

COMMERCIALIZING ON INNOVATION: REAUTHOR-
IZING THE SMALL BUSINESS INNOVATION
RESEARCH AND SMALL BUSINESS TECHNOLOGY
TRANSFER PROGRAM

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UNITED STATES
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WEDNESDAY, MARCH 2, 2016

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SMALL BUSINESS,
Washington, DC.

The Committee met, pursuant to call, at 11:00 a.m., in Room 2360, Rayburn House Office Building. Hon. Steve Chabot [chairman of the Committee] presiding.

Present: Representatives Chabot, Luetkemeyer, Hanna, Gibson, Radewagen, Knight, Curbelo, Hardy, Kelly, Velázquez, Chu, Meng, Lawrence, and Moulton.

Chairman CHABOT. Good morning. The Committee will come to order.

I want to thank you all for being here today. We are holding the first of two hearings our Committee will conduct this month concerning the reauthorization of the Small Business Innovation Research and Small Business Technology Transfer programs, or SBIR and STTR. Innovation is the energy that drives our economy. Technological breakthroughs and the entrepreneurship it spurs build our economy by finding state-of-the-art solutions to difficult problems and marketing those new products. This correlation is particularly important in the small business arena. Small businesses tend to be more nimble, responding to market changes more rapidly than their bigger counterparts, and they drive the innovation sector and make us more agile in the global economy. It is that recognition of small firms' ingenuity that led Congress to establish the SBIR program back in 1982 and the STTR program in 1992. These programs set aside a portion of Federal research dollars for small businesses. Spanning 11 participating agencies, such as the Department of Defense, National Institutes of Health, and the National Science Foundation, the development dollars set aside for small businesses are critical for both the small business companies that use the grants and the Federal agencies that seek innovation to the problems that they encounter.

Whether it is a new software system for tracking contract payments, a new medical device to help with cancer treatment, or new piece of technology that saves lives on the battlefield, the SBIR and STTR programs have consistently delivered results across all agencies. In this era of globalization, making it easier for small businesses to develop and commercialize new innovative products is es-

sential for America's competitiveness and national security. That is why programs like SBIR and STTR are so important.

Small innovators have always been on the cutting edge of science and technology. These are the entrepreneurs who have the kind of mentality to take big risks in search of big rewards, but the next big thing does not just materialize. It happens with a lot of sweat equity and late nights. Ideas matter but executing those ideas is what is most important. That is where the SBIR and STTR programs come in. The very competitive and phased system of these programs allows for a relatively small initial Federal investment to help entrepreneurs cultivate a concept. Often being the first place prospective entrepreneurs go to find seed funding, the SBIR and STTR programs allow initial testing and further development of that idea. If it appears the idea has merit, the company can compete for a much larger award to develop that idea further and work towards making it a commercial success.

These programs were last authorized in 2011. In order to give entrepreneurs stability and predictability, we are getting a jumpstart on reauthorizing them before next year's deadline. Today, we have a very distinguished panel of government witnesses who are intimately involved in their agency's SBIR and STTR programs. We look forward to hearing about your programs and your suggestions of how we can make these good programs better.

Again, I want to thank all of you for being here and I would now like to yield to the ranking member, Ms. Velázquez, for her opening statement.

Ms. VELÁZQUEZ. Thank you, Mr. Chairman.

Since their establishment in 1983, the SBIR and STTR programs have helped launch tens of thousands of successful research projects. During this time, they have awarded nearly \$40 billion, making them a critical source of funding for small innovative firms. As a result of these programs, breakthroughs have been made in a wide range of sectors, from agriculture to energy to healthcare. In turn, these discoveries have generated economic growth and the job opportunities that come with it.

In 2011, Congress enacted a reauthorization of these programs. One of the primary outcomes of the legislation was a greater focus on commercialization. Such a focus is necessary if we are to ensure that the programs remain a catalyst for not just innovation but also the economic empowerment and job creation that are associated with these scientific advances.

During today's hearing, I am especially interested in understanding how the reauthorizations' various commercialization initiatives have played out and if they are, in fact, resulting in more successful endeavors.

In a similar context, the legislation required agencies to track those opportunities that continually win Phase I awards without progressing to Phase II. I look forward to reviewing this data.

Among the most notable changes were increases in permissible award sizes. In theory, this should provide agencies with more flexibility to make larger awards to the most promising innovations. However, I am concerned as we have seen a decline in the overall number of awards. Understanding the tradeoffs here are

important and we need to know what is preferred. Fewer, larger size awards or more awards of lower value.

There are also two perpetual issues that continue to raise concerns. One is that the programs remain concentrated in just a few states. Altogether, the top 10 award states receive over half of the number of awards and half of the dollars. This results in programs that are largely serving just a handful of states while others receive very little benefit from it at all. This is a perennial issue that continues to warrant this committee's attention.

Similarly, concerns exist that the participation of women-owned and minority-owned firms has been declining. Just like with geography, when it comes to demographics, it is important that SBIR and STTR are serving all entrepreneurs, including women and minorities. This is especially important as reaching this group is the only stated objective of the program that is not currently being met.

Finally, I know there is much discussion about the duration of the authorization period for these programs. In the past, Congress's inability to pass a bill created great stress on the agencies and among small businesses. I understand and recognize this legitimate concern; however, SBIR and STTR are statutory programs and rely on Congress to make changes. As a result, it is crucial to have regular legislative oversight of the programs. This means having an authorization period, such as the current sixth year, which permits Congress to implement updates that reflect the evolving nature of technology and the economy, while still giving participants certainty of all the programs.

During today's hearing, I hope that we shed light on this issue so that we can begin to evaluate how the changes included in the 2011 reauthorization are performing. The reauthorization window is upon us, and it is critical that we know what is and is not working. We know the value that the SBIR and STTR programs have in fostering innovation. While they continue to do so, we must oversee these programs regularly. And for that reason, I thank all the witnesses for being here and the chairman for calling this hearing. I thank you, and I yield back the balance of my time.

Chairman CHABOT. Thank you very much. And I would now like to explain briefly the timing system. We operate under the 5-minute rule. I am sure you are familiar with it. It is kind of like a traffic light on your desk there. Green light means go. You can talk. You will get a yellow light warning there to let you know you have got about a minute to wrap up, and then the red light will come on and you are supposed to stop. Most people do but some people go on. If you would not mind wrapping up close to that we would appreciate it. We will give you a little leeway.

I would now like to introduce our very distinguished panel here this morning. I will begin with our first witness, John Williams, who is the Director of Innovation and Technology for the Office of Investment and Innovation at the SBA. Mr. Williams's primary responsibility is to oversee Federal policy implementation and programmatic oversight of the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs across all 11 participating agencies. Prior to joining the SBA in December of 2014, Mr. Williams served as the Director of the Navy

SBIR and STTR programs. Through his leadership, the Navy led the way in supporting the acquisition and transition of SBIR and STTR seeded technologies, awarding more Phase III contracts than the rest of the DOD combined.

The following witness will be Dr. Barry Johnson, who is Division Director of Industrial Innovation and Partnerships (IIP) at the National Science Foundation. In this role, Dr. Johnson fosters partnerships in advanced technology innovation and invests in science and engineering research across all disciplines that have the potential for high impact in meeting national and societal needs. He came to the National Science Foundation following his tenure as a Senior Associate Dean at the University of Virginia where he was also the L.A. Lacey Distinguished Professor of Engineering.

And after that we will have Dr. Matthew Portnoy, the Department of Health and Human Services and the National Institutes of Health's SBIR and STTR Program Coordinator. Dr. Portnoy and his staff provide scientific program management and oversight, support conferences and scientific meetings, ensure that NIH extramural staff are trained to meet the demands of their job, and communicates funding opportunities and critical information concerning NIH's programs, policies, and procedures to the biomedical research and training community. We welcome you here as well.

Finally, we will hear from Mr. Bob Smith, who is Director of the SBIR and STTR programs for the Department of the Navy. He is charged with assisting small businesses in getting their technology fully developed, tested, and inserted into the products and services used by our naval warfighters. Previously, he was Director of Disruptive Technologies for the Office of Naval Research and Program Manager for the Navy's Rapid Innovation Fund, which supports small business concerns rapidly inserting their technology and acquisition programs of record. A retired Marine Corps officer with over 3,000 flight hours in various military aircraft, he was the 2013 recipient of the Department of the Navy Greta B. Stinson Advocacy Award, one of the annual Navy Acquisition Excellence awards.

As you can see, we have a very distinguished panel out here this morning by hearing their bios here. So thank you very much for being here. And Mr. Williams, we will begin with you. You have 5 minutes.

STATEMENTS OF JOHN WILLIAMS, DIRECTOR, INNOVATION AND TECHNOLOGY, OFFICE OF INVESTMENT AND INNOVATION, UNITED STATES SMALL BUSINESS ADMINISTRATION; BARRY JOHNSON, PH.D., DIVISION DIRECTOR, INDUSTRIAL INNOVATION AND PARTNERSHIPS, NATIONAL SCIENCE FOUNDATION; MATTHEW PORTNOY, PH.D., OVERALL HHS SBIR/STTR PROGRAM MANAGER, NATIONAL INSTITUTES OF HEALTH; ROBERT SMITH, DIRECTOR, SBIR/STTR PROGRAMS, OFFICE OF NAVAL RESEARCH

STATEMENT OF JOHN WILLIAMS

Mr. WILLIAMS. Chairman Chabot, Ranking Member Velázquez, and distinguished members of the Committee, thank you for inviting me here today to discuss the Small Business Innovation Research and Small Business Technology Transfer Programs, affec-

tionately known as America's Seed Fund. Last month, SBA Administrator Marie Contreras-Sweet discussed the state of entrepreneurship at NASDAQ Headquarters in Times Square. This unprecedented opportunity gave SBA a wonderful platform to explain the importance of small business on the American economy. The administrator highlighted the great value of the SBIR program and how it harnesses American ingenuity to solve big issues. The SBIR program drives innovation in areas ranging from national security to public health, to food and space exploration.

In the financial tech capital of the world, SBIR was recognized as the institution which creates and provides opportunity through SBIR seed funding to tens of thousands of high-tech firms, and NASDAQ is the proper place to begin the discussion of SBIR because it represents the ultimate aims of the program—growing innovation, job growth, and business growth.

Today we are here going to speak a lot about oversight, reporting and compliance, but we must not miss the point that the return on investment from SBIR is truly astounding. The combined market caps of just two SBIR firms, Qualcomm and Biogen is \$120 billion, triple that of what American taxpayers have invested in the program over the lifetime. Our next generation of companies with SBIR funding are developing game-changing technologies, like Mango Materials, headed by a female Ph.D. out of Stanford, a company tackling waste reduction through a novel process of creating truly biodegradable plastics from methane waste. Made in Space, a company pioneering the use of 3D printing on the international space station to support extended space exploration.

SBA works very closely with the agency's program managers and external stakeholders to ensure that the intent of Congress is carried out in the operations of the program. It is critical to remember that although there is one SBIR program policy directive issued by SBA, it guides programs at 11 different agencies with varying missions, directives, and goals, as well as their established, yet different models and methods for executing the programs.

Thanks to this Committee, the program was reauthorized in 2011, and since reauthorization, SBA has successfully issued five major interagency policy Committee reports on outreach, commercialization, award-size flexibility, evaluation frameworks, and the SBIR.gov public and government databases. We have implemented with agency support over 60 legislative changes directed by that reauthorization. We recommended and built out our new SBIR.gov business intelligence platform. We coordinated and led a highly successful outreach campaign, hitting 22 States across the country in 2015 through our SBIR road tours and regional events, and we have accomplished a great deal with a limited budget but there is more work to be done. The Committee asked us to speak on the potential improvements to boost commercialization, improve data collection and reporting, while limiting the paperwork burden.

I have some summary thoughts on these. Commercialization was improved by the 2011 reauthorization but more definitely can be done. Firms are severely limited in using SBIR funds to support activities that help commercialize the firm's products and services, like market assessment, patents, and scale up. Agencies are still struggling to report Phase III award activity and establishing goals

and incentives to increase Phase III activity within their agency. And we need to look at other ways agencies, especially DOD, to make more funds available for the needed test and evaluation or technology maturation, which moves the technology from a Phase II to a Phase III.

On data collection, we are much better off than we were in 2011. SBA and the agencies have all worked hard to implement many new data fields that Congress requested us to collect. I strongly encourage you all to look at SBIR.gov to see the amount of data that is now available in real time, but this is still a work in progress and continues to require funding and time to get where we want to be.

Limiting the paperwork burden continues to be a challenge where I do not believe that we have made much progress. While this is a goal of the reauthorization, so, too, was increasing the data collected and adding tools to reduce fraud, waste, and abuse. Another challenge here is that most agencies require SBIR applicants to apply using the same processes that major universities or large businesses do. There are some organizations, like DOD, that have a special submission portal at NSF with their FastLane site that are more small business friendly than grants.gov. But more can and should be done to help standardize the proposal template and submission process. I also think we need to focus on the time it takes to move from proposal submission to award, especially between Phase I and II when the firm is expected to hold staff in place while they are waiting for funding.

As SBA's Director of Innovation and Technology, I will continue to work closely with our sister agencies to make sure that the SBIR and STTR programs are top priorities across the Federal Government. I will hold agencies responsible for the allocations required by statute and I will continue to work with you to improve these programs. They are true gems and we must make sure our small businesses know about these opportunities. Thank you for your time.

Chairman CHABOT. Thank you very much.

Dr. Johnson, you are recognized for 5 minutes.

STATEMENT OF BARRY JOHNSON

Dr. JOHNSON. Mr. Chairman and members of the Committee, thank you for this opportunity to testify regarding the Small Business Innovation Research and Small Business Technology Transfer programs at the National Science Foundation.

As mentioned, my name is Barry Johnson, and I am Director of the Division of Industrial Innovation and Partnerships in the NSF Directorate for Engineering. In this role I have oversight responsibility for the SBIR and STTR programs at NSF. For ease of communication, I will use the term "SBIR" program to refer to the collective SBIR and STTR programs.

The SBIR program is an integral part of the NSF strategy to stimulate innovation and address societal needs through the commercialization of the results of research. We fund small businesses at very early stages when the technology risk is high and before the private sector is normally willing to invest. Since NSF is not the ultimate customer of the innovation stimulated by the SBIR

program, the NSF SBIR research topics are oriented to the needs of the marketplace and the Nation as a whole.

In 1998, the NSF SBIR introduced a new supplemental program called Phase IIB, and it is a platform to stimulate NSF-funded active Phase II grantees to attract private sector funding for further technology commercialization. The Phase IIB proposal is submitted while the company is conducting the Phase II research, and with Phase II research underway, the small business is better positioned to attract investors because most of the early stage technology risk has already been addressed with NSF funding. The Phase IIB program requires that third-party commitments be double the level of supplemental funding from NSF up to a maximum of \$500,000 from NSF. The Phase IIB supplement was initiated to further fill the gap between the funding from an NSF Phase II grant and the funding ultimately required to achieve successful commercialization. The supplemental funding from NSF ranges from \$50,000 to \$500,000. Third-party investors include both public and private sectors. For supplements over \$250,000, the small business must participate in a reverse site visit to NSF with its investor.

In addition to providing funding, we also assist our awardees by providing them with an educational component based in part on the NSF Innovation Corps, or so-called I-Corps program, that helps entrepreneurs and their small businesses understand market needs and customers, thus increasing their chances of successfully commercializing new technologies. The NSF SBIR program is also staffed with a team of program officers with strong technical backgrounds in the areas supported by the program and with business experience in large and small organizations. The SBIR program officers generate the topics, review the proposals, manage the awards, and provide significant mentoring for the grantees.

NSF monitors the commercial outcome of our Phase II awardees and has found that 32 percent of the NSF SBIR grantees were fully successful and that they have at least \$1 million in revenue 6 years after completing the NSF SBIR Phase II award. Companies note strong intellectual property, position strong academic collaborations, and strong ties to market leaders as major reasons for success. The success rate for companies receiving Phase IIB awards using the same measure was 65 percent. The impact of the Phase IIB program on success rates is thus very significant. The national academies in the recent report on SBIR at the National Science Foundation found similar commercialization impacts of the NSF Phase IIB program.

Mr. Chairman, this concludes my testimony. On behalf of the National Science Foundation, the SBIR program, and our awardees, I want to thank you for this opportunity to highlight a program that provides small businesses with the means to keep America on the forefront of innovation. I would be pleased to provide any additional information that would be useful to you and the Committee. Thank you.

Chairman CHABOT. But in any event, Dr. Portnoy, you are recognized for 5 minutes.

STATEMENT OF MATTHEW PORTNOY

Dr. PORTNOY. Thank you. Good morning, Chairman Chabot, Ranking Member Velázquez, and members of the Committee. My name is Dr. Matt Portnoy, and I am the coordinator for the Department of Health and Human Services SBIR and STTR programs.

My remarks today will primarily focus on NIH because our agency represents 98 percent of the department's programs. However, my office coordinates closely with the CDC, FDA, Administration for Community Living, and the Administration for Children and Families, our sister HHS agencies that also fund the programs. HHS is the second largest funder of the programs and the largest Federal supporter of biomedical research.

The NIH SBIR/STTR programs are ideally suited for creating research opportunities for U.S. small businesses to stimulate technological innovation. Examples of successful NIH SBIR funded technology includes the Lift Lab's Liftware that creates stabilizing technologies to help people with essential tremors and Parkinson's Disease and SenesTech, which has technology to manage rodent populations using a nontoxic approach that limits reproduction.

I am pleased to tell you that the implantation of the changes included in the Reauthorization Act of 2011 are complete. This year, NIH increased its set-asides for both programs to 3 percent and .45 percent, respectively. The overall budget for the programs has increased from \$680 million pre-reauthorization, to the current set-aside of \$877 million, an increase of nearly \$200 million. NIH and HHS continue to meet and exceed the required set-aside spending each year as found by annual GAO reports.

We have greatly increased our outreach efforts the past several years. We continue to partner with the NIH institutional development awards or IDeA program to reach underserved small businesses in IDeA States and have increased outreach to women-owned and minority-owned businesses. The last 3 years, we have reached over 24,000 individuals from all 50 States, D.C., and Puerto Rico, including nearly 1,000 women-owned small businesses and 650 minority-owned businesses, as well as efforts targeting all 23 IDeA States and Puerto Rico. We anticipate increased applications from these groups further diversifying the program.

NIH issued its first direct Phase II SBIR solicitation in 2014 and made our first awards in 2015. Success rates as predicted track along with Phase I and are 19 percent, for a total of 65 awards made last year. NIH and CDC recently launched their commercialization readiness pilot program, or CRP, in the fall of 2015. Our first receipt dates for these applications was this past January 2016 with awards to be made this summer. NIH has also implemented the STTR phase zero proof of concept centers through the NIH Research Evaluation and Commercialization Hubs, or REACH program, and I issued three REACH awards in 2015 to the University of Louisville, the University of Minnesota, and a consortium of four institutions called the Long Island Bioscience Hub. We held a kickoff in April 2015 to share the best practices learned from the NIH Centers for Accelerated Innovation, a similar program funded by two of our institutes and co-funded by the phase zero authority.

In 2015, NIH's average time from receipt to notice of intent to award was less than 200 days, well below the 12-month require-

ment, and we have implemented significant changes in our business practices to continue to shorten this time period.

HHS is grateful for the recent extension of the Administrative Fund Pilot Authority through the end of fiscal 2017. HHS has spent 0.9 to 1.5 percent of our SBIR set-aside per year towards a variety of activities, including the increased outreach efforts I mentioned above, participation in co-funding of the SBA road tour, streamlining our award cycles, increase support for commercialization, funding the mandated national academy studies, which found our programs are meeting goals, with the exception of the outreach to minorities and women, and providing support for new programs, to name a few. These activities would not have been possible without these additional funds and would need to be severely curtailed or eliminated without permanent funding.

HHS appreciates the flexibility to fund awards at appropriate budgets that may exceed the established guidelines if the science proposed warrants such an exception to ensure successful outcomes. HHS offers a suite of technical assistance programs, including our Niche Assessment program, Commercialization Accelerated program, and a Life Science Focused Pilot of the NSF I-Corps program.

In conclusion, the HHS SBIR and STTR programs seek to fund the most scientifically promising projects for which private and public funds are not traditionally available, and we strive to leverage our portfolio across the biomedical enterprise.

This concludes my statement. Thank you for your attention and I look forward to answering any questions.

Chairman CHABOT. Thank you very much, Doctor.

Mr. Smith, you are recognized for 5 minutes.

STATEMENT OF ROBERT SMITH

Mr. SMITH. Chairman Chabot, Ranking Member Velázquez, and distinguished members of the Committee, thank you for the opportunity to appear before you today and discuss small business innovation research and small business technology transfer.

The Department of the Navy greatly values our SBIR/STTR program because we are taking a great program and making it better by improving the business of the science. Small business and industry value our program because of the continuous outreach to create new business and science opportunities. Through SBIR/STTR, American small business throughout your States have proven over and over again their ability to provide lean, agile, and innovative solutions to our warfighter requirements to help our service deal with the biggest challenge of its defense and humanitarian missions.

As Mr. Sean Stackley, Assistant Secretary of the Navy Research Development and Acquisition said, "Small business and competitive healthy small business industrial base are vital to the long-term success and affordability of the department, as well as our national security. The evidence is overwhelming where affordability is paramount, a strategy that includes small businesses creates affordable outcomes and promotes innovation and technical advancement."

I wish I had more time to talk about the incredibly innovative SBIR/STTR firms participating in the Navy's program. Aggressive,

dedicated, responsive, and resourceful are just some of the adjectives I would use to describe these incredible businesses.

Two examples of outstanding Navy SBIR/STTR contributions to our military and our Nation are EMILY and Automated Celestial Navigation. The Emergency Integrated Lifesaving Lanyard, called EMILY, is a robotic lifeguard deployed worldwide by Hydronalix, a rural Arizona company. Several of EMILY's technology derived from a 1991 Office of Naval Research STTR project to track well migration. The tracking system reconfigured as the Silver Fox unmanned air vehicle was deployed in 2007 to provide convoy protection to Marines in Iraq saving lives. The same basic technology package reconfigured as EMILY is supporting first responders throughout the U.S. and other nations and saving lives today in the Mediterranean Sea refugee crisis. Trex Enterprises' Automated Celestial Navigation system provides a solution in GPS-denied environments through a fully automated star tracker for imaging individual stars both day and night to enhance navigation capability.

Initially focused on Navy challenges, ACN attracted attention across the government, the result being a fellow agency ordering 15 systems with applications in crime fighting and drug interdiction. Over the last 6 years, using its non-SBIR funds, the Navy has invested an average of over \$500 million a year in SBIR/STTR technologies. This investment we believe leads the Department of Defense and the Federal Government.

There are four primary factors that have made the Navy's SBIR/STTR program successful.

Culture. Our naval acquisition community considers SBIR/STTR part of the solution for delivering quality innovations to our warfighters quickly and cost effectively.

Team work. With emphasis on delivering solutions to the warfighters, our dedicated professionals make continual improvements to small business performance through our proven SBIR/STTR transition program in its annual forum. The forum, being conducted currently with the Sea, Air, and Space Symposium will happen 16–18 May at the Gaylord at National Harbor. I would be honored if you and your staffs can come by and have a visit with us.

Moreover, the Department of the Navy guidance is aligned with the Department of Defense Better Buying 3.0. As I mentioned in my testimony before the Senate Small Business and Entrepreneurship Committee, I believe that although we collect and report an incredible amount of information on the SBIR/STTR programs, we are not providing you the data that you need. I recommend a data summit where we collectively identify the information needed to effectively run the program, determine how to effectively collect that data, and rapidly provide needed reports on the execution of the program.

Performances mentioned above led former Secretary Jacques Gansler to tell the Senate Arms Service Committee recently that SBIR/STTR should be made a permanent program. The Department of the Navy continues to seek improvements in our program and to seek a more diverse vendor base, increase small business integration into the Navy business, and levy small business advances for Navy requirements.

I look forward to working with you and your staff regarding the importance of SBIR/STTR authorities. Thank you.

Chairman CHABOT. Thank you very much. We thank all the panel members. I recognize myself for 5 minutes.

Mr. Williams, I will begin with you if I can. Across agencies, what is being done to improve the data collection and dissemination? The 2011 reauthorization required a great deal more reporting to the SBA and also to us here in Congress. What are you doing to help improve the data collection efforts across the agencies? Also, you had mentioned how unsuccessful we have been in reducing paperwork. If you would like to comment on perhaps something else we might try where it has not necessarily worked in the past.

Mr. WILLIAMS. Well, I will start with the paperwork side, which is a challenge. But most of that I believe falls outside of the chain of command of the SBIR program offices. It is more on the head of contracting and head of granting organizations. The way a proposal needs to be submitted and the things that need to come along with that are driven by FAR and DFAR and by those communities. I think one of the challenges is, and understandably, you have been trying to put that emphasis on us, which we have tried to do, but there is only so much the SBIR management community can do. I think those other communities are tasked with kind of establishing how contracting is done, and that is where most of the paperwork happens. That might be an approach to maybe ask how they can reduce some of those things. But I do think in trying to then make common proposals and things like that, so at least one form is working, maybe not across the board but at least for 80 percent. We can work on those things.

As far as data collection, we have done a lot. When the legislation passed, we had a pretty old system at SBA and data collection, and so we modernized that system and we have spent a lot of time and effort to develop that system, and then portals so that the data can get pushed by the agencies. The challenge has been we have about 150,000 records, and each record has over 70 fields, so it is a massive amount of data. When you add additional requirements, you have to tag those to the original records, and so it has been challenging, but we have made a lot of progress, and the agencies have been very successful and helpful in trying to, because they have to push it to us and we have to check it and all that. We are making great progress but there is more to be done.

Chairman CHABOT. Thank you very much.

Mr. Smith, I will move to you next. First of all, thank you for your service in the Marine Corps. We appreciate it very much.

The 2011 reauthorization bill, among other things, authorized the Department of Defense to establish goals to increase SBIR technology transition and to use incentives to encourage prime contractors to meet those goals. Has the DOD at large implemented these provisions?

Mr. SMITH. Chairman, I know they are working it. I have not seen specific goals. I do know that DOD instruction for acquisition 5002 has been changed and modified to reflect that you will have small business goals. I do not think there has been a specific metric applied to those major acquisition programs. I know we are discussing a metric, but like all other people, it is hard even within

the Department of Defense to have one single metric that matters. Is it Phase III dollars? Is it value to the warfighter? Is it lives saved? It is hard to measure some of these things and collecting that data to make a management decision can be incredibly difficult.

Chairman CHABOT. Okay, thank you very much.

Dr. Portnoy, let me go to you next. You mentioned that you encourage small businesses to submit their own proposals that fit your mission as opposed to having them all respond to your solicitations. Could you talk about how that process works a little more?

Dr. PORTNOY. Yes. Thank you, Mr. Chairman. In fact, we do both. We have what we call a parent solicitation, which accepts investigator initiated applications. This is where small businesses can propose any technology that fits within our mission base, so any life science or biomedical, bio behavioral technology. We do not presume to know where the best or the next best innovation will come, so we leave it to the community and entrepreneurs to tell us that. About 70 percent or so of our applications and awards are what we call "investigator initiated." The remainder are in response to specific funding calls where we put out more targeted topics via both grants and contracts, where we have identified are more specific need for one or more of our institutions to accomplish its mission.

Chairman CHABOT. Thank you very much. I have a little bit of time left. Dr. Johnson, I will move to you before my time runs out.

As you mentioned, the National Science Foundation, excuse me, yes, is not the ultimate customer of the innovation stimulated by the SBIR program. Could you talk a little more about how the SBIR program's focus on commercialization supplements the basic and applied research being done at the NSF?

Dr. JOHNSON. Yes, sir. As you know, a lot of NSF's funding goes into the support of fundamental research, and one of our goals is to actually transition that fundamental research out into commercialization. We emphasize with our SBIR program, not only in the review process, not only the technology and the quality of that technology, but we also bring business reviewers into that process to review the proposal for commercialization opportunities. They are looking at it with the eye of a business individual to determine if there is a market, if that market can be served by this particular technology, and if this team and the idea that is being presented has the capability to ultimately achieve technology, commercialization, and success.

Chairman CHABOT. Thank you very much. My time has expired. I will now yield 5 minutes to the ranking member.

Ms. VELAZQUEZ. Thank you, Mr. Chairman.

Dr. Johnson, the NSF has a very successful Phase II program whose participants commercialize at high levels. According to the economic study, 81 percent of projects that receive a sequential award under the program achieve some level of sales. What about the program makes it so successful?

Dr. JOHNSON. I think part of what makes it so successful is that we have a public-private partnership in that Phase IIB. We have private investors or private partnerships for that particular small business that are coming to the table to actually help the

company, either through investments, purchases of the product that that particular company is providing, and help with the commercialization. I believe that ultimately it is the public-private partnership that exists within that Phase IIB program that is critical to its success.

Ms. VELAZQUEZ. So your Phase IIB requires a 2-to-1 match; right?

Dr. JOHNSON. Yes.

Ms. VELAZQUEZ. Of a third-party investment to SBIR dollars. How has this component of the program helped businesses commercialize the research?

Dr. JOHNSON. I think one of the ways that it helps is that investors are constantly looking for ways that they can get more money for their investment or more effort for their investment.

Ms. VELAZQUEZ. What do you think is the key to replicating the success in other agencies?

Dr. JOHNSON. I think the program is time-intensive. It does require significant effort on the part of our program officers because in most cases we are doing site visits at NSF where we bring the team in. We have a couple of hour presentation by the small business. We talk to their investors. I think it is a time-intensive nature to this particular program, and I think that is the key to replicating it at other places.

Ms. VELAZQUEZ. Okay. Mr. Smith—thank you—we have seen DOD, that there is a particular rush in transferring the technology over from research phase to incorporation in the field. In fact, GAO could not even assess the extent of tech transfer because the data is not being collected. How is the Navy addressing the issue of ensuring successful tech transfer?

Mr. SMITH. Ma'am, we do most of that when we start making these agreements on who is going to fund the 2.5s, the subsequent Phase IIs. Saying we have technology transition agreements where the parties agree this is the research I am going to do, here are the funds I am going to bring to it, and if successful, this is the program where this technology will be inserted—

Ms. VELAZQUEZ. Can you explain why the GAP report basically says that it is difficult to even assess??

Mr. SMITH. Because we do not track that individual component. So it is sometimes hard to say, where did that component go within the system into the platform? So it can be difficult to track an acquisition who is building my carrier or my aircraft, to understand where that ship or that algorithm from the small business eventually ended up.

Ms. VELAZQUEZ. Why is it so difficult to track? We need data, you know.

Mr. SMITH. Yes, ma'am.

Ms. VELAZQUEZ. In order to exercise our role in terms of oversight and see what is working and what is not, we need to have the data.

Mr. SMITH. One of those is a temporal challenge, ma'am, because it can take 5 to 7 years to transition the technology, and those are resources to track an individual research effort along its progression and when does it get to a program. Or when did it spin

off to another program? It is difficult, and we do not have the resources to track 5, 10 years.

Ms. VELAZQUEZ. Talking about data, Mr. Williams, SBA has published guidance on benchmarks for Phase I to Phase II transitions. The goal of these benchmarks is to prevent the same companies from continually winning Phase I awards without progressing to Phase II. Are agencies enforcing these benchmarks? If so, have there been any cases where a company was made ineligible for the year?

Mr. WILLIAMS. Yes. That has been implemented across all the agencies. Twenty-five percent of your Phase Is have to go to Phase II. If they do not, you cannot submit a proposal for a year. That is implemented across all the agencies, and it is about 6 to 12 companies a year that will fall into that. Some of them have actually graduated.

Ms. VELAZQUEZ. So the agency is keeping track?

Mr. WILLIAMS. Yes. We push the information to the agencies. We contact the firms and then we push that information to the agencies of the firms that are on that list for the year.

Ms. VELAZQUEZ. Mr. Williams, in the last reauthorization, the use of the 3 percent funds to cover administrative costs was an issue for me. And so the pilot was recently extended. The committee has yet to see any reports from SBA. We do not know the effectiveness of the pilot and whether agencies are using these funds on allowable costs. Why should we continue to allow for the SBIR funds to be used for administrative costs when we cannot even be sure if the funds are used as it was stated?

Chairman CHABOT. The gentlelady's time has expired but you can answer the question.

Mr. WILLIAMS. So quickly, I committed to submitting that report by the 30th of June to Congressman Moulton the last time I was here, and I will do that. We are working on that.

Ms. VELAZQUEZ. That will cover 2012? 2013? 2014?

Mr. WILLIAMS. That will cover up to—well, it started in 2013, 2014, and 2015.

Ms. VELAZQUEZ. Right. Okay.

Mr. WILLIAMS. Yes. So we will work on that.

Ms. VELAZQUEZ. Thank you.

Chairman CHABOT. The gentlelady's time is expired.

The gentleman from Missouri, Mr. Luetkemeyer, who is the vice chairman of this Committee.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

I think I can solve your problem without being able to see this. If you just issue pillows to everybody we could sit up higher and we could see over the top of the deck here. Okay.

In all seriousness, thank you guys for being here this morning. Good stuff. I appreciate your participation and your information.

Mr. Williams, you deal with these programs every day. Can you tell me how we can improve them? And my question is, I know you have talked about the data collection already. What about things like tax benefits, our treatment of—is there a way to improve the way the small business innovating folks can have a better tax advantage to be able to do some of this? Or perhaps maybe the size of the award, is it too small, too large? And the speed with which

the awards are given, either going too slow, too fast? Can you give me some ideas on some of those right quick?

Mr. WILLIAMS. No, because it is hard. But yeah, I will do my best. So I think we have been able to do the administrative dollars, which have really helped us address all of those areas, but why I say no is what we found is there is no "one size fits all." NSF does things a certain way, but even with NSF, a software project is different than a materials development project, is different than a health project. Trying to have one way and expect a Phase I to go to a Phase II to go to a Phase III we know does not work, and that is why you have to have flexibility. Some will need more money. I think, funding in increments, so if something does not pan out we cut it off and we put more money in other things, but you do need more money in certain projects, and then you have to be able to assess that with the expertise at the agency to say, wow, this has transitioned. A program of record is coming forward. The answer is it takes more management. What is unique about SBIR is the program makes all the money go to the small businesses and not the government entity to spend any in-house. That is where the 3 percent helped a lot and we are doing more with that.

Mr. LUETKEMEYER. Okay, quick question. What percentage of applicants are awarded?

Mr. WILLIAMS. For Phase I, it varies a little bit, but it is on average about 15 percent of the Phase I proposals that come in are awarded, and then about 40 to 50 percent of those go from Phase I to Phase II.

Mr. LUETKEMEYER. Okay.

Mr. WILLIAMS. And then about that percentage go to Phase III.

Mr. LUETKEMEYER. The 85 percent that do not get awarded, what is the problem with their presentation? Is it something does not work? It does not have a viable business plan? Is it pie in the sky or what? What is the problem?

Mr. WILLIAMS. Yeah, it would be all of those. We look at three things. We look at the quality of the project. Certain ones that are granted, they are focused on a specific need. If it does not hit that need, then they are not good and they not get evaluated well.

Mr. LUETKEMEYER. Okay, so is it need evaluated by you or is it need evaluated by—

Mr. WILLIAMS. By the individual agencies and the technical experts within those agencies. Now, some of them that are grantor organizations push it out to peer reviews. They will bring in the experts in the material sciences and things. Contracting shops will do it in-house. Like, DOD uses their experts within house.

Mr. LUETKEMEYER. I think, Mr. Smith, you talked about them having business teams review it, did you not? Or was that Dr. Portnoy?

Mr. SMITH. No, sir. That was NSF.

Mr. LUETKEMEYER. Okay, I am sorry, Dr. Johnson, you talked about having business teams review the applications for viability of that applicant; is that right?

Dr. JOHNSON. Yes, sir.

Mr. LUETKEMEYER. I think you had some numbers, or I was going to ask—I think Dr. Portnoy, I believe, had some numbers on successes for his people.

Dr. PORTNOY. Yes, sir. Our Phase Is are around 15 to 20 percent, and Phase II is 35 to 40 percent. That more or less holds from year to year. We do have a mandated two-tiered peer review process by NIH's authorization act, and so we use external peer review for Phase I where we use both business and academic experts and commercialization experts, and we strive to have around 25 to 50 percent of our review panels be from the business side. Our second level of review is our advisory council, which is more of an administrative review prior to award being made.

Mr. LUETKEMEYER. Well, I think it is important, you mentioned, to have business folks on the council. I mean, if you have business people on your review boards, I mean, they understand how the real world works, whether this is viable or not. To me that would be very important on your second team as well, which you indicated not much participation there.

Mr. Williams, you also talked about, mentioned NASDAQ a minute ago which makes me think, is there plenty of capital available for a lot of folks whenever they come out of the program to be able to take this product or service to the next step? Or have you seen a problem with funding at that next level for the outside funding?

Mr. WILLIAMS. Overall, we have seen a problem with that funding to the next level because risk, that group is more risk averse than they had been in the past. Also, they do not like to invest in DOD projects as much as they like to do life sciences. It depends on some of that, and half the program is DOD. You typically will not get a venture investor in a DOD-type project.

Mr. LUETKEMEYER. I have a couple seconds left. Mr. Smith, would you like to comment on that?

Mr. SMITH. I would have to concur with Mr. Williams. From a venture capitalist position, when most of our contracts are going to be cost plus award fee of 6 percent, that is not going to drive them to that.

Mr. LUETKEMEYER. So that begs the question, do you go back to companies that have worked with you before as a preferential awardee versus a new company that comes to you with a new idea?

Chairman CHABOT. The gentleman's time is expired, but go ahead and answer the question.

Mr. SMITH. No, sir, because the first gate will be does it technically address my challenge?

Mr. LUETKEMEYER. Is the idea or the product going to fit with your program?

Mr. SMITH. Yes, sir.

Mr. LUETKEMEYER. Very good. Thank you, Mr. Chairman. I yield back.

Chairman CHABOT. Thank you. The gentleman yields back.

The gentlelady from New York, Ms. Meng, who is the ranking member of the Agriculture, Energy, and Trade Subcommittee, and whose district I visited last week and did a field hearing with her, and one with Ms. Velázquez as well, both in New York City, and it shows the bipartisan cooperation on this Committee. You are recognized for 5 minutes, and we will not take any of that out of your 5 minutes.

Ms. MENG. You kept your word. Thank you, Mr. Chairman, for coming out to our district in Queens, New York. We really enjoyed having you, and of course, as always, our ranking member, who comes often.

To the panel in general, we saw R&D budgets decrease as a result of sequestration. How has this in any way affected the programs at your agencies? Anyone is welcome to answer.

Mr. SMITH. The first is numerical. If it is 3 percent of my extramural, if the R&D budget is going down, there will be less money there. We have also seen that my program managers will become more risk averse. My challenge is getting across that valley of death. But that is where my funds, the 2.5, the subsequent Phase II, I can encourage them to put their money in if they can see someone else is going to help progress that technology. It has created a challenge. We have to work harder at it.

Dr. PORTNOY. At NIH, during that year we, of course, received an across-the-board cut. The SBIR and STTR was affected proportionately, and as such, our awards were reduced a number that year. That rebounded when those cuts were restored the following year, and then in 2016, the current year, the NIH received a very large increase in its budget that was proportionately passed down to SBIR for a larger budget this year.

Ms. MENG. To Mr. Williams, it would appear that universities have an ability to reach a significant number of potential SBIR participants. Has SBA partnered at all with these institutions to reach underrepresented groups? What incentives or resources could we provide these institutions to encourage outreach to underrepresented groups?

Mr. WILLIAMS. Well, we have begun two things. Last year, we kicked off what we call our SBIR road tours. We went to 22 States, and many of those were held on university campuses, probably at least half of them. We also have a program called FAST, and then it has got sister funding called FAST to SBTDCs. Both of those programs typically go to university-oriented SBDCs or organizations, and part of the motivation and the requirement on that is to reach underrepresented communities. The three categories are an underrepresented State, a minority, or women companies and STEM-oriented people.

Ms. MENG. Lastly, I wanted to ask about minority and women-owned business participation, specifically with NSF and NIH. How have you found outreach? Which techniques have been successful in terms of outreach, whether it is to help firms succeed once they get an award or hoping to lead an increase in applications and awards?

Dr. JOHNSON. One of the programs that we have started to see significant success with is the I-Corps program, and it in part addresses the issue you raised in your previous question. In I-Corps, we fund a team, which includes the technical expert, which is normally a faculty member at the university and an entrepreneurial lead, normally a student that wants to start a company, and a business mentor who is an experienced entrepreneur or business person. Those three go through an intensive process of customer discovery to determine whether there is a commercial opportunity for the idea that they would like to bring forward and use to start

a company. We have had more than 600 teams go through that training. About 39 percent of those teams have a woman as a member, so we are beginning to see an increase in the number of women that are engaged in those entrepreneurial training activities, and then we are beginning also to see significantly enhanced success rates in the SBIR program from teams that have gone through I-Corps training as a precursor.

Dr. PORTNOY. Thank you. This is a very challenging problem as you no doubt are aware, and so we are taking a multipronged approach, both within the agency at NIH and with all of the agencies with a trans-agency outreach group. We are doing things like participating in the outreach tour, making sure whenever we go on outreach that we require the organizers to find and identify their local women and minority-owned businesses because they are the best sources for that. We also have been doing quite a bit in beginning to work with professional organizations, such as Women in Bio and other related organizations. We did webinars for them. We are working with HBCUs as recently as last week doing a webinar and having an in-person meeting at NIH to bring in those communities as well.

Chairman CHABOT. The gentlelady's time is expired. Thank you very much.

The gentleman from California, Mr. Knight, is recognized for 5 minutes.

Mr. KNIGHT. Thank you, Mr. Chair.

To Mr. Smith, it pains me as a soldier to say this, but as you are being very successful in the Navy, are other DOD agencies kind of modeling or looking after what you are doing and doing similar things? Or are they trying to improve? Or can you give me an idea of what you're doing that others are not doing?

Mr. SMITH. The quick answer is yes. One of the things working with DOD is we continually discuss best practices, what will work with our organizations. Some of the challenges they have have to be structural with them, but I have got to say my sister services are interested in transitioning the technologies to their warfighters.

Mr. KNIGHT. Okay. On that same line, there are a couple of us up here that sit on Armed Services and acquisition is the number one goal right now, how we can speed it up, how we can get it quicker to the warfighter, things of that nature. Can you give me an idea of issues that you are working on that speed up that process that make the acquisition process not so bureaucratic?

Mr. SMITH. Our challenge, as Mr. Williams spoke to, the FAR and DFAR. When my SBIR companies have to comply with the same regulations, procedures, and processes that we expect of our defense primes, it is very difficult if it is two people in a garage. We work with that. I wish there was proportionality for my contracts, and we are working with that community, but most of the time they say we are only doing what Congress has directed we can accomplish.

Mr. KNIGHT. To Mr. Williams, there are ways to cut down the, again, the bureaucratic mess, the over—extra paperwork, the things that we duplicate. Can you give me an idea of what you have done to kind of bring that process down a little bit?

Mr. WILLIAMS. That is the process that I thought that we actually have not done a great job on. It has been a challenge and it is a hard area to focus on. We are bringing together the committees, I mean, all the agencies. We have working groups on contracting and grants, we are going to have a workshop at our conference in May where we are going to bring a lot of the government people from all across different agencies. It is a problem outside of just SBIR. As you mentioned, it is across the board. It is much bigger than us, so it is something we need to tackle, but most of the requirements state that SBIR cannot be different than another proposal or application or award. They have to follow the same processes, and what I have just seen in my 27 years, is the requirements of paper have gone up, to do more due diligence by those shops. I wish I had a better answer for you.

Mr. KNIGHT. I guess I can ask the question of the whole panel then. Is there something that we should be looking at here in the Small Business Committee that can make it easier? I think that a lot of us look at small businesses and we talk about the issues that either happens at government here at this level or at the State level that makes small business do things on a weekly basis or on a monthly basis when bi-annually would be good enough to accomplish the mission. Is that something that we can look at here as a Committee as a whole?

Mr. WILLIAMS. I think we have been tasked, and the reauthorization in the past has asked for studies to be done, potentially a study that would look at that but it would task again the heads of contracting grants to report back to you on what can be done, and potentially different for small businesses applying and not have to go through the same and do the same types of work that big businesses—and it is not just submitting the proposal, but as you mentioned, it is the auditing that happens, so DCAA and things like that. But I think getting those guys to kind of look at the problem might come up with some solutions because they would be the ones that would have to implement it.

Mr. KNIGHT. I will not speak for the chair, but I think that part of the mission of this Committee is to make sure that small business can work efficiently and be accountable for what they do but also have the ability to make money and succeed and expand and do all the things that we want them to do here in this great country.

With that, I yield back. Thank you, Mr. Chair.

Chairman CHABOT. Thank you very much. The gentleman yields back.

The gentleman from Massachusetts, Mr. Moulton, who is the ranking member of the Health and Technology Subcommittee is recognized for 5 minutes.

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

I am one of the members who, like Mr. Knight, serve on Armed Services, and have been very pleased to see the Navy's robust implementation of their SBIR program. And Mr. Smith, I wanted to ask you a bit about the data summit idea that you mentioned in your testimony and you first proposed before the Senate. What exactly would that look like?

Mr. SMITH. I think we get the appropriate communities together to ask some basic questions—what do you need? And how can we collect it and report it? I think the challenges is individually between here, SBA, DOD, even the Navy, we have each got a different question and need a different piece of data, where in acquisitions, we have never gone back and done a systems of systems approach to this challenge. I spend an incredible, inordinate amount of time reconciling data between multiple databases so I can get one answer to one question. That is part of it. I think it starts with possibly the scientists sitting down going, what are all the reports doing? Why are we doing them? Are we answering the question that we initially intended to answer?

Mr. MOULTON. Is this summit something that could be covered in the 3 percent administrative budget? Could we pay for it through that?

Mr. SMITH. Absolutely. Yes, sir.

Mr. MOULTON. What do we need to do to move this forward? I mean, it seems like a reasonable idea. What do we need to sort of make this happen?

Mr. SMITH. I am not quite sure on the language, but we can get back to you, sir, with that.

Mr. WILLIAMS. Yeah, and SBA will take the lead to start working that with the agencies because we would want to do it cross agency and set something up and start to have a working group and work towards that. We will get back to you on that. We will take that lead.

Mr. MOULTON. Great. What can we expect as a timeline on this? I mean, give us an idea of when we might see something that is actually coming together.

Mr. WILLIAMS. Let us start to have meetings within the next, you know, 3 months and start to lay out how we do it. What I know about this in the past, because we did it at DOD, it is not that you can just say, "Okay, we will do this, we will have a report, and then it is over." It is pretty much you start it and then you run it for years, but we need to get it started and figure out what are the issues that we need to gather, who is doing it, and kind of talk to our—and usually it is our data people that really have to get together. We will start in 3 months and then we will continue to give you updates on what is going on.

Mr. MOULTON. Okay. Great. Thank you very much. Mr. Chairman, I yield back.

Chairman CHABOT. Thank you very much. The gentleman yields back.

The gentleman from New York, Mr. Gibson, is recognized for 5 minutes.

Mr. GIBSON. Well, thanks, Mr. Chairman. I appreciate the panelists here today. I think we are capturing some very good best practices we can circulate and look to continue to move towards excellence.

Towards that end, Dr. Johnson, if you could talk for us, put for the record a little bit more detail on the Innovation Corps and how you have seen this flourish and how you worked the funding for it.

Dr. JOHNSON. Thank you. I-Corps is a relatively young program. It was started in 2011 and we have created a national inno-

vation network that includes seven nodes that are focused on delivering the curriculum that is part of the training that these teams receive. In addition, we have 51 sites that work collaboratively with those nodes. As we talked previously, four of those sites are at historically black colleges and universities, so we are trying to use this network to build relationships with underrepresented groups. And we have had within just the National Science Foundation, we have had over 600 teams that have gone through the training at the national level, but I think that understates the training that is being delivered because it does not count the training that is going on at sites. We find that, for example, in Milwaukee, the site there that has delivered the training now to about 27 teams just in the first year or year and a half, and so this is an intensive training where the goal of the training is for the team to understand what they have. Do they have an idea that is worthy of commercialization? If so, what are the steps that they need to take? As I also mentioned, we are seeing increased numbers of proposals coming in to the SBIR program, and we are seeing increased success rates for that. We are growing the I-Corps program. In fact, we have a solicitation out now for renewal and possible new nodes that would be created. We also have a new site solicitation out for renewal and creation of new sites so that we can grow this network. Our goal is that anyone, any entrepreneurially-oriented faculty member or students or others that want this training will have access to this training.

Mr. GIBSON. Well, thank you. Likewise, Mr. Smith, how about any feedback you can share with us with regard to your guidebook, how well that has been received, and has that been shared with some of the other services as well?

Mr. SMITH. Yes, sir. Actually, one of the services I think changed the cover and claimed it as their own. But we continually get evidence—

Mr. GIBSON. Well, I am an Army guy, too, so hopefully it is not theirs.

Mr. SMITH. It might be theirs. What we find is, just like everyone else, one of the philosophies I use with my team is make their jobs easier. We find the guidebook has made their job easier. Rather than finding that contract officer who does maybe one or two SBIR contracts a month and needs to go through the whole FAR to find the one chapter, the guidebook has helped put that in one central location for him.

Mr. GIBSON. Excellent. In seriousness, that is among the ways we get more excellence in our formations, is really by just cross-leveling and sharing best practices, so I appreciate that.

Related, you talked about what you saw as the utility of the 2011 reauthorization, and you talk about how that rather significantly, dramatically, reduced the award times, and the distribution thereof. Can you put a finer point on that, on how you used that 3 percent?

Mr. SMITH. What we used for that 3 percent is we funded a contract center. I call it my focus contract center, where they have a team who essentially are experts in doing SBIR contracts. They do those every day. They have got their standardized templates and their formats. Instead of a 10-page cost proposal, they are able to do it with two, those kinds of things. That is where we have seen

reductions, and that is actually one of the follow-ons we are doing is that team is now going to go out to my other contracting centers and provide training to them.

Mr. GIBSON. Yeah. Thank you very much. I want to thank the whole panel for this. We do these hearings, of course, all the time. Oftentimes, we dilate on the problems and that is important, but it is also good to have a hearing such as this where we can capture many of the good things that are going on. We can fertilize that, cross-fertilize that drought. So thanks very much. I yield back, Mr. Chairman.

Chairman CHABOT. Thank you. The gentleman yields back.

I would like to now recognize the gentlelady from American Samoa, Ms. Radewagen, who is the chairman of the Subcommittee on Health and Technology. You are recognized for 5 minutes.

Mrs. RADEWAGEN. Thank you, Mr. Chairman. I, too, would like to add my welcome to the panel. Thank you for being here today.

My question is for Director Johnson. Director Williams; I am sorry. How are the R&D grants and contracts advertised to small businesses that conduct R&D?

Mr. WILLIAMS. They are advertised through websites. We push them out through SBIR.gov, but each agency, does have their own website also where they list their topics. On SBIR.gov, you can go in and we pull all those topics available, so anyone can search at any time, find out what awards, what topics are out there, but also what awards have been done in the past, what agencies work on those, and then push to the agency sites.

Mrs. RADEWAGEN. As a follow-up, as you are aware, the U.S. territories are geographically and technically isolated. Has there been any consideration for targeted outreach where R&D objectives, grants, or contracts directly or indirectly impact or benefit United States specific island territories?

Mr. WILLIAMS. Our focus has been on increasing our ability to get to anywhere. Web-based tools, we have done an awful lot. It is not that we do not target—I do not think topics are targeted for specific regions of the country; they are targeted towards technology areas. What we try to do is actually provide training to areas so anyone can get the training they would need to submit proposals, understand the process, and things like that. DOE, for example, has done an excellent program, what they call their Phase Zero program that they funded with the 3 percent, and that program, actually, if you are a woman, a minority, or an underrepresented area, which your island would fall under, they will give special assistance in helping write the proposal. They provide additional assistance above and beyond. There are programs like that, and we have been trying to bring that in to our SBIR.gov. We have a training book, a train the trainer book that we give out, so we are trying to get more boots on the ground training locally. Even if we were to come in and leave right away, that really does not, we found, work as well as having someone established in those local areas. Through programs like FAST programs, anyone can submit proposals to get cost and funding to be a trainer and to get the word out.

Mrs. RADEWAGEN. Thank you, Mr. Chairman. I yield back.

Chairman CHABOT. Thank you. The gentlelady yields back.

I now would like to recognize the gentleman from New York, Mr. Hanna, who is chairman of the Subcommittee on Contracting in the Workforce. You are recognized for 5 minutes.

Mr. HANNA. Thank you, Chairman.

Dr. Johnson, 15 percent of the overall applications are generally accepted. Of that 15 percent, which would reflect 100 percent of those were accepted, you said that 32 percent are successful, 6 years, a million dollars, commercial. Can you talk to me about the other 68 percent and what that looks like in the real world?

Dr. JOHNSON. We see—I guess there are a couple things that we see along the way. You are right with the numbers on the Phase I grantees, and then Phase I grantees obviously can apply for a Phase II grant. We see approximately 80 percent of those actually make that application. 20 percent are falling out after that Phase I process. In some cases they have gotten beyond the point where they need our help. In other cases, they have realized that the idea is not technically feasible and they will stop pursuit of that idea. There is some loss between the Phase I and then the transition to Phase II.

I should point out, and I would be happy to share some of this information with you all if you would like. We have a data collection program that we created over a decade ago where we actually follow these grantees at a 3-year point, a 5-year point, and an 8-year point. We reach out to those grantees to find out, one, are they still in business? Two, are they generating jobs or are they generating revenue? Have they solved the problems that they needed to achieve commercialization? We gather as much information. That is through—it is a time-intensive process because it is through a personal phone call that we actually reach out and gather this information. To answer your question though, the reasons are all across the map. We see some teams that disintegrate. We see technology that just cannot be resolved. It is a number of things.

Mr. HANNA. Naturally, you are accepting a certain amount of risk. You have to by definition. Are you comfortable with the matrix you used to do that? Should there be more failure? Should there be less failure?

Dr. JOHNSON. Well, we feel like we are comfortable with the decision-making process because, as I mentioned earlier, we do bring in in the review process both technical experts and business experts. We are actually getting a very solid look at the proposal from the very beginning, and we do that again at Phase II, when we get ready to award. We do that again for the Phase IIB if we get ready to sponsor someone in that. We have a due diligence process that we believe is as thorough as it can be.

Mr. HANNA. I would guess that some go way beyond a million dollars.

Dr. JOHNSON. They do.

Mr. HANNA. Using a simple percentage does not really give you the whole dynamic of the outcome or the success—

Dr. JOHNSON. It does not.

Mr. HANNA.—of the program overall. Can you talk about that, if it is even right?

Dr. JOHNSON. You are exactly right because we do see, and in fact, we have the data that shows the total amount of revenue gen-

erated by that collection of companies, and it is hundreds of millions of dollars generated by it.

Mr. HANNA. That might be a much better thing to look at than the number you have on your page.

Dr. JOHNSON. Absolutely. I think that is an excellent point, and we do have that data. My goal was simply to demonstrate Phase IIB is actually doubling the success rate for that measure.

Mr. HANNA. You did not do yourself any favor by doing it like you did it.

Dr. JOHNSON. Okay.

Mr. HANNA. I think. I mean, I could be wrong.

Dr. JOHNSON. No, I appreciate that input.

Mr. HANNA. Well, thank you very much. I yield back.

Chairman CHABOT. Thank you. The gentleman yields back.

I would now like to yield to the ranking member for a final question.

Ms. VELÁZQUEZ. Yes, thank you, Mr. Chairman.

I cannot leave this hearing without stating for the record that I do have an issue with the fact that one of the statutory objectives of the SBA program is to increase the participation of minority and women-owned businesses in the R&D arena. I want to hear your commitment that you are going to be working with us in seeking solutions to this issue. We cannot deny the fact that the face of America is changing, and especially in the small business sector. By neglecting this, we are neglecting the ultimate goal of fostering innovation. I want to work with you throughout this process before we come to drafting final legislation on the reauthorization, but I do want to see this issue addressed. For NHA, the share has declined from a pick of 3.5 percent in 2006 to less than 2 percent in 2014. That is unacceptable and we need to address it.

Thank you, Mr. Chairman.

Chairman CHABOT. Thank you. The gentlelady yields back.

Ms. VELAZQUEZ. I just want to hear from each one of you.

Oh, did you want to hear from them?

Ms. VELAZQUEZ. Yes, please, that you are going to be working with us.

Mr. SMITH. Absolutely, ma'am.

Dr. PORTNOY. You have our commitment.

Dr. JOHNSON. Yes, we are committed to it. In fact, I have asked one of my program directors to lead the effort on reaching under-represented minorities for the division as well.

Ms. VELAZQUEZ. And women.

Dr. JOHNSON. Yes.

Mr. WILLIAMS. Yes. I agree. I think we even need to go deeper and look at principal investigators, not just the ownership of the company but really who are the STEM people doing it and try to bring up, start there.

Ms. VELAZQUEZ. Thank you.

Chairman CHABOT. The chair would note that all the witnesses responded in the affirmative.

I have one last question myself. As you can see, this is being broadcast here, this whole hearing, internally on our system here and actually on our website. Small businesses all over the country have access to this, not just today but whenever they would like

to look at it. We are actually being viewed probably by tens of people all over the country.

My question is this, for those consumers that may be watching today or sometime in the future, could any of you name—and you have named some of the products that have actually come out of this—could you name any products that a consumer out there might be able to relate to, either something they might purchase or something that might make their life a little bit better, get them someplace faster or more safely or whatever? So whoever has something they would like to—Dr. Portnoy?

Dr. PORTNOY. So I think the easiest recognizable technology that the public will recognize is the Sonicare Toothbrush, which was funded by SBIR technology and by biomedical.

Chairman CHABOT. You said the Sonicare—

Dr. PORTNOY. Sonicare Toothbrush. The electronic vibrating toothbrush.

Chairman CHABOT. Okay.

Dr. PORTNOY. Funded under SBIR when it was a small company.

Chairman CHABOT. Thank you. Anybody else?

Mr. WILLIAMS. Qualcomm. Many people know of Qualcomm. Seventy percent of the chips that are in all your iPhones are developed by Qualcomm and that was started with SBIR. iRobot is another one that a lot of people have their Roombas around and all that was started with the DOD side, developed it for going into caves, and then they transitioned it to commercial sector.

Chairman CHABOT. Very good. Doctor?

Dr. JOHNSON. In addition to Qualcomm, obviously, Symantec is another example. It is a security company that was funded initially with SBIR funding. And so Qualcomm and Symantec are very large success stories.

I want to mention a couple that are very recent emerging companies that I think people can relate to. There is a company called Flow Design Sonics, which has developed a water purification technology based on ultrasonic technology that can take dirty contaminated water in and produce clean, drinkable water out. It is a very useful technology and I think one that is going to have tremendous impact as we move forward.

Chairman CHABOT. Okay. Mr. Smith, do you want to weigh in?

Mr. SMITH. I bring up EMILY again. It is interesting that that technology is being used by fast water rescue teams in America, and throughout the world. I have an enjoyable job working with the best and brightest in the world. When you see an engineer that has created a technical solution and see the smile and the glow on their face, it only gets larger when you look them in the eye and say, "I know you saved lives."

Chairman CHABOT. Thank you very much. We appreciate it.

I would like to conclude by saying that the SBIR and STTR programs are good programs, but we can always do better as the ranking member indicated in that particular area, and we can do better, I think, in other areas as well. We will take the suggestions that we have heard today and by the members here and their questions that we have heard the responses and the answers from you and

try to incorporate that information into the reauthorization legislation that we will be putting together in the very near future.

We want to thank you all for your testimony. I ask unanimous consent that members have 5 legislative days to submit statements and supporting materials for the record. If there is no further business to come before the Committee, we are adjourned. Thank you.

[Whereupon, at 12:22 p.m., the Committee was adjourned.]

APPENDIX



U.S. Small Business Administration

TESTIMONY of

JOHN R. WILLIAMS

Director of Innovation and Technology
Office of Investment and Innovation
U.S. Small Business Administration

House Small Business Committee

Wednesday, March 2, 2016

Chairman Chabot, Ranking Member Velazquez and distinguished members of the committee, thank you for inviting me here today to discuss the Small Business Innovation Research and Small Business Technology Transfer programs affectionately known as America's Seed Fund.

Last month, SBA Administrator, Maria Contreras-Sweet discussed the "State of Entrepreneurship" at NASDAQ's Headquarters in Times Square. This unprecedented opportunity gave SBA a wonderful platform to explain the importance of small businesses to the American economy. The Administrator highlighted the great value of the SBIR program and how it harnesses America's ingenuity to solve big issues. The SBIR program drives innovation in areas ranging from national security to public health to food and space exploration. In the financial tech capital of the world, SBIR was recognized as the institution which creates and provides opportunity, through initial seed investment, to tens of thousands of small high-tech growth firms.

And NASDAQ is the proper place to begin a discussion of the SBIR because it represents the ultimate aims of the program—business growth innovation and job creation. Today we are going to speak a lot about oversight, reporting and compliance but we must not miss the point the return on investment from SBIR is truly astounding. The combined market caps of just two SBIR funded companies, Qualcomm & Biogen, is \$120 Billion, triple what American taxpayers have invested over the lifetime of these SBIR programs. And our next generation of companies that got started with SBIR funds are developing game-changing technologies, like Mango Materials, headed by a female PhD from Stanford, a company tackling waste-reduction through a novel process of creating bio-plastics from methane waste and Made in Space, a company pioneering the use of 3-D printing on the International Space Station to support extended space exploration.

Working to better organize and extend the impact of these programs is a privilege for me. Many of you know me from the rigor, success, and discipline I brought to the Navy SBIR program. A little over a year ago, I was asked by SBA to lead the federal wide policy and programmatic oversight for the SBIR and STTR programs. I accepted that position and now make it my personal mission to ensure we deliver a quality product to all our stakeholders.

SBA works very closely with Agencies' Program Managers and external stakeholders to ensure that the intent of Congress is carried out in the operation of the programs. It is critical to remember that although there is one SBIR program it is operated 11 different ways depending on the focus of each agency's mission directives and goals.

The 11 agencies that participate in programs have collectively awarded over 152,000 awards totaling over \$40 billion dollars to America's small businesses. Since 2012's reauthorization, the SBIR/STTR programs have annually provided over \$2.5 billion dollars of seed-funding, directly into the hands of small businesses nationwide.

Thanks to this committee, the programs were reauthorized in December of 2011. Since reauthorization, SBA successfully issued 5 major interagency policy committee reports on outreach, commercialization, award size flexibility, evaluation frameworks, and SBIR.gov public and Government databases. We implemented, with agency support, the 68 legislative changes directed by the 2011 reauthorization. We commenced the modernization, build-out, and maintenance of our SBIR.gov business intelligence platform; coordinate and lead a highly successful outreach campaign, hitting 22 states across the country in 2015 via our SBIR Road Tours, Regional Summits, and National Conferences. We have accomplished a great deal with the limited budget and personnel resources allocated. But there is more work to be done.

This committee asked the speakers to discuss potential improvements to boost commercialization, improve data collection and reporting while limiting paperwork burdens. I have some summary thoughts on each of these.

Commercialization was improved by the 2011 reauthorization but more should be done. Firms are severely limited in using SBIR funds to support activities that help commercialize the firms' products and services, like market assessments, patents, and scale up. Agencies are still struggling to report, as directed, Phase III award activity or any goals and incentives that they have put in place to increase Phase III's. And we need to look at ways for agencies, especially the DOD, to make sure funds are available to pay for the needed Test and Evaluation, or technology maturation phase, of SBIR Phase II projects.

On the data collection, we are much better off than we were in 2011. SBA and the agencies have all worked hard to implement the many new data fields that Congress requested collect. I strongly encourage all of you to visit SBIR.Gov to see the amount of data that is now available. But this is still work in progress and continues to require funding and time to get to where we want to be.

Limiting paper work burdens continues to be a challenge where I don't believe we have made much progress. While this was a goal of the reauthorization, so too were the goals of increasing the data collected and tools to help protect against fraud waste and abuse. A big challenge here is that most agencies still require small businesses to apply using the same processes that their major Universities and large businesses do. There are some organizations, like NSF with its FastLane site and the DOD, that are building tools that reduce the efforts for both the firm and the agency. But more can and should be done to help standardize the proposal template and submission process. I also think we need to focus on the gap between proposal submission to award, especially between Phase I and II.

As SBA's Director of Innovation and Technology, I will continue to work closely with our sister agencies to make sure the SBIR/STTR programs are the top priorities across the federal government. I will hold agencies responsible for the allocations required by statute. And I will continue to work **with you** to improve these

programs. They are true gems, and we must make sure our small businesses know about these opportunities.



Dr. Barry W. Johnson
Division Director
Division of Industrial Innovation and Partnerships (IIP)
Directorate for Engineering
National Science Foundation
Before the
Committee on Small Business of the
United States House of Representatives

**Commercializing on Innovation: Reauthorizing the Small Business Innovation Research
and Small Business Technology Transfer Programs**

March 2, 2016

Mr. Chairman and Members of the Committee, thank you for this opportunity to testify regarding the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs at the National Science Foundation (NSF). My name is Barry Johnson, and I am Director of the Division of Industrial Innovation and Partnerships in the NSF Directorate for Engineering. In this role, I have oversight responsibility for the SBIR and STTR programs at NSF. For ease of communication I will use the term

“SBIR program” to refer to the collective SBIR and STTR programs.

The SBIR program is an integral part of the NSF strategy to stimulate innovation and address societal needs through the commercialization of the results of research. We fund small businesses at very early stages, when the technology risk is high and before the private sector is normally willing to invest. Since NSF is not the ultimate customer of the innovation stimulated by the SBIR program, the NSF SBIR research topics are oriented to the needs of the marketplace and the nation as a whole.

All companies that receive NSF SBIR funding first receive Phase I funding. Phase I funding can be up to \$225,000 for a period of performance ranging between six and 12 months. All Phase I grantees are eligible to apply for Phase II awards to conduct expanded research efforts to complete technical milestones as a prerequisite for further commercialization. Phase II award size can be up to \$750,000 for a period of up to two years. Proposals for Phase II funding require a commercialization plan in addition to a technical research plan. Thus, when a business receives Phase II funding, it already has a strategy in place for commercialization of the technology.

SBIR Phase IIB

In 1998, NSF SBIR introduced a new supplemental program called Phase IIB as a platform to stimulate NSF-funded active Phase II grantees to attract private sector funding for further technology commercialization. The Phase IIB proposal is submitted while the company is conducting the Phase II research. With Phase II research underway, the small business is better positioned to attract investors because most of the early stage technology risk has already been addressed with NSF funding.

The Phase IIB program requires that third party commitments be double the level of supplemental funding from NSF, up to a maximum of \$500,000 from NSF. The Phase IIB supplement was initiated to further ‘fill the gap’ between the funding from an NSF Phase II grant and the funding ultimately required to achieve successful commercialization. The supplemental funding from NSF ranges between \$50,000 and \$500,000. Third party investors include both public and private sectors. For supplements over \$250,000, the small business must participate in a reverse site visit at NSF with its investor.

Additional Support

In addition to providing funding, we also assist our awardees by providing them with an educational component based in part on the NSF Innovation Corps (I-Corps) program that helps entrepreneurs and their small businesses understand market needs and customers, thus increasing their chances of successfully commercializing new technologies. The NSF SBIR program is also staffed with a team of program officers with strong technical backgrounds in the areas supported by the program and with business experience in large and small organizations. The SBIR program officers

generate the topics, review the proposals, manage the awards, and provide significant mentoring for the grantees.

Commercialization Assessment

NSF monitors the commercial outcome of our Phase II awardees and has found that 32% of the NSF SBIR grantees were fully successful in that they have at least \$1 million in revenue 6 years after completing the NSF SBIR Phase II award. Companies note strong intellectual property positions, strong academic collaborations, and strong ties to market leaders as major reasons for success. The success rate for companies receiving Phase IIB awards using this same measure was 65%. The impact of the Phase IIB program on success rates is thus very significant. The National Academies, in their recent report on "SBIR at the National Science Foundation," found similar commercialization impacts of the NSF Phase IIB program.

Mr. Chairman, this concludes my testimony. On behalf of the National Science Foundation, the SBIR program and our awardees, I want to thank you for this opportunity to highlight a program that provides small businesses with the means to keep America on the forefront of innovation. I would be pleased to provide any additional information that would be useful to you.

DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH

Commercializing on Innovation: Reauthorizing the Small Business
Innovation Research and Small Business Technology Transfer Programs

Testimony before the
House Small Business Committee

Matthew Portnoy, Ph.D.

Director, Division of Special Programs
NIH SBIR/STTR Program Manager
Office of Extramural Programs
Office of Extramural Research
Office of the Director
National Institutes of Health

March 2, 2016

Good afternoon, Chairman Chabot, Ranking Member Velazquez and Members of the Committee. My name is Dr. Matthew Portnoy and I am the Director for the Division of Special Programs within the Office of the Director's Office of Extramural Research at the National Institutes of Health (NIH), and the Coordinator for the Department of Health and Human Services (HHS) SBIR and STTR Programs. Thank you for the opportunity to discuss the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs at the NIH, and the role they play in stimulating innovation and our economy. I would like to note that my remarks will primarily focus on NIH because our agency represents 98 percent of the Department's programs, however my office coordinates closely with the Centers for Disease and Control and Prevention (CDC), the Food and Drug Administration (FDA), Administration for Community Living (ACL), and the Administration for Children and Families (ACF), our sister HHS agencies that also fund SBIR and STTR programs. Among the 11 Federal departments and agencies that participate in these programs, the NIH is the second largest funder, and the largest Federal supporter of biomedical research. The SBIR/STTR programs continue to be critical to feeding the innovation pipeline that promises to deliver the medical advances of tomorrow and have complemented NIH's mission to advance science while bringing new health care solutions to the public.

IMPORTANCE OF THE SBIR/STTR PROGRAM AT NIH: IGNITING IMAGINATIONS AND SPURRING NEW DISCOVERIES

The NIH SBIR/STTR programs are ideally suited for creating research opportunities for U.S. small businesses to stimulate technological innovation. Part of a complex innovation ecosystem, these programs provide dedicated funding for U.S. small businesses to conduct early-stage research and development (R&D) to explore the feasibility of innovative ideas that may eventually result in products or services that will lead to better health for everyone. The NIH SBIR/STTR programs are one means by which NIH Institutes and Centers (ICs) accomplish their R&D objectives. A key feature that sets SBIR/STTR apart from other NIH programs is a focus on commercialization of the results of research. Thus, the programs serve to supplement the basic and applied research programs of NIH.

TYPES OF RESEARCH NIH SUPPORTS UNDER SBIR/STTR

Examples of the types of research that NIH supports through the SBIR/STTR programs include, but are not limited to: drug discovery, drug and pharmaceutical development, medical devices, biosensors, nanotechnologies, proteomics, imaging, bioengineering, behavioral research, health services, and other technologies that enhance health, lengthen life, and reduce illness and disability. Researcher-initiated ideas are the cornerstone of the NIH research portfolio, including projects supported by the SBIR/STTR program. Examples of successful NIH SBIR-funded technology includes the Lift Labs' Liftware™ that creates stabilizing technologies to help people with Essential Tremors and Parkinson's disease and

Senestech, which has technology to manage rodent populations using a non-toxic approach that limits reproduction.

NIH SBIR/STTR PROGRAM REAUTHORIZING IMPLEMENTATION OVERVIEW

I am pleased to share with you today that the implementation of all of the changes included in the SBIR/STTR Reauthorization Act of 2011 is complete. I will now provide you with a brief update on our work to date.

SBIR/STTR Funding: In accordance with law, the NIH increased its set-aside for the SBIR and STTR programs to 3.0 and 0.45 percent, respectively, of its extramural research and development budget in Fiscal Year (FY) 2016. Since the reauthorization, the overall budget for the programs has increased from \$680 million in FY 2011 (pre-reauthorization) to the current FY 2016 minimum set-aside of \$877 million. That is an increase of nearly \$200 million that is available to small businesses working in many different technology areas across the country. Throughout, NIH and HHS continue to meet and exceed the required set-asides each year, as found by annual GAO reports. In FY 2015, the success rates of our both our SBIR and STTR grant programs, representing 90 percent of the portfolio, range from 15–16 percent for Phase I and 30–35 percent for Phase II. This included funding more than 1,000 new awards, and is in line with historical rates as well as with rates from other agencies. Our first year of the Direct Phase II SBIR pilot was FY 2015 and allows applicants to apply and receive a Phase II, if they have demonstrated they have done the Phase I equivalent with other funds. In FY 2015, we had a success rate of 19 percent and made 65 Direct Phase II awards.

Increased Outreach Efforts: We have bolstered and diversified our SBIR/STTR outreach efforts the past several years with the intention of further diversifying the SBIR/STTR programs. As required under the reauthorization, we continue to partner with the NIH Institutional Development Award (IDeA) program¹ to reach underserved small businesses in IDeA states, and have increased outreach to women-owned and socially and economically disadvantaged businesses. During FYs 2013–2015, we have reached over 24,400 individuals from all 50 states and the District of Columbia and Puerto Rico. This includes outreach to more than 940 women-owned small businesses (WOSB) and 650 socially and economically disadvantaged small businesses (SDB), as well as efforts targeting all 23 IDeA states and Puerto Rico. Our outreach efforts include: revamping our website and using social media; participating in the SBA Road Tour; and engaging state-based economic development centers and professional organizations that reach women and minority entrepreneurs. Through these and other efforts, we anticipate increased applications from these groups, further diversifying the SBIR/STTR Programs.

¹The Institutional Development Award (IDeA) program broadens the geographic distribution of NIH funding for biomedical and behavioral research. See more at: <http://www.nigms.nih.gov/Training/IDeA/Pages/default.aspx>.

SBIR Direct Phase II Pilot, Commercialization Readiness Pilot Program and Phase 0 Proof of Concept Centers: These three new provisions from the 2011 Reauthorization Act have been successfully implemented. NIH issued its first Direct Phase II SBIR solicitation in 2014 and made our first awards in FY 2015. Other Direct Phase II solicitations have since been issued. The community has responded positively to these solicitations and success rates, as predicted, track along with Phase I. NIH and CDC recently launched their Commercialization Readiness Pilot Program (CRP) in the fall of 2015. The CRP program allows us to make follow-on awards to Phase II small business for additional technical assistance or R&D to be done as they work towards commercialization. A pair of CRP solicitations was issued and we just had our first receipt date for applications in January 2016 with awards to be made this summer.² While the results of the pilot will take some time to determine, based on the number of applications received, there is demand for this new program from the small business community. NIH has also implemented the STTR Phase 0 Proof of Concept Centers provision through the NIH Research Evaluation and Commercialization Hubs (REACH) program.³ NIH issued three awards in 2015 to the University of Louisville (Louisville, KY), the University of Minnesota, and the Long Island Bioscience Hub (a consortium of Stony Brook University, Cold Spring Harbor Labs, Brookhaven National Labs, and Feinstein Institute for Medical Research at Northwell Health Systems). A program Kick-Off meeting was held in April 2015 to share best practices learned from the NIH Centers for Accelerated Innovations (NCAI), a similar program funded by the NIH National Heart, Lung, and Blood Institute and the National Institute on Drug Addiction and co-funded by the Phase 0 authority. The REACH Hubs and NCAI Centers are working together to create a nationwide proof-of-concept network of six hubs/centers comprised of 20 high impact research institutions. The first major accomplishment of this new network is a preliminary agreement with several pharmaceutical company partners to facilitate technology transfer and industry engagement.

Venture-backed Small Businesses: In 2013 and 2014, NIH and CDC respectively exercised their authority to allow small businesses that are majority owned by multiple venture capital companies, hedge funds and private equity firms to apply for SBIR funding. We received the first applications in late FY 2013 and have made the first awards in FY 2014. The demand for this flexibility is quite low (less than 1 percent of SBIR applications and awards) and we will continue to monitor it closely over time.

Shorten Time to Award: We are strongly committed to shortening the time from application receipt to award. We have implemented a variety of measures in the past year in all aspects of our receipt to award cycle designed to shorten this time period and are adjusting these as needed. In FY 2015, NIH's average time from receipt to notice of intent to award was less than 200 days, well below the 12 month requirement, and we anticipate this number to fall over

² See <https://sbir.nih.gov/engage/news#dec4>

³ See <http://grants.nih.gov/grants/guide/rfa-files/RFA-OD-14-005.html>.

time. We are working to be responsive to this important small business need, while at the same time maintaining the meritorious nature of our mandated two-tiered peer review process and meeting congressional expectations.

Administrative Funding Pilot: HHS is grateful for the financial and human resources support provided through the administrative fund pilot authority to enhance our management of the SBIR/STTR programs in new and better ways and for the recent extension of this authority through the end of FY 2017. These funds have been critical so far in a number of areas across the entire Department. In FYs 2013–2015, HHS has spent \$7M, \$5M, and \$10M respectively representing 0.9 to 1.5% of the HHS SBIR set-aside per year towards a variety of activities authorized by SBA and fulfilling congressional intent with these funds. The Administrative Funding Pilot enabled us to increase outreach efforts mentioned above, both in person and by webinar, including participation and co-funding of the SBA Road Tour; reaching small businesses in under-served states and women- and minority-owned businesses; hiring new outreach staff; streamlining our award cycles, including hiring new staff; increasing support for commercialization in several areas; conducting program analysis for increased efficiency; ensuring accuracy and timeliness of meeting reporting requirements; and providing support for new programs to name a few. These activities would not have been possible without the additional funds under the pilot and would likely need to be severely curtailed or eliminated without extended or permanent funding.

PROGRAM FLEXIBILITY IS KEY: ONE SIZE DOES NOT FIT ALL

I would stress that HHS attributes the success and effectiveness of its programs to several factors, the most significant of which is a flexible and proactive approach that adapts to the changing nature of biomedical and behavioral research while maintaining a highly competitive and effective program.

Examples of program flexibility include the ability to propose research projects in fields that have the most biomedical potential; the ability for an applicant to resubmit an unfunded application; and the ability to fund Phase I and Phase II awards at appropriate budgets that may exceed the established guidelines if the science proposed warrants such an exception to ensure successful outcomes. The NIH SBIR Phase II average award size in FY 2014 was \$1.3 million.

Biomedical research presents a unique set of challenges that require appropriate resources to commercialize the next set of discoveries.

In addition to the SBIR/STTR awards and the above mentioned newly implemented programs, HHS also has a suite of funding gap and technical assistance programs to help companies accelerate their projects forward into the next stage of R&D development and help them navigate the period between discovery and commercialization. This includes our Niche Assessment Program, Commercialization Accelerator Program, and a life-science focused pilot of the National Science Foundation's (NSF) iCorps program. Thus we

help companies grow into sustainable businesses and leverage our investments in the long run.

CONCLUSION

In conclusion, I want to emphasize that flexibility is critical at a time when science is changing rapidly, becoming more complex, more interdisciplinary, and resource intensive. The SBIR and STTR programs seek to fund the most scientifically promising projects for which private and public funds are not traditionally available. Also, as a responsible steward of taxpayers' dollars, we strive to leverage HHS's portfolio across the biomedical enterprise.

This concludes my statement. Thank you for your attention and I look forward to answering any questions you may have.

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TESTIMONY BEFORE

THE HOUSE COMMITTEE ON SMALL BUSINESS

WEDNESDAY, MARCH 2 2016

-by-

ROBERT L. SMITH

DIRECTOR, DEPARTMENT OF THE NAVY

SMALL BUSINESS INNOVATION RESEARCH (SBIR)

AND

SMALL BUSINESS TECHNOLOGY TRANSFER (STTR)
PROGRAM

Chairman Chabot, Ranking Member Velazquez, and distinguished members of the committee, thank you for the opportunity to appear before you today to discuss Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR). The Department of the Navy greatly values our SBIR/STTR program, because we are taking a great program and making it better by improving the business of the science. Small business and industry value our program because of continuous outreach to create new business and science opportunities.

Through SBIR/STTR, American small businesses throughout your States have proven over and over again their ability to provide lean, agile and innovative solutions to warfighter requirements—to help our Service deal with the big challenges of its defense and humanitarian missions. As Mr. Sean Stackley, Assistant Secretary of the Navy for Research, Development and Acquisition (ASN RDA) said, *“Small Business and a competitive, healthy Small Business industrial base are vital to the long term success and affordability of the Department as well as to our national security. The evidence is overwhelming that where affordability is paramount, a strategy that includes Small Business creates more affordable outcomes and promotes innovation and technical advancement.”*

Two examples of outstanding Navy SBIR/STTR contributions to our Military and our Nations are EMILY and Automated Celestial Navigation:

- The Emergency Integrated Lifesaving Lanyard—called EMILY—is a robotic lifeguard deployed world-wide by Hydronalix, a rural Arizona company. Several of EMILY’s technologies derive from a 1991 Office of Naval Research STTR project to track whale migration. The tracking system, reconfigured as the *Silver Fox* Unmanned Air Vehicle (UAV), was deployed in 2007 to provide convoy protection to Marines in Iraq, saving lives. The same basic technology package, reconfigured as EMILY, is supporting first responders throughout the U.S. and other nations, and saving lives today in the Mediterranean Sea refugee crisis.
- Trex Enterprises’ Automated Celestial Navigation (ASN) system provides a solution in GPS-denied environments through a fully automated star tracker for imaging individual stars both day and night to enhance navigation capability. Initially focused on Navy challenges, ASN attracted attention across the government; the result being a fellow agency ordering 15 systems, with applications in crime fighting and drug interdiction.

Over the last six years, using its non-SBIR funds, the Navy has invested an average of over \$500 million per year in SBIR/STTR technologies. This investment, we believe, leads the Department of Defense and the federal government.

There are four primary factors that have made the Navy’s SBIR/STTR program successful:

- Culture—our Naval acquisition community considers SBIR/STTR part of the solution for delivering quality innovation to our warfighters, quickly and cost-effectively.
- Team—with an emphasis on delivering solutions to warfighters, our dedicated professionals make continual improvements to small business performance through our proven SBIR/STTR Transition Program and its annual Forum. These events further partnering with industry and government, for even the newest small firms.
- Outreach—through SBA’s SBIR “Road Tours”, SBIR conferences, and our own Command visits across the US, we aggressively attract new entrepreneurs to the Naval Research Enterprise.
- Leadership—Secretary Stackley (ASN RDA) and Rear Admiral Mathias Winter, Chief of Naval Research, provide continuous advocacy for SBIR/STTR, as well as guidance to our acquisition community about SBIR/STTR engagement. Moreover, the Department of Navy guidance is aligned with the Department of Defense *Better Buying Power 3.0*.

The Navy’s SBIR/STTR programs are a data-driven program with meaningful metrics to mature the business of the science, increase technology transition, and improve commercialization outcomes. Looking at FY2015-FY2016 our SBIR/STTR program can be measured in four critical areas: Phase I awards; awards to new firms; reducing award delays; and Phase III investment.

- Phase I awards—Phase I awards rebounded after sequestration budgets to over 400 awards in FY2014, and continued in FY2015 at the same level.
- Awards made to new firms—despite the intense competition for SBIR/STTR awards the Navy averaged 22% of awards to first-time winners in every solicitation since 2010—due, we believe, to improved outreach.
- Reducing award delays—an Office of Naval Research pilot on focused contracting—funded with the “3% administration” monies provided in 2011 SBIR reauthorization—reduced Phase II award time from 112 months to 4.7 months and reduced award delay from 7.4 months to 0.9 months.
- Phase III investment—\$383 million in non-SBIR/STTR dollars were invested in 142 projects in FY2015, for an average of \$2.7 million per project to mature innovative technologies needed by Navy to accomplish its defense and humanitarian missions.

Performance, as mentioned above, led former Under Secretary of Defense for Acquisition, Logistics and Technology, Jacques Gansler to tell the Senate Armed Services Committee recently that SBIR/STTR should be made a permanent program. The Department of the Navy continues to seek improvements in our program to seek a more diverse vendor base, increase small business integration into Navy business, and leverage small business advances for Navy requirements. I look forward to working with you and your staff regarding the importance of SBIR/STTR authorities.

March 3, 2016

VIA E-MAIL

Mr. John Williams
 Director
 Innovation and Technology
 Office of Investment and Innovation
 United States Small Business Administration
 409 3rd Street SW
 Washington, DC 20416

Dear Mr. Williams:

In order to have a complete record for the hearing titled, “Commercializing on Innovation: Reauthorizing the Small Business Innovation Research and Small Business Technology Transfer Programs” held on March 2, 2016, the following question is being submitted for your response. Please provide your response by March 17, 2016 to the attention of the Committee’s clerk, Delia Barr, at Delia.Barr@mail.house.gov for inclusion in the hearing record.

It appears that the Federal Agencies make decisions regarding the exemption of individual agencies from the SBIR program without regard to any protocol that requires SBA oversight. The FAA is exempt from the DOT program because of an amendment to the DOT FY 1996 Appropriations Bill. DOD exempts Intelligence and Navy Nuclear Reactor programs based on other statutory authorities.

Should the Committee amend the SBIR statute to include the proper authorities for SBA to provide guidance and oversight on Federal agency exemptions from the SBIR program?

Thank you for your participation in the hearing and your timely reply.

Sincerely,

Steve Chabot
 Chairman

Response to Question from Hon. Steve Chabot

Exemptions from SBIR require Congressional action. SBA does not support exemptions in the program as it makes it challenging for SBA and GAO determine if an agency is setting aside the proper amount. Once an exemption is passed into law there is little SBA can do about it and thus SBA does not believe amending the SBIR statute to include authorities for SBA to provide guidance and oversight on Federal agency exemptions from the SBIR program will help.

