have been captured as they relate to the S&T Directorate's environment. The draft IPA policies and procedures were developed following the Office of Personnel Management (OPM) guidance and by benchmarking best practices across the Federal agencies. The S&T Directorate analyzed and compared the IPA policies and procedures used by the Department of Energy, National Aeronautics and Space Administration, National Science Foundation, National Institutes of Health and the Office of Naval Research. These are the premiere users of Intergovernmental Personnel Act and have the most mature policies and procedures. Currently, the S&T Directorate is testing the adequacy of the draft guidance as we await the publishing of the DHS Management Directive on the IPA program. A copy of this draft guide has been provided to your staff.

QUESTIONS FROM THE HONORABLE MICHAEL MCCAUL, RANKING MEMBER SUBCOMMITTEE ON EMERGING THREATS, CYBERSECURITY, AND SCIENCE AND TECHNOLOGY

RESPONSES FROM THE HONORABLE JAY M. COHEN, UNDER SECRETARY, SCIENCE AND TECHNOLOGY

Question 17.: Is biometrics a part of the Science and Technology Directorate's Human Factors Division or Border Division? What is the relationship between the Human Factors Division and Border Division in pursuing biometric and credentialing technologies? What percentage of the S&T

budget in FY 2008 covers biometrics and credentialing projects—it appears to be only a small fraction of the budget.

Response: Biometrics and credentialing projects in the S&T Directorate are managed by the Human Factors Division, with the exception of programs dealing with development of standards in the area of biometrics and credentialing, which are managed by the Test & Evaluations and Standards Division.

The Human Factors Division coordinates activities with all of the divisions and offices in the S&T Directorate including the Borders and Maritime Division as well as interagency coordination bodies in DHS such as the DHS Biometrics Coordination Group and the People Screening CAPSTONE IPT and government-wide NSTC Subcommittee on Biometrics. One example activity is the partnership with the Coast Guard's Mona Pass Project to pilot the use of at-sea mobile biometrics in an operational setting. Information gathered from this pilot will be used to inform the S&T Directorate's transitional mobile biometrics work beginning in FY 2009 so that the S&T Directorate can ensure future mobile biometrics devices meet not only the Coast Guard's operational needs, but the needs of other DHS users as well.

For FY 2008, $6.5 million or 1 percent of the President's Budget Request for the S&T Directorate's Research, Development, Acquisition and Operations budget is dedicated to biometrics and credentialing activities.

Question 18.: The FY 2008 budget request for the Centers of Excellence has decreased by $9.9 million (20%), yet a recent BAA called for 4 new Centers of Excellence this year. **Does this mean that some of the existing Centers will receive less money or have their funding terminated when their contract is up for renewal?**

Response: The existing Centers of Excellence (COE's) will not receive any less money during their current period of performance. As they are being extended, each Center is informed of its available budget and develops a workplan for the extension period accordingly. To date, each Center has voluntarily opted for an extension at the level of funding available from the S&T Directorate. In some cases, that amount will be less than they received annually for their initial 3-year period of performance, based on current budgets. However, the COEs planned from the outset for an initial period of performance of three years. As a result, many of the projects that the COEs supported in the initial period are being completed within that period and do not require further funding. Moreover, the COEs have become successful at leveraging other sources of funding by using their positions as COEs and funds from the S&T Directorate. We anticipate that the existing COEs will re-compete to continue as Centers as their first terms end.

Question 19.: The Centers of Excellence are a vital part of the S&T program, with leading experts providing the genesis of ideas for the next generation of homeland security technologies. These Centers focus on basic, long-term research which can take on the order of 8 years, yet these Centers must re-compete for funding every 2 to 3 years. **How does S&T reconcile the difference in timeframes? Specifically, how will S&T judge performance and progress of basic research after just a couple of years? Will this deter some Universities from applying to become Centers because funding is not guaranteed from start to completion of research projects?**

Response: Initially, the period of performance for the five original Centers of Excellence (COEs) was three years, with the possibility of an extension depending on performance and the availability of funds. Three of these COEs have already been reviewed for performance and extended for either two or three years, for total periods of performance of five to six years, which is commensurate with Centers supported by other federal agencies.

With the S&T realignment initiated by Under Secretary Cohen, all of the COEs ultimately are moving to a six year period of performance, with the potential for re-competing for a COE in the same topic area one additional time. That is, the existing Centers will be eligible for a total tenure of 11 or 12 years, if they are successful in winning a re-competed COE grant. The new COEs being initiated in FY 2007 and beyond have initial periods of performance of four to six years, with the possibility of winning a six-year re-competition once for a total period of performance of 10 to 12 years. The initial periods vary in order to get all nine planned COEs on a schedule of one-third of the centers re-competed or competed every two years. This enables the S&T Directorate to spread the administrative workload and provides for continuity within the community (network) of Centers.

Regarding judgment of performance, the S&T Directorate conducts reviews of the Centers on their second anniversary to ensure they are on track, focusing on the right research and well-managed. We use both academic subject matter experts and the potential end users of research products for these reviews. The results of these

reviews provide direction for course corrections, if necessary. The S&T Directorate plans to continue conducting these reviews periodically to fulfill its oversight responsibilities. We do not anticipate that periodic reviews will deter universities from applying; so far, the academic response to past solicitations has been strong even with the initial 3-year performance period and prospect of reviews after the second year.

Question 20.: What criteria does S&T use for selecting Centers of Excellence?

Response: The S&T Directorate uses the following criteria to evaluate full proposal submissions for a Center of Excellence (COE). The first six criteria (a—f) are critical elements of the proposal and of equal significance. Proposals that do not provide satisfactory responses to all of these essential criteria will be declined. The remaining criteria (g—k) also are important to meeting the S&T Directorate's overall objectives and, while they are listed in approximate descending order of importance, each should be fully addressed by applicants.

a. *Technical Merit and Quality:* the degree to which the proposed research focus will achieve excellence (to offer results capable of commanding the respect of active researchers and of probing a frontier area well). The originality and creativity of the proposed research questions and the appropriateness and adequacy of the proposed research methods. For example, the following questions may be considered during the evaluation: Is the research approach practical and technically defensible, and can the projects be performed within the proposed time period? Will the research contribute to scientific knowledge in the topic area? Will the results be disseminated broadly to enhance scientific and technological understanding? What are potential benefits of the proposed research to society? Is the proposal well-prepared with supportive information that is self-explanatory or understandable?

b. *Mission-Related Significance:* the degree to which the proposed research focus can yield results that overcome existing and difficult technical limitations, or that offer the scientific basis to enable major technological advances in the foreseeable future. The responsiveness of the proposal to the research needs identified in this announcement and the willingness and ability of the applicants to consult with Federal, state, local and private stakeholders to refine research questions and design to make results applicable to homeland security issues or policy. For example, the following questions may be considered during the evaluation: Does the proposal adequately address the objectives specified by the S&T Directorate for this topic area? Can the applicants communicate their results in formats accessible to and understandable by Federal, state and local end users?

c. *Geographical distribution of all Centers of Excellence and major partners.* The Centers of Excellence program's authorizing legislation states: ". . .the Under Secretary for Science and Technology, shall operate extramural research, development, demonstration, testing and evaluation programs so as to ensure that colleges, universities, private research institutes and companies from as many regions of the United States as practicable participate." Geographical location of the lead institution and its major partners will be a factor in evaluating proposals submitted in response to this COE.

d. *Qualifications of Investigators:* The qualifications of the principal investigator(s) and other key personnel, including training, demonstrated knowledge of pertinent literature, experience, and publication records, and the extent to which key personnel will make a significant time commitment to the project.

e. *Facilities and Equipment:* The availability and/or adequacy of the facilities and equipment proposed for the project. For example, the following questions may be considered during the evaluation: Are there any deficiencies that may interfere with the successful completion of the research?

f. *Management:* The ability of the lead institution to manage a complex Center of Excellence in terms of achieving research results when due, managing large and complex budgets and communicating research outcomes, and the adequacy of the proposed management plan to ensure quality research and education programs from researchers at both primary and partner institutions. Note: Applicants are advised to designate a qualified, full-time Center Director with the ability to manage a large results-oriented research program.

g. *Knowledge of Current Research:* Evidence that the applicant is familiar with the research and resources of existing DHS COEs, other DHS S&T, federal agency or National Laboratory research and development programs, and other relevant university programs and can demonstrate its ability to take advantage of these resources. Information about the existing COEs is available at

www.sciencetosecurity.org. S&T programs are described in general terms at *http://www.dhs.gov/xres/programs/.*

h. *Education:* The adequacy of education plans and supporting materials demonstrating the proposed COE's ability to establish an enduring and comprehensive program of study in disciplines related to the specific research areas cited in this announcement. This plan should demonstrate how it will contribute to the development of new generation of scientists and professionals working in homeland security fields, as well as developing continuing education for current professionals.

i. *Minority Serving Institution Partnerships:* The demonstrated ability and commitment to establish meaningful partnerships with MSIs to develop a quality MSI research and training program, and the quality of the proposed program. The application should demonstrate the proposed COE's ability to create a high-quality and enduring education and research program capabilities at minority-serving institutions in disciplinary areas important to homeland security. [NOTE: Lead institutions seeking MSI partners and MSI researchers wanting to participate in this COE should register their respective needs and qualifications at: *www.sciencetosecurity.org.*]

j. *Results Transition:* The effectiveness and soundness of a strategy to transition research results to end users and mechanisms to accomplish this transition, and demonstration of a clear and effective plan for transitioning research results for each project or research area ultimately to homeland security mission agencies.

k. *Budget:* Although budget information does not reflect on the application's scientific merit, the evaluation will include the appropriateness and/or adequacy of the proposed budget and its implications for the potential success of the proposed research. Input on requested equipment is of particular interest.

Question 21.: Is the ultimate goal to have only one Center supporting each S&T Division? What happens, for example, if there are unique research areas within a Division and one Center doesn't have the needed expertise to cover the basic research needs to support each distinct mission? For example, within the Chemical and Biological Division, elements of chemical defense are distinct from biodefense which are distinct from food and agriculture security. How will you base decisions on how many Centers are needed to support a single Division's mission?

Response: The S&T Directorate's ultimate goal is to create as many Centers of Excellence as the S&T Directorate and its customers believe are needed to develop the fundamental science essential to improve or extend homeland security. There are currently nine Centers planned for the foreseeable future, but as requirements are refined and resources allow, more may be planned. Every Center will be aligned with the mission and activities of one or more S&T Divisions, with no less than one per division.

Question 22. The funding request in FY 2008 for laboratory facilities has decreased by $16.8 million. However, the Committee understands that because of delays in the National Bio and Agro-Defense Facility (NBAF) site selection process (which has delayed the establishment of the NBAF until 2014) and the limited space at Plum Island Animal disease Center, S&T plans to increase capacity at Plum Island to provide interim animal and zoonotic disease research capabilities. **Since the fundingd does not apprear to be accounted for in your FY08 budget, where will this funding come from?**

Response: The President's budget request for fiscal year 2008 includes $17 million for upgrades to the Plum Island Animal Disease Center (PIADC). The laboratory facilities reduction in FY 2008 is not a cut to the program; it simply reflects the funding needs for that year. We are requesting lower funding levels for PIADC upgrades as we are nearing completion of the corrective actions as well as less funding for the NBAF project in FY 2008 than in FY 2007 as we are completing the preliminary phases of the project. The corrective actions and upgrades at PIADC will allow the use of the facility through the transition to NBAF. The operational funding for all of our laboratories is intact and our plans for FY 2008 accommodate all of our needs for laboratory facilities operations including PIADC. Future funding for operational cost increases associated with increased work load will appear in the Future Years Homeland Security Program (FYHSP) and the appropriate year's budget request.

Question 23. Please explain the decrease in the Infrastructure/Geophysical Division's budget request for FY 2008. The Committee understands that this reduction is the result of the elimination of a number of programs including the Southeast Regional research Initiative (SERRI) and the Com-

munity Based Criticval Infrastructure Protection Institute and reduction of other programs such as the Regional Technology Integration Intitiative (RTII). Please explain why these programs were eliminated and what the impact will be?

Reponse: The Southeast Regional Research Initiative (SERRI) and the Community Based Critical Infrastructure Protection Institute each have un-obligated funds remaining from prior fiscal years appropriations. Both entities have periods of performance that extend into fiscal year 2008 that will use these un-obligated balances to continue their projects. Both entities were expected to expire once all currently appropriated funds have been obligated, however work that might be assigned to SERRI in the future will most likely be assigned to one or more of the newly formed University Centers of Excellence, as posted in recent Broad Agency Announcements. S&T will stretch the funds requested in fiscal year 2008 for to the Regional Technology Integration Initiative by deferring some projects and scaling down others.

Question 24. The Committee understands that there is a new focus on leap ahead, innovative technologies through your HITS and HIPS. DARPA was set up to do something similar and to keep fresh ideas coming, they rotate program managers every 3 years or so. Does S&T anticipate doing the same, when the Directorate has experienced difficulty retaining personnel? How will S&T balance the need for continuity versus the need for fresh ideas?

Response: We do not intend to use the Defense Advanced Research Projects Agency (DARPA) program manager rotation model. The Director of Innovation of Homeland Security Advanced Research Projects Agency (HSARPA) has projects that will range from 1 to 5 years. When a project is complete, the S&T Directorate will have the opportunity to move a program manager into a new project. HSARPA's projects come from DHS leadership, from DHS component customers, and from creative unsolicited ideas from industry and laboratories. Starting in FY 2009, the Director of Innovation anticipates about a 33 percent refresh of projects every year. We expect to retain program managers longer.

Question 25. Within the FY 2007 budget, out of the $20 million that was designated for Cybersecurity, over $7.5 million or 38% was directred towards "Innovation". This percentage is by far the highest of any of the program areas. Over a third of funding for Cybersecurity was directed towards Innovation and yet there does not seem to be any projects within the Innovation office focused on cybersecurity. **Please explain this discrepancy.**

Response: The Under Secretary's priorities for the S&T Directorate include producing technologies to increase the security of our Nation's Business Sector. During the realignment of its FY 2007 Budget, the S&T Directorate conducted an in-depth review of all programs and their alignment to the Department and its priorities to identify those programs that lacked clear deliverables and Departmental customers. Those efforts were cut to fund accelerated and high impact programs in the Innovation Division that address key gaps identified by DHS leadership. One of those projects is a Resilient Electric Grid that will provide a more robust and flexible infrastructure for the transmission of power. This project directly impacts the cyber infrastructure and allows for more resilient operation during a natural or man-made disaster. The remaining Cyber Security programs address the highest priority areas where the Federal Government can have the greatest impact.

Question 26.: Does the S&T Directorate have any projects focused on moving the U.S. Government toward the utilization of Internet Protocol version 6 (IPv6)?

Response: The S&T Directorate does not have projects directly focused on moving the Federal Government toward the utilization of Internet Protocol version 6 (IPv6) although the Department is implementing IPv6 as part of the Administration's effort to transition to IPv6 by June of 2008. The S&T Directorate is exploring the impact of IPv6 on new solutions for domain name system (DNS) security and routing security, which the President's *National Strategy to Secure Cyberspace* calls out as critical Internet infrastructure components with vulnerabilities that need to be addressed. The S&T Directorate has projects focused on moving the Federal Government toward deployment of solutions for these areas, which each interact with IPv6. In these activities, the S&T Directorate is working with the Department of Commerce and the National Institute of Standards and Technology (NIST), which are the lead agencies charged with the deployment of IPv6. The S&T Directorate is also working with the Department of Defense (DoD) as they deploy IPv6.

Question 27.: What tradeoff analysis was conducted to determine that the proposed HITS/HIPS are more of a priority than projects/programs currently below the funding cut line for FY 2008 and beyond? Is there a sepa-

rate Integrated Products Team (IPT) process for HITS/HIPS versus the individual Division IPT process and if so, which Department components are the lead considering the HITS and HIPS span mutiple Division mission area?

Response: The initial (current) set of HIPS and HITS projects were selected in early FY 2007, prior to the initial meeting of the S&T Directorate's Capstone Integrated Product Teams (IPTs). They were selected as a result of the Undersecretary for Science and Technology's interaction with Department leadership. The Undersecretary was able to identify the priority gaps in capability as described by leadership and those gaps became the initial HIPS and HITS. The list of HIPS and HITS projects has been extremely well received by our customers and has generated tremendous interest among industry.

New HIPS and HITS will be selected from various inputs including the IPT process, unsolicited input from industry and laboratories, and from teaming opportunities with other agencies. The S&T Directorate's Corporate Board will review all potential candidates for HIPS and HITS categories and make final program decisions.

Question 28.: How are the actual end-users, such as the first responders and infrastructure providers (as opposed to DHS customers) engaged in the Integrated Products Team (IPS) process? How are end-user's capability needs included in the requirement setting process?

Response: End-users are included at the discretion of the IPT leads. The Infrastructure Protection (IP) and Incident Management (IM) Integrated Product Teams (IPTs) provide two examples of how end users were brought into the initial Capstone Integrated Product Team (IPT) process. The Infrastructure Protection (IP) and Incident Management (IM) Integrated Product Teams (IPTs) used robust and established processes for engaging and eliciting requirements from end-users, such as First Responders, infrastructure providers and industry owner/operators. Within the IPT construct, the Preparedness Directorate in the IP IPT and the Federal Emergency Management Agency (FEMA) in the IM IPT, representing their respective customers, are charged with collecting, vetting and prioritizing user requirements.

The input to the IP IPT is developed in coordination with the Sector Specific Agencies (SSAs) who, in partnership with the Sector Coordinating Councils (SCCs) and Government Coordinating Councils (GCCs), determine sector-specific priorities and requirements for Critical Infrastructure and Key Resource (CI/KR) protection. The SSAs submit their priorities and requirements to DHS in their sector annual reports which inform the National Critical Infrastructure Protection (NCIP) Research and Development (R&D) Plan and its technology roadmap.

The input to the IM IPT is developed from the results of Project Responder, input from responder communities through workshops, outreach venues such as conferences and symposiums, coordination with the Technical Support Working Group (TSWG) and the Inter-Agency Board, requests generated through the Grants and Training process, and the Regional Technology Initiative (RTI) Program which directly gathers requirements from responders in several representative urban areas.

As the Capstone IPT process is maturing, the S&T Directorate is reaching out to other representative groups to join the IPT process to ensure that the capability gaps of the end-user community are properly understood as well as ensure these organizations understand the process by which technology requirements are vetted and prioritized for science and technology investments.

First responders and State and local governments can also make their technology requirements known to the S&T Directorate through the Tech Solutions program where their input on current capability gaps and technology requirements is received by the S&T Directorate via a website. We will pursue technology solutions directly through this approach, as well as bring forward these requirements to the appropriate Capstone IPT for inclusion in the Capstone IPT process.

QUESTIONS FROM THE HONORABLE MARSHA BLACKBURN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSISSIPPI

RESPONSES FROM THE HONORABLE JAY M. COHEN, UNDER SECRETARY, SCIENCE AND TECHNOLOGY

Question 29. There was a recent GAO report on the failure of technology to screen airport passengers for weapons and bombs (GAO–07–448T). **Please describe the reasons for this failure and discuss what S&T is doing to address the need for explosive detection technologies, and liquid detection technologies in particular.**

Response: Detecting weapons and explosives within the transportation systems of the United States requires a process that not only includes a reliance on tech-

nology, but also on intelligence and surveillance activities, passenger pre-screening, pat-down searches of individuals, and physical searches of property. This layered, multidimensional approach to transportation security and passenger screening drives our efforts to improve security. As the GAO report "AVIATION SECURITY: Progress Made in Systematic Planning to Guide Key Investment Decisions, but More Work Remains" (GAO–07–448T) indicates, more can be done procedurally and with technology. The S&T Directorate is working with the Transportation Security Administration on several efforts to improve detection of weapons and explosives at airport checkpoints. Those efforts include:

- Improving the reliability and detection capability of two explosive trace portal (ETP) configurations;
- Evaluating two new sets of technologies, one based on back scatter X-ray and one based on millimeter wave technology with a much higher possibility of weapons detection hidden on the body as well as explosives;
- A multi airport testing of a liquid explosives detection device;
- Advanced Technology X-ray units to detect liquid threats in carry-on luggage;
- Hostile Intent Detection methods and systems; and
- Automated checkpoint explosives detection systems (Auto EDS) program.

These efforts support the existing risk-based, layered approach to transportation security. The S&T Directorate goal is to improve existing technologies and develop new technologies, while working with TSA and vendors to increase detection capabilities and throughput, while reducing costs, down-time, and false alarms.

Question 30.: There was a recent failure of a pilot program focused on detection of explosives for rail passengers and systems. **Please discuss S&T plans to develop effective detection technologies aimed at rail systems?**

Response: The Rail Pilot Program was a series of studies to determine if off-the-shelf equipment and prototype stand-off imaging technologies would work in passenger rail systems. During the pilot, we tested and evaluated numerous technologies. Although we did not adopt or endorse any of the technologies as "ready for deployment," we gained valuable information that indicated which technologies will not work and which technologies have potential to work in rail transit systems.

The S&T Directorate has several ongoing stand-off detection technology evaluation projects that could be used within rail and other transportation systems to screen passengers. These could also be applied to a follow-on pilot program should one be directed. Examples of projects that could be used include the development of:

- A spectroscopic and trace detection technologies (IR, Fluorescence-based, etc.) for standoff or remote suicide bomber detection;
- Explosives screening stations which can be rapidly deployed and remotely operated; and
- An accurate, near-real-time, contactless, biometrics-based, card-and-reader system.

Further, in order to develop a system that could aid in the standoff detection of concealed explosives on persons, a series of field demonstrations will be held in conjunction with the Secret Service, the FBI, other Federal, State, and local law enforcement and first responder agencies.

Question 31.: Please address what type of spectrum analyses and jamming frequency technology S&T is developing to detect IEDs and the new IED systems being found in Iraq?

Response: In collaboration with the Technical Support Working Group (TSWG) and the Federal Bureau of Investigation, the S&T Directorate funded the Remote Control IED Electronic Counter Measures National Capability (frequency jamming) effort in FY 2005 and FY 2006. Program plans include additional funding for this effort in future years.

The new IEDs that have been written about recently in the press typically refer to sophisticated insurgent attacks on armored U.S. military vehicles using home-made anti-tank weapons with "shaped" explosive charges. Other-wise known as EFPs (Explosively Formed Penetrators), these devices are primarily used to defeat armored vehicles traveling in convoy. Currently, the S&T Directorate does not have a development effort to counter the road-side bomb threat because our customers do not perceive this to be a priority threat within the continental United States relative to other threats.

Appendix B: Attachments

Attachment A: Response to Question #6
Capstone IPT Representative High Priority Technology Areas

8 March 2007

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Homeland Security

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Border Security: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need improved ballistic protection via personal protective equipment.	Ballistic Protection: Provides improved ballistic protection for personnel ***(Borders/Maritime Division Lead)***
Need to improve detection, tracking, and identification of all threats along the terrestrial and maritime border.	BorderNet: Provides improved surveillance and data integration tool for real time detection, tracking, identification and classification of targets in land, maritime, air ***(Borders/Maritime Division Lead)***
Need ability to access ICE databases in which voice information is entered; provide analytical, reporting, and automated case deconfliction; classify, identify voice samples.	Voice Linking System Modernization: Provides improved identification, analysis, sharing and storing of telephone voice data ***(C2I Division)***
Need non-lethal compliance measures for vehicles, vessels, or aircraft allowing for safe interdiction by law enforcement personnel.	Pursuit Termination: Provides non-lethal compliance measures for vehicles, vessels, and personnel to allow safe interdiction by law enforcement personnel ***(Borders/Maritime Division Lead)***
Need non-destructive tools that allow for the inspection of hidden or closed compartments to find contraband or security threats.	Hidden Compartment Inspection Device: Provides non-intrusive inspection tools to identify hidden compartments in vehicles and containers ***(Borders/Maritime Division Lead)***
Need improved analysis and decision-making tools that will ensure the development/implementation of border security initiatives.	SBI Systems Engineering and Modeling and Simulation: Provides Modeling and simulation decision-making tools to inform development and implementation of border security initiatives ***(Borders/Maritime Division Lead)***
Need the ability to non-intrusively determine the intent of subjects during questioning.	Project Hostile Intent: Provides determination of intent devices for interviews ***(Human Factors Division)***
Need the ability for law enforcement personnel to quickly identify the origin of gunfire and classify the type of weapon fired.	Gunfire Locator: Provides the capability to locate gunfire and classify weapons ***(Borders/Maritime Division Lead)***
Need the ability for law enforcement officers to assure compliance of lawful orders using non-lethal means.	Less-Lethal Compliance Measures: Provides improved less-lethal capabilities to law enforcement personnel ***(Borders/Maritime Division Lead)***

Cargo Security: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need enhanced screening and examination by non-intrusive inspection.	CanScan: Provides enhanced capability to detect or identify terrorist or contraband items ***(Borders/Maritime Division)***
Need increased information fusion, anomaly detection, Automatic Target Recognition capability.	Automatic Target Recognition: Provides information fusion, anomaly detection, and automatic target recognition systems to identify high threat cargo and ensure its delivery ***(Borders/Maritime Division)***

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Cargo Security: Representative Technology Needs—Continued

Capability Gap Summary	Enabling Homeland Capability
Need to detect and identify WMD materials and contraband.	Requirements Analysis for WMD Sensor: Develop requirements for developing WMD sensors applicable to the cargo security environment, with multimodal considerations
Need capability to screen 100% of air cargo.	Requirements Analysis for Bulk/Break-Bulk: Analysis to develop methods for securing and monitoring bulk/break bulk cargo shipped by air or maritime ***(Borders/Maritime Division)***
Need to test the feasibility of seal security; Detection of intrusion.	Secure Carton Testing: Develop and test advanced non-intrusive inspection methods ***(Borders/Maritime Division)***
Need to track domestic high-threat cargo.	Domestic High Threat Cargo Tracking: Enhances Marine Asset Tag and Tracking System capability ***(Borders/Maritime Division)***
Need to harden air cargo conveyances and containers.	Air Cargo Composite Container: Develop materials for hardening air cargo conveyances ***(Borders/Maritime Division)***
Need Positive ID of cargo & detection of intrusion or unauthorized access.	Advanced Container Security Device: Provides improved cargo security devices including container intrusion detection ***(Borders/Maritime Division)***

Chem/Bio Defense: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need tools to detect and mitigate animal disease breakouts.	Foreign Animal Disease Modeling: Provides tools to detect and mitigate catastrophic animal disease outbreaks ***(Chem-Bio Division)***
Need policy net assessments to provide fresh perspectives on fundamental elements of the national biodefense strategy.	Bio-Defense Net Assessments: Provides recommendations for rebalancing and refining investments among the pillars of our overall biodefense policy ***(Chem-Bio Division)***
Need improved tools for integrated CBRN Risk Assessment.	Bio-Threat Characterization Center (BTCC): Provides improved tools for integrated CBRN risk assessments to include traditional and emerging bio, chem and agricultural threats and human health and economic effects ***(Chem-Bio Division)***
Need an incident characterization capability for response & restoration.	Systems Approaches for Restoration: Provides a systems approach to rapidly restore large areas after bio or chemical attack ***(Chem-Bio Division)***
Need improved ChemBio Forensic Analysis capability.	Bio Forensics R&D Near Term: Provides improved biological and chemical forensic capabilities, including sample handling and extraction, and bio-phys-chemical characterization ***(Chem-Bio Division)***
Need national-scale detection architectures and strategies to address outdoor, indoor (e.g., highly trafficked transportation hubs) and critical infrastructure.	Chemical Security Analysis Center (CSAC): Provides analysis and scientific assessment of the chemical threat against our civilian population ***(Chem-Bio Division)***
Need consequence assessments of attacks on chemical facilities and Chem Bio attacks on other critical infrastructure.	Chemical Infrastructure Risk Assessments: Consequence assessments of attacks on chemical facilities and chem bio attacks on other critical infrastructure, including cascading effects on other sectors ***(Chem-Bio Division)***

Chem/Bio Defense: Representative Technology Needs—Continued

Capability Gap Summary	Enabling Homeland Capability
Need Integrated CBRNE Sensor Reporting capability.	Integrated CBRNE Detection System: Provides an integrated CBRNE sensor reporting capability in support of a common operating picture ***(Chem-Bio Division)***
Need handheld rapid biological and chemical detection systems.	Next Gen Low Vapor Pressure Chemicals Detection Systems (LVPCDS): Provide handheld, rapid, biological and chemical detection systems with broad agent coverage and extremely low false alarm rates ***(Chem-Bio Division)***
Need detection paradigms and systems for enhanced, emerging and novel biological threats.	Next Generation Biological Detection System: Develop technologies and systems to identify unknown and emerging biological threats ***(Chem-Bio Division)***

Cyber Security: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need secure protocols	Securing the Infrastructure: Provide secure protocols including standard security methods ***(C2I Division)***
Need Process Control Systems (PCS) Security.	Securing the Infrastructure: Provide Process Control Systems (PCS) Security ***(C2I Division)***
Need large-scale cyber security test beds.	Enabling Technologies for Cyber Security & Information Assurance R&D: Provide improved capability to model the effects of cyber attacks and understanding of internet topography ***(C2I Division)***
Need composable and scalable secure systems.	Advanced and Next Generation Systems & Architectures: Provide comprehensive next-generation network models; ***(C2I Division)*** Composable and scalable secure systems ***(C2I Division)***

Explosives Prevention: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need standoff detection on persons (portable solutions).	Suicide bomb detection: Provide standoff portable explosive detection system for all operating environments (e.g., suicide bombers, backpack-sized explosives, ferries, cruise ships, and field operating environments) ***(Explosives Division)***
Need system solution for detection in baggage (checked & carried).	Automated Carried Bag EDS: Provides system solution for detection in baggage (checked & carried) including air cargo ***(Explosives Division)***
Need capability to detect VBIED / large threat mass (container, trailer, ship, vessel, car, rail).	Vehicle Borne Improvised Explosive Device / Large threat mass detection for the transit environment: Provide capability for Large threat mass detection for the transit environment ***(Explosives Division)***
Need capability to detect homemade or novel explosives.	Stand-alone technologies for detection of homemade or novel explosives: Provide homemade/ novel explosives detection characterization and detection capability ***(Explosives Division)***
Need the capability to assess, render safe, and neutralize explosive threats.	Render Safe Technologies: Provide capability to assess, render safe, and neutralize explosive threats ***(Explosives Division)***

Explosives Prevention: Representative Technology Needs—Continued

Capability Gap Summary	Enabling Homeland Capability
Need to optimize canine explosive detection capability.	Canine explosive detection optimization: Optimize canine explosive detection ***(Explosives Division)***
Need a systems solution for detection in baggage (checked & carried).	Manhattan II: Provides a system solution for detection in baggage (checked & carried) ***(Explosives Division)***

Incident Management: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need an integrated Modeling, Mapping and Simulation capability.	Simulation Based Incident Planning and Response: Provides integrated and enhanced modeling and simulation for incident planning and response ***(IP/Geophysical Division)***
Need a Personnel Monitoring (Emergency Responder Locator System) capability.	Advanced First Responder Locator System: Provide emergency responder locator systems for rapid identification of downed or at risk responders in complex threat environments ***(IP/Geophysical Division)***
Need a Personnel Monitoring (Physiological Monitoring of Firefighters) capability.	Advanced First Responder Physiological Monitoring System: Provides a physiological monitoring capability ***(IP/Geophysical Division)***
Need an Incident Management Enterprise System.	Advanced Incident Management Enterprise System: Provides an Incident Management Enterprise System that includes web-based collaboration and tracking tools that are field deployable and interoperable across multiple agencies ***(IP/Geophysical Division)***
Need a logistics management tool	Incident Logistics and Resource Tracking System: Provides Logistics management tools and improved in-transit logistics visibility ***(IP/Geophysical Division)***

Information Sharing: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need Data Fusion from multiple sensors.	COP Data Fusion Technologies Pilot: Provides capability to fuse data from multiple sensors into Common Operating Picture (COP) ***(C2I Division)***
Need to improve real-time Data Sharing across agencies on encounters.	Suspicious activity reporting and Pilots: Provides ability to improve real-time data sharing of law enforcement information ***(C2I Division)***
Need to manage identities and establish interoperability with Identity Adjudication Support Systems.	Network Identity Management and Pilot: Provides ability to manage user identities, rights and authorities ***(C2I Division)***
Need distribution capability for Intelligence Products.	Multi-Level Intelligence Dissemination: Provides ability to support distribution of intelligence products ***(C2I Division)***
Need capability to share information within and across sectors on terrorist threats.	Threat Dissemination Standards: Provides standards and protocols for information sharing within and across sectors on terrorist threats ***(C2I Division)***
Need real-time Data Processing and Visualization.	Real Time Data Processing and Visualization: Provides automated, dynamic, real-time data processing and visualization capability ***(C2I Division)***

Information Sharing: Representative Technology Needs—Continued

Capability Gap Summary	Enabling Homeland Capability
Need analytic capabilities for structured, unstructured, and streaming data.	Integrated Data Processing and Analysis: Provides analytic capabilities for structured, unstructured, and streaming data ***(C2I Division)***
Need information sharing capability for Situational Awareness between USCG and Partners.	USCG Collective Situational Awareness Pilot: Provides capability for the USCG to exchange information across disparate National System security networks ***(C2I Division)***
Need Sensor Fusion between Law Enforcement and Intelligence Partners.	Sensor fusion between law enforcement and intelligence partners ***(C2I Division)***

Infrastructure Protection: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need analytical tools to quantify interdependencies and cascading consequences as disruptions occur across critical infrastructure sectors.	Unified Blast Analysis Tool: Provides ability to identify existing vulnerabilities to blast, evaluates protective measures, and provides design guidance for blast resistant construction ***(IP/Geophysical Division)***
Need analytical tools to quantify interdependencies and cascading consequences as disruptions occur across critical infrastructure sectors.	Real-Time Decision Support Tools: Provides tools for federal decision-makers that update models dynamically during crises ***(IP/Geophysical Division)***
Need effective and affordable blast analysis and protection for critical infrastructure; improved understanding of blast failure mechanisms and protection measures for the most vital CI/KR.	Protective Measures Advanced Materials Design Tools: Provides capability to address high consequence critical assets, as identified by the Office of Infrastructure Protection, including mitigation and hardening technologies and advanced materials ***(IP/Geo***
Need analytical tools to quantify interdependencies and cascading consequences as disruptions occur across critical infrastructure sectors.	Real-Time Decision Support Tools: Provides rapid and automated response technologies to limit damage from disruptions of critical infrastructure and prevent cascading effects ***(IP/Geophysical Division)***
Need advanced, automated and affordable monitoring and surveillance technologies.	Advanced Surveillance Systems: Provides advanced, automated, affordable monitoring and surveillance technologies to provide situational awareness at CI/KR ***(C2I Division)***

Interoperability: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need to research, test, and evaluate IP-enabled backbones.	IP Enabled Backbone Evaluation: Develops and evaluates Internet Protocol (IP) enabled backbones ***(C2I Division)***
Need test and evaluation on commercially available and emergent wireless broadband data.	Wireless Broadband Standards and Broadband Productization: Provides test and evaluation of emergent wireless broadband data systems ***(C2I Division)***
Need to accelerate the development and testing of P25 IP-based interfaces.	P25 Interface: Accelerates test and evaluation of P25 IP-based interfaces ***(C2I Division)***
Need to develop messaging interface standards that enable emergency information sharing and data exchange.	EDXL Data Standards Initiative: Identifies and develops messaging interface standards ***(C2I Division)***

Maritime Security: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need for wide-area surveillance from the coast to beyond the horizon; port and inland waterways region—detect, ID, and track.	Affordable Wide Area Surveillance System: Provides persistent, integrated sensor systems that can detect, track, and identify vessels (especially small vessels) between the port regions and beyond the horizon in all weather conditions ***(Borders/ Maritime***
Need data fusion and automated tools for command center operations.	Advanced Automated Scene Understanding: Provides Tactical Information Fusion and Situational Assessment tools that improve operator performance ***(Borders/Maritime Division Lead)***
Need for vessel compliance through non-lethal compliance methods.	Pursuit Termination: Provides non-lethal compliance measures for vessels ***(Borders/Maritime Division Lead)***
Need an enhanced capability to continuously track contraband on ships or containers.	Covert Illegal Contraband Tracker: Provides improved system for tracking contraband shipments and aliens including at night tracking or rough seas tracking ***(Borders/Maritime Division)***
Need improved ballistic personal protective equipment for officer safety.	Ballistic Protection: Provides improved ballistic protection and communications tools for agents ***(Borders/Maritime Division Lead)***
Need improved WMD detection equipment for officer safety; improved screening capability for WMD for maritime security checkpoints.	Technology to screen passengers, baggage, and vehicles for explosives, contraband and CBRN in the high volume environment of maritime ferries and cruise ships ***(Borders/Maritime Division Lead)***

People Screening: Representative Technology Needs

Capability Gap Summary	Enabling Homeland Capability
Need systematic collection and analysis of information related to understanding terrorist group intent to engage in violence.	Group Violent Intent Modeling: Provides tools for understanding terrorist group intent to engage in violence ***(Human Factors Division)***
Need non-invasive monitoring: Identifying and tracking unknown or potential threats from individuals at key checkpoints. Real-time detection of deception or hostile intent through integrated system of human and machine methods.	Hostile Intent Detection: Provides non-invasive monitoring technologies to allow identification and tracking of potentially threatening individuals at key checkpoints ***(Human Factors Division)***
Need the capability in real-time for positive verification of individual's identity utilizing multiple biometrics.	Biometrics Spiral II: Provides real-time, positive verification of identity using multiple biometrics ***(Human Factors Division)***
Need the capability for secure, non-contact electronic credentials; contactless readers or remote interrogation technologies for electronic credentials.	Credentialing: Provides secure, non-contact electronic credentials capability ***(Human Factors Division)***
Need mobile biometrics screening capabilities, to include hand-held, wireless, and secure devices.	Mobile Biometrics Screening: Provides mobile biometrics screening capabilities to include hand-held, wireless, and secure devices ***(Human Factors Division)***
Need high-speed, high-fidelity ten-print capture capability.	Ten Print Capture: Provides high-speed, high-fidelity ten-print capture capability ***(Human Factors Division)***

Attachment B: Response to Question #6

Homeland Security

	Focus Areas
Information Sharing/Management	
	Information Interoperability (class to unclass, disparate database Reconnassance, Surveillance, and Investigative technology Common Operating Picture systems and tools Knowledge Management Information analytic tools
Border Security	
	Land border Enforcement SBI Systems approach Immigration Enforcement Non-intrusive Detection at Borders
Chem/Bio Defense	
	Bio and Chem Threat Assessments Bio and Chem risk decision support tools Chem Forensics and Analysis Surveillance and Detection systems Response and Recovery systems Bio Agricultural Security Bio Forensics Surveillance and Detection systems (including Biowatch)
Maritime Security	
	Boarding Officer tools and protection Maritime surveillance technologies Command Center data fusion
Explosive Prevention	
	Counter-MANPADS IEDs Standoff Detection Explosives Detectors Blast Mitigation Personnel Screening for explosives
Incident Management	
	Personnel monitoring and tracking Situational awareness Logisitics issues Protection of emergency personnel
People Screening	
	People Screening at Checkpoint Hostile Intent and Deception Identity Management (includes Biometrics) Credentialing Social and Behavioral Threat analysis Insider Threat Human systems integration into technology

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	Focus Areas
Infrastructure Protection	
	Critical Infrastructure modeling and simulation analysis
	Risk Reduction Technologies
	Protection and mitigation for critical IP sectors
	Response and restoration of CI/K
	Advanced surveillance and detection to protect CI/KR
Cargo Security	
	Security Devices
	Cargo tracking systems
	Supply chain architecture
	Integration of detection systems specific to cargo
Interoperability	
	first Responder communications
Cybersecurity	

Attachment C: Response to Question #9

Science & Technology Directorate, Intergovernmental Personnel Act (IPA) Program Reference Guide, April 2006.[1]

Attachment D: Response to Question #12

CHART SUMMARY

Program	Rating	Improvement Actions Taken	Actions planned for FY 2007 and FY 2008
Biological Countermeasures (Chemical and Biological)	Effective	(1) Developed qualitative and quantitative metrics (2) Developed a 5 year plan based on requirements identified through the IPT Capstone process that was chaired by the Chief Medical Officer and the Assistant Secretary of Infrastructure Protection. (3) Reviews the programmatic and technical progress of key projects that contribute to the PART on a monthly basis -conducted by the Division Head. (4) Chem Countermeasures underwent independent evaluation with positive findings (1) Develop efficiency metrics	
Standards (T&E and Standards)	Adequate	(1) Developed quantitative metrics (2) Convened the standards council to ensure agency wide gathering of standards needs.	(1) Develop efficiency metrics
Threat Awareness Portfolio (C2I and Human Factors)	Results Not Demonstrated	(1) Developed quantitative metrics (2) External evaluation of program commenced summer 2005	(1) Develop efficiency (1) Develop additional quantitative and qualitative metrics
University Programs (Research Division)	Moderately Effective	(1) Developed quantitative metrics (2) External review of program and one DHS Center of Excellence held in 2005 and 2006 respectively (3) External assessment of program planned for the fall of 2006 (4) Independent review of two centers planned for fall 2006	(1) Continue external review of program and Centers of Excellence

[1] See committee file.

Program	Rating	Improvement Actions Taken	Actions planned for FY 2007 and FY 2008
Emerging Threats (C2I)	Moderately Effective	(1) Developed quantitative metrics	(1) Develop efficiency
Rapid Prototyping (Transition)	Moderately Effective	(1) Developed quantitative metrics 1) Develop efficiency	(2) Plans for regular independent reviews are scheduled to begin in FY 2007
Chemical and Explosives Countermeasures (Explosives)	Results Not Demonstrated	(1) Developed metrics for major chemical projects (2) Scores and recommendations discussed with planning staff and senior management (4) Completed Countermeasures expenditure plan in October 2006	(1) Development of expenditure plan in process (2) Engage in dialogue with the GAO, IG and other independent evaluators
Interoperability and Compatibility (C21)	Results Not Demonstrated	(1) Scores and recommendations discussed with planning staff and senior management (2) Engaged in dialogue with the GAO throughout the fall. (3) Engaged an independent evaluator to conduct a study of OIC effectiveness and coordination with its partners and stakeholders. The study is currently in progress.	(1) External review of program planned (2) Development of strategic plan (3) Engaged in dialogue with the GAO, IG and other independent evaluators (4) Develop efficiency and additional metrics
SAFETY Act (Transition)	Results Not Demonstrated	(1) Scores and recommendations discussed with planning staff and senior mangement (2) External (IG) review in August 2006 resulted in certified and accredited computer system (3) Streamlined evaluation process, improving FY 2006 performance by 27%	(1) Development of stategic/program plan (2) Development of additional metrics planned (3) Develop efficiency metrics

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