

SBA PROGRAMS SPURRING INNOVATION

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Questions for the Record:

None.

Answers for the Record:

None.

Additional Material for the Record:

None.

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THURSDAY, SEPTEMBER 19, 2019

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SMALL BUSINESS,
SUBCOMMITTEE ON INNOVATION AND WORKFORCE
DEVELOPMENT,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:41 a.m., in Room 2360, Rayburn House Office Building, Hon. Jason Crow [chairman of the Subcommittee] presiding.

Present: Representatives Crow, Veasey, Houlahan, Finkenauer, Kim, Balderson, and Burchett.

Also Present: Representative Chabot.

Chairman CROW. Good morning. The Committee will come to order. Thank you all for joining us this morning, and a special thanks to all the witnesses for coming in. I want to get this hearing kicked off at the appointed time, and we will have probably some other members come and go as we proceed here. So we appreciate your time.

One of the keys to long-term growth in our economy is to create an environment that encourages innovation. We know that when given the opportunity, it is small firms that have proven they can lead the way innovating and creating new jobs in America. Many innovations in businesses that we benefit from today found their starts in basements and garages around the country.

From 2000 to 2017, small businesses created 8.4 million new jobs, or nearly 2/3 of all the new jobs created in the U.S. In my own district in Colorado, 93 percent of employer businesses are small, and many of those are professional, scientific, and technical services.

One of the ways we have spurred innovation is through targeted and smart Federal investments in research and development. Since the 1980s, the SBA has led the SBIR-STTR program, also known as America's Seed Fund, to invest in research and development of cutting-edge technology. The SBIR-STTR program is funded through a Federal set-aside of extramural research and development funding spanning 11 Federal agencies. Each agency offers direct grants to science and tech entrepreneurs to help bring their technology to the market under the direction of the SBA's policy directive.

Over the last 3 decades, the SBIR program has boasted significant return on investment and has generated billions in tax revenue. A study of the Navy and Air Force programs show that the

\$6.25 billion in SBIR funding generated \$8.8 billion in new tax revenue and \$92.1 billion in overall economic impact.

Despite the success of the program, these program set-asides have only been incrementally increased to 3.2 percent as part of the 2011 reauthorization over the last 6 years. Since then, our global competitors like China have aggressively invested in research and development.

When SBIR-STTR was first implemented in 1982, the U.S. was at a crossroads, much like we are today, and in danger of losing its leadership in innovation due to globalization. More than 30 years later, due to stagnant investments in research and development, the U.S. is once again at risk of falling behind. Due to short-term cost cutting and failure to accelerate the infusion of Federal funds, other countries are swiftly catching up to the U.S. For example, China has drastically diminished the U.S. lead in innovation as they have aggressively invested in research and development, while the U.S. investment as a percentage of GDP has actually dropped.

The SBIR-STTR program plays a critical role in maintaining the U.S. dominance in innovation. U.S. technology has maintained a lead because of significant success in information and communications technology. The computer, microchip, and Internet were all achieved through partnerships between government, academia, and entrepreneurs.

The first computers were funded by the military and commercialized through the University of Pennsylvania and Harvard. Similarly, Google founders, Larry Page and Sergey Brin used Federal funding to research and then develop a prototype of today's Google search. Most significantly, Qualcomm developed the microchip that changed the global face of wireless communications using grants from these programs. The company now holds more than 13,000 patents, has over 35,000 employees worldwide, and is valued at nearly \$100 billion.

Like the SBIR-STTR program, the SBA's Growth Accelerator Competition Fund is changing how innovation is funded in America. Over the last 5 years, the competition has funded over 223 projects in 45 states. The competition also has had significant success reaching diverse applicants, awarding 44 percent of the awards to women, 41 percent to underserved communities, and 16 percent to rural communities.

However, the SBA and participating agencies can do more to foster innovation and help the U.S. maintain its global leadership. In the past few months, I have spoken with researchers and small business owners who have shared their experiences with SBIR-STTR. They point to what their industry calls the "Valley of Death," where innovative ideas that do not get timely or appropriately funded cannot move forward. In order to remain competitive in innovation with the rest of the world, there is a significant need to reduce process burdens and streamline the application process.

We will use today's hearing to not only discuss the benefits of the program, but also consider where they can be improved. We will also highlight ideas like the Air Force's Pitch Day model, which awarded a business in my district with an SBIR Phase I award, to

small business innovation vouchers for commercialization and technical assistance programs.

I hope that today's discussion will shed light on the many benefits of these programs, and I look forward to working with my colleagues to improve the SBA's ability to accelerate innovation and maintain U.S. competitiveness.

I thank each of the witnesses for joining us today, and I look forward to your testimony.

I would now like to yield to the Ranking Member, Mr. Balderson, for his opening statement.

Mr. BALDERSON. Thank you, Mr. Chairman. And good morning to all of you on the panel. And thank you very much for taking the time out of your busy day to come forward to us today. I know it is challenging sometimes.

Innovation is the engine that drives our country's success. Our economy's foundation is built on technology breakthroughs that find state-of-the-art solutions to difficult problems, then capitalizing on those products specifically through entrepreneurship.

This coalition is particularly important for our small businesses. Small firms tend to be nimbler, more responsive to market changes, and more rapidly than bigger counterparts and driving innovation to make the U.S. a leader in the world economy.

In this modern era of globalization, it is essential for both America's competitiveness and national security that small businesses are easily able to develop and commercialize their innovative products. This is why programs like the Small Business Innovation Research and the Small Business Technology Transfer programs are so important.

Small technology-based firms tend to be highly incentive, constantly pioneering new advances. The Federal Government should encourage this innovation. Buying these newly developed technologies with other Federal R&D efforts was seen as a natural extension both to boost small business participation in Federal activities and to solve agency institutional problems, be they at the Department of Defense, National Institute of Health, or the Department of Energy.

All too often, good ideas never materialize. This could be due to lack of funding, lack of public understanding, or perceived lack of marketplace for revolutionary technology.

The SBIR and the STTR programs bridge the gap between this and practical building our economy and improving the function of the Federal Government in the process.

Similar to the strategy that brought about the SBIR and STTR programs, the SBA's Growth Accelerated Fund competition was designed to support small business job creation by giving early stage entrepreneurs opportunities to immerse themselves in intense learning. Accelerators can provide founders of early stage companies with education, mentorship, financing, cohort-based training, and technical assistance.

In the SBA program, accelerators, incubators, coworking startup companies, and other entrepreneur models compete for grants of \$50,000 each. In 2019, the competition focused on accelerators that work with high-tech entrepreneurs who are potential SBIR or STTR program applicants. The applicants must focus most of their

efforts in support of entrepreneurs in the following groups: opportunity zones, socially and economically disadvantaged, women-owned businesses, or entrepreneurs located in states and territories that are traditionally underrepresented in the programs. Taken together, these programs aim to increase the number of small businesses in the high-tech segment of our economy, as well as raise their presence in Federal research and development efforts. That is a win-win for both the private and public sectors by creating jobs, growing companies, and providing solutions to complex problems.

Again, I thank all of you for being with us this morning. I yield back, Mr. Chairman.

Chairman CROW. Thank you, Mr. Balderson. The gentleman yields back.

And if Committee members have an opening statement prepared, we would ask that they be submitted for the record.

I would like to just take a minute now to explain the timing rules. Each witness gets 5 minutes to testify and the members get 5 minutes for questioning. There is a lighting system to assist you. The green light will be on when you begin, and then the yellow light comes on when you have 1 minute remaining. The red light comes on when you are out of time, and we ask that you stay within that timeframe to the best of your ability.

Our first witness, Dr. Alison Brown, hails from Colorado Springs in my home state of Colorado. Dr. Brown is the president and CEO of NAVSYS Corporation, a GPS technology company and SBIR awardee. She has over 15 years of experience in GPS receiver design and holds eight GPS-related patents. She is currently a member of the U.S. Air Force Scientific Advisory Board and served as a space representative for the Institute of Navigation Council in 1993. Dr. Brown is a member of the Editorial Board for GPS World and received the SBIR Tibbetts Award for her excellence in the program. She received her B.A. and M.A. in Engineering from Cambridge University, England, and earned an S.M. in Aeronautics and Astronautics from MIT—that kind of makes my brain hurt, Dr. Brown—where she was awarded the DuPont Scholarship and studied as a Draper Fellow. She also has a Ph.D. in Mechanics and Aerospace from UCLA.

Welcome, Dr. Brown.

Our second witness is Mr. Rohit Shukla, the CEO of Larta Institute, an internationally recognized technology accelerator. In founding and growing Larta Institute, he has developed a reputation and expertise in the commercialization of innovations emerging from government-funded initiatives, research institutes, universities, and larger companies in the private sector. Mr. Shukla has a Master's degree in Social and Political Sciences from Cambridge University, England, and a Master's degree in Communications, Arts and Sciences from Loyola Marymount University of Los Angeles.

Welcome, Mr. Shukla.

Our third witness is Mr. Javier Saade. Mr. Saade is a managing partner and venture partner at Impact Master Holdings and Fenway Summer Ventures. He was one of the highest ranking Latino appointees in President Obama's Administration where he served as associate administrator of the Small Business Adminis-

tration. In that role, Mr. Saade oversaw the Small Business Investment Company, Small Business Innovation Research, and Small Business Technology Transfer System, both the programs we are going to be talking about today, and growth accelerator fund programs which collectively and since inception have invested over \$120 billion in 320,000 small companies. Mr. Saade holds an MBA from Harvard Business School, an M.S. in Operations and Technology from Illinois Institute of Technology, and a B.S. in Industrial Management and Manufacturing Engineering from Purdue University.

Welcome, Mr. Saade.

I would now like to yield to our Ranking Member, Mr. Balderson, to introduce our final witness.

Mr. BALDERSON. Thank you, Mr. Chairman.

Our final witness today is Mr. Ron Shroder, chief executive officer and president of Frontier Technology, Inc. (FTI), in Beavercreek, Ohio. Mr. Shroder has nearly 40 years of diversified, technical, and management experience in the Department of Defense, commercial, and other Federal markets. During his tenure, FTI was awarded the SBA Tibbetts Award for the very best in Federal innovation research. He has been a member of the Governor's Ohio Aerospace and Aviation Technology Committee. Thank you for serving on that Committee. Great Committee. And is the former national president for the Defense Planning and Analysis Society.

Thank you for being with us today, Mr. Shroder. Always good to have a great Ohioan here.

Chairman CROW. Thank you very much, Mr. Balderson.

Welcome, Mr. Shroder.

Dr. Brown, you are recognized for 5 minutes.

STATEMENTS OF ALISON BROWN, PRESIDENT AND CEO, NAVSYS CORPORATION; ROHIT SHUKLA, CEO, LARTA INSTITUTE; JAVIER SAADE, MANAGING PARTNER & VENTURE PARTNER, IMPACT MASTER HOLDINGS & FENWAY SUMMER VENTURES; RON SHRODER, CEO AND PRESIDENT, FRONTIER TECHNOLOGY, INC.

STATEMENT OF ALISON BROWN

Ms. BROWN. Thank you very much, Chairman Crow, Mr. Balderson, and members of the Committee. I am very honored to be here today talking to you about the Small Business Innovative Research program and what a huge advantage that has been to my company and others in the state of Colorado.

My name is Alison Brown. NAVSYS Corporation is a small business located in Monument, Colorado, and we have been development innovative positioning, navigation and timing solutions for the government and private sector since 1986. Much of our success has been from the technology that we developed with funding through the SBIR program. As an example, we developed an early device for use on Air Force radiosondes with an SBIR contract and that transitioned into the very first deployed emergency 911 system in Colorado. And the phone that we developed using that technology is actually now on display at the Smithsonian Aerospace Museum.

Throughout my company's history, we have only been able to bring innovations to the warfighter and field these solutions rapidly because of the SBIR program. However, we, like many other small businesses, have faced challenges, in particular in SBIR transitions, both in protecting our intellectual property and also in obtaining Phase III contacts with the Department of Defense. Today, most of the protections enacted by Congress already to improve the SBIR process have not yet been implemented in the defense Federal acquisition regulations.

Today, we have updates to the SBIR policy directive that include this legislation that have been released by the Small Business Administration, but the SBA is not staffed to enforce their own policy, and small business continue to face challenges due to the lack of defense acquisition regulations which implement this SBIR legislative language.

Government industry panels established under the National Defense Authorization Act of 2016, the Section 809 and 813 panels, both recognize the importance of SBIR in defense acquisitions. The Section 809 panel on acquisition reform recognized and recommended that the SBIR program both be made permanent and also that the SBIR allocation should be doubled, increased from 3.2 percent currently to 7 percent.

I personally served on the Section 813 panel, which was chartered to look at improvements to technical data rights, and that resulted in recommending that SBIR data rights should be afforded similar protection within defense acquisition regulations as commercially developed items. The argument for this was that the intent of SBIR data rights is to reward small businesses for their innovation and invention and they need that protection.

The SBIR program remains today one of the few successful paths for small businesses to bring innovations into the hands of the warfighter. Recently, Dr. Will Roper, who is the assistant secretary of Air Force for Acquisition, Technology and Logistics initiated a new SBIR Pitch Day model as a faster, smarter approach to compete for ideas that can solve near-term problems for the Air Force. NAVSYS has won two Pitch Day SBIR awards to date.

In the first Pitch Day, contracting officials reviewed 417 submissions. They invited 59 businesses to pitch their proposals in person in New York last March. I was there. It took only 15 minutes for me to make my pitch to a panel of Air Force program executives, and literally 10 minutes later I had received the Phase I contract award. We expect to receive our phase two contract later this month, which is less than 8 months after submission of our first proposal.

The SBIR program provides the mechanism to bring innovative companies into the DOD ecosystem. Dr. Roper said the next challenge is to organize to do this type of activity at scale. So I would ask that you consider first mandating that DOD promptly updates the DFARs to align with the SBIR policy directive; to adopt the recommendations from the Section 809 and 813 panels; and to increase funding to facilitate rapid transition of SBIR-developed technology under programs such as the Air Force Pitch Days.

And just to close, in General Stephen Wilson's own words, "Allow small businesses to deliver speed of capability to the battlefield."

Chairman CROW. Thank you, Dr. Brown.
Mr. Shukla, you are now recognized for 5 minutes.

STATEMENT OF ROHIT SHUKLA

Mr. SHUKLA. Chairman Crow, Ranking Member Balderson, members of the Committee, thank you so much for inviting me to speak before you today. It is a privilege to bear witness to the greatness of the SBIR-STTR program, and I just want to add here that we also were a recipient of the SBIR Tibbetts Award. I just want to make sure that everybody recognizes that. Thank you.

For over 17 years, Larta has been providing commercialization services to SBIR and STTR grantees at several agencies, civilian agencies—NIH, NIST, USDA, NOAA, and DOE being the most recent one—covering our mission as an organization to focus on solutions that feed, fuel, and heal the world. We have worked closely with some 4,000 SBIR-STTR grantees since 2004. One size does not fit all, and I will come back to that in a second, in a minute here.

Companies in the SBIR program, the ones that we have certainly been involved with over the last 17 years, are at different stages of maturity, development, different mindsets, objectives, assets, and histories. So we have developed a network-centric model of assistance to serve this diversity, one that customizes the experience of commercialization to meet the grantees' needs and objectives realities of the marketplace. One that uses the wisdom, experience, and networks of a host of demand experts, functional professionals, and industry buyers and investors, to focus grantees on their best and highest prospects in a highly dynamic and competitive marketplace. To be clear, we are what you might consider a virtual accelerator.

This approach has been very successful. Our portfolio companies have raised over \$2 billion. There have been 50 acquisitions, 10 IPOs, and as important, the vast majority of companies that we have served are still around and doing reasonably well, beating the odds on survival of small businesses which you all know about.

Providing these innovators with the tools to navigate a competitive marketplace and then having them be a part of our evolving and powerful network has drawn attention to the success of what is now known as ecosystem services approach. We perfected this over a long period of time.

The emergence of TABA, which you are well aware of, which I take a little credit since the germ of the idea emerged from a proposal which I spearheaded when serving on NACIE, the National Advisory Council of Innovation Entrepreneurship 3 years ago, has been a vote of confidence in the idea, and in many ways caused some concern for us and grantees and agencies alike.

I should mention the work done here by John Williams of the SBA and Negat Raoul of the SBA in spearheading the notion of commercialization and the funding that goes with it. I believe it is positive that we have recognized the importance of commercialization and have provided funding to enable commercialization to be more than just a footnote in the SBIR-STTR grantees' world.

However, as I said, one size does not fit all. It would be a mistake to make this an individual handout program and it would be a great step forward to recognize in an ecosystem services concept

reducing risk, increasing viability, visibility, and credibility by deploying the curated experience and wisdom of a marketplace is an approach that fits the profile of our times.

What does this mean? For you, for your consideration, it means enabling a hybrid approach. Let agencies solicit and have accountable to them and the SBIR-STTR companies GSA vetted contractors like ourselves providing ecosystem services. And also allow companies to choose their own vendor if they demonstrate that they know what they know and can afford the risk.

Most research-based companies, however, in our experience, do not necessarily know at the beginning in particular what they do not know. And this is not surprising, and it is not a reflection of any condescension on my part. We have tracked, surveyed, and brought into our network thousands of companies, and it is clear from our work that this is a true reflection of the reality of research-based businesses, in addition to the government itself as a user and buyer of services of the kind that Dr. Brown mentioned here, created by SBIR companies. It is itself, I do not think, not especially well tuned to the prospect of emerging such products paid for by the U.S. taxpayer except arguably in the Department of Defense. And I say arguably because you heard from Dr. Brown.

In summary, one size does not fit all. Commercialization is an ever-expanding journey, not a destination. You should recognize the importance of ecosystem or HUB services and providers who have been successful in curating and providing these services as vital to the future of the SBIR program. This is informed choice and the government should consider how it might prime the pump on Phase III.

Thank you very much.

Chairman CROW. Thank you.

Mr. Saade, you are recognized for 5 minutes.

STATEMENT OF JAVIER SAADE

Mr. SAADE. Thank you, Mr. Chairman Crow, Ranking Member Balderson, members of the Committee. Thank you for having me here today.

As you mentioned, I previously served as associate administrator of the SBA which runs, among others, the programs that are being discussed here today. Some of the companies out of the hundreds of thousands that received some of these grants and investments include Apple, Qualcomm, Tesla, and Genentech. But my focus here today is on the SBIR and the Growth Accelerator Fund competition.

It was launched under my watch in 2014. The program's genesis is rooted in Obama's first term when the economy was in a freefall. One of the things the administration was focused on was a more inclusive and accessible economy, and it should continue to be a big part of the economic agenda. The economy turned around and the economic indicators are strong but the prosperity generated has been uneven. It is now more uneven than before the 2008 crisis. Tens of millions of people have been left behind. Most of them are from underrepresented groups, hard to upscale workers, and rural communities.

This dynamic is magnified in our innovation economy. Venture capital's persistent geographic, gender, and racial homogeneity, evolving business formation pathways, and the lack of diversity in private and public companies' C suites and boards affect this dynamic and affect the productive capacity and growth potential of our economy.

The government's role investing in the building blocks of innovation, empowering innovators, and clearing a path for anyone with talent cannot be overstated. Our innovation ecosystem as you have all mentioned is one of our country's crown jewels, but other countries are catching up fast. China is probably the best example.

And the digital divide in the U.S. continues to get wider. More pathways enhance the ability to scale participation in the economy, but they continue to be sporadically reachable.

The Growth Accelerator Fund Competition is one of these pathways. The fact that diversity in any form continues to be part of the conversations is good and bad. Good, because we are talking about it. Bad, because we are talking about it.

The competition had two goals, which it accomplished. One, leveling the playing field in geographic areas with less access to traditional sources of capital. And two, supporting ecosystems and companies owned by, managed by, or that support underserved groups like veterans, people with disabilities, and minorities.

The competition is now in its fifth year, and with relatively little money as mentioned before, it has supported more than 200 entrepreneurial ecosystems in 45 states, D.C., and Puerto Rico. They, in turn, support thousands of startups and entrepreneurs in places like Anchorage, Little Rock, Shreveport, Harrisburg, Detroit, and San Juan.

You mentioned a few of the statistics and the program has been very successful in reaching underserved groups. Twenty-one percent of the winners had startups that were owned by or led by American Indians, Alaskan Natives or Native Hawaiians. Eighteen percent led by individuals with disabilities. Seventy percent by those with limited access to capital. Eighty percent who are racial minorities, 42 percent led by veterans, and 90 percent had startups owned or led by women.

The program can certainly be improved but the data points to the Accelerator Competition being a successful component of the American entrepreneurial ecosystem.

At a high level, some things that Congress and the Agency should think about: One, is establish more permanent support and policy from a funding and policy perspective. Two, enhance the pathways for the thousands of startups that graduate to access the SBIR and STTR programs. Three, improve coordination with your districts and all the others around the country. States and cities are very important. Four, enforce tighter administration of the program with more robust reporting and metrics. Five, examine inter-agency overlap with other entrepreneurial support programs. Six, improve and continue underrepresented group and geographic gap outreach. Seven, and think about having different levels of award sizes.

I am happy to answer any questions about this or the other programs. Thank you for listening.

Chairman CROW. Thank you, Mr. Saade.

And Mr. Shroder, despite the fact that like my friend and colleague Mr. Balderson, I am sure you are a Buckeyes fan, you are recognized for 5 minutes.

STATEMENT OF RON SHRODER

Mr. SHRODER. Thank you, Chairman Crow, Representative Balderson. It is an honor to speak to the Committee on such an important aspect as innovative research, especially with FTI's long history in the program.

As most of you know, the program started in 1977, under the National Science Foundation. It did not take long for the SBA to figure out how important a program it was, and it culminated with President Reagan signing it into law in 1982. Since that time there have been tremendous numbers of economic studies that have occurred on the program. When you look at those, what you can clearly see is, well, the money was extremely well spent, something that we can all be proud of.

In this particular case, there are aspects like the National Cancer Institute study that talks about the return from taxes is a 3-to-1 ratio. There are more than one hundred thousand jobs in just that study alone that are very high-paying, good jobs. The revenue generated by companies is 10 times that.

My background with the Defense Department is a little bit more associated with some of those other studies as well. And as you know, there are programs out there, like just the Joint Strike Fighter Program has published reports that said that SBIR technologies have saved half a billion dollars on just one program within the Defense Department. It is something that we can all be proud of, while DOD also published the fact that there is a 12-to-1, a 19-to-1, and a 23-to-1 return ratio. I sit here and smile when I think of what Congress has done because effectively, you have become the Shark Tank of the government long before the program was popular. You took the risk to invest in the technologies, and as small businesses, we thank you for that very, very much.

The key is to understand what the technology and the program does. And realistically, a lot of people in the community will focus on the funding, the Phase Is and Phase IIs. But let me tell you as a small business what that does for you is it allows you to have a few people to work on a concept and a prototype in hopes that ultimately you can commercialize it. The real program success is in the Phase IIIs. That is where the jobs are. That is when customers can acquire as much as they want with any kind of funding that they want. It is jobs, jobs, and more jobs. And that is where our companies, our employees, the families of those employees all benefit, that is where the growth comes from, and that is what we very much appreciate.

And realistically, while the program has been in place for 37 years, it is this Committee and what it has done to evolve the program over the years that is so critical. Because the subtle changes of allowing a company to grow beyond the 500 limit when you are going into the Phase III and producing more jobs, was critical to the program's success. But it was not just that. The recent addition of the 3 percent administration fee to allow the government people

that we interact with to come to us and actually work on it is equally critical.

You can look at a variety of those aspects, the most recent policy guidance from the SBA talking about use the Phase III program to the maximum extent possible is critical for companies like FTI, because when we go to the government and talk about "here is the technology, you agree that it might be valuable and you can use it," they need to see from you and from the SBA and from the DOD that it is allowed, that they do not have to be scared, that they can take it and run.

So again, from our perspective, we thank you for subtle changes throughout the decades. It is very, very critical to us. Which then leads us to, so what is next? And I think there will continue to be subtle changes as this program goes on. Those of us that are in the battle of it can give you some suggestions. I think they have got to come from your heart. I will tell you, after 37 years, I still do not understand why the program is not permanent. It is something that generated what is in every phone that we have today. It is across the examples you gave. I really do think it is time to make the program permanent. And I realize that some will hesitate because they will worry about the ability to monitor it. I think there are ways you can build into the law that you can consistently check on it. If you do look at considering it to be a permanent program, I think what you put into that law is critical as well, things like rapid innovation funding which is the key starter to get those new customers over that risk aspect since you have only built a prototype; the 3 percent administration fee to allow the government to actually help you run the program; all of those things are critical to the success of any permanent program that you look at, as well as even who is in the program. You know, American-based technology companies that can take these things and run, these are critical.

So mostly, I thank you very much for the opportunity today, for the changes that you have done over the years, and for the courage to look at the program in the future.

I will be happy to answer any questions as we go forward. Thank you.

Chairman CROW. Thank you, Mr. Shroder.

We appreciate the testimony that all of you shared today.

And I would like to now submit this letter from the Clean Energy Business Network for the record.

Without objection, so ordered.

I will begin by recognizing myself for 5 minutes.

This is a question for all of the witnesses. In my opening statement I talked about this concept of the "Valley of Death," many businesses in my community, my district have talked about. So I would like to hear briefly from each of you whether that is an idea, a concept, or a term that you have heard of. Where that exists in the pipeline of the development of your businesses, and what we can do to help close that to make sure that we are setting folks up for success long term.

Maybe we can start with Dr. Brown.

Ms. BROWN. Thank you very much.

Chairman Crow, the “Valley of Death” is real. And it is not just into Phase III. I mean, we go into valleys every time between Phase I and Phase II. I mean, that is what is so revolutionary about what the Air Force is doing with their Pitch Days is they are rapidly moving us through the process. We already have Phase III commitments now from Air Force partners that want to see our technology move forward. And what is different there is we are being given access. Before the SBIR program, we were working for the research institutes. Now, they traditionally do not move technology fast through the process. They are there for the long-term vision. But what we need to really move the innovation ecosystem into the hands of the warfighters is technologies that can move fast; that can get in front of the decision-makers, can show them. We are not asking for a handout. We just want the opportunity to be able to be able to walk in, show them what we can deliver. And that is what the SBIR program has done.

Other programs that are being started to get innovation into the hands of the warfighter we do not see as having nearly the opportunity to be as successful as the SBIR. Congress, basically, you know, they asked for rapid prototypes to be enacted. They gave the DOD acquisition authority to do other transaction authorities. If you go look at those programs, the vast majority of them are giving awards to the large businesses, not to the small innovators, not to the nontraditional contractors, but to the same companies, in fact, the foundation of our Department of Defense, I mean, they are a national asset as well. But—

Chairman CROW. It sounds like speed is a really essential element here, that the process is taking long and one of the unique aspects of the Pitch Day is that it expedites it fairly significantly.

So would you say that there is an opportunity to scale this and roll it out to other services and that would be helpful?

Ms. BROWN. Absolutely. And I would also say it is the speed and the access. Getting us in front of the decision-makers so they can make the decision of what we can do to help them.

Chairman CROW. Thank you.

Mr. Shukla?

Mr. SHUKLA. Yes, sir. Of course we have heard of the “Valley of Death,” but I also think there is a consideration given to the chasm of relevance. Making yourself relevant to a set of buyers and potential users is what should be encouraged. I do believe that credibility, reduction of risk, visibility, viability are all issues for small businesses in the research phases of their programs, including Phase I and Phase II.

One of the things we have done is to reduce that risk, increase the visibility and viability of these companies, increase their credibility by putting ourselves on the line, essentially, in front of buyers and investors and so on and so forth. It is a proxy of what Dr. Brown talked about in the Defense Department, getting them before people who might be interested in taking these on.

There is a range of different things that can be done and should be done. It is a highly-dynamic kind of process trying to engage a marketplace where there is a tremendous amount of competition. I will say, and Javier might back me up on this, the landscape of funding has also changed dramatically. It is no longer just about

venture capital, and it is no longer just about corporate capital either, corporate investment capital. Foundations are now investing in companies. Family offices have become really active. These are all channels that you have to keep juggling with and working with and we do that on behalf of these small businesses because their success is our success.

Chairman CROW. I am going to give the others an opportunity as well. Thank you.

Mr. Saade?

Mr. SAADE. I do not have much to add. I will say that it is the 21st century and the way in which business formation happens, capital formation happens, how people access technologies has changed. And with that is concentration of said capital. And the path of least resistance typically is to write big checks. But the "Valley of Death" affects the smaller entities which need smaller checks. So there is all kinds of issues there, and yes.

Chairman CROW. Thank you.

My time has expired.

The Ranking Member, Mr. Balderson, is now recognized for 5 minutes.

Mr. BALDERSON. Thank you, Chairman Crow.

Mr. Shroder, while the SBIR has proven beneficial to early stage growth, the process itself can make it hard to develop products because of delays. Can you offer any recommendations as to how to alleviate some of the pinch points that people face?

Mr. SHRODER. I really think it is a corporate culture that has to be evolved. I think you have to look at it as if you are on Shark Tank. And when you are on Shark Tank, I think we are honored to have your funding. And while this topic of the SBIR might be a particular focus, we as a company have to make sure that we are spending the money in a way that you would be proud, and that being proud does not include just looking at the technology today but spending those resources to productize the technology in a way that goes beyond the two or four or six people that you are talking to originally.

And so it is challenging as research engineers, et cetera, to literally take the scope of what might have originally been defined in a topic of an SBIR Phase I or whatever and think that to commercialize it we are going to have to expand that scope. And when we expand that scope, it is going to broaden us to other customers, and those customers will be able to use that product maybe in a slightly different manner than what it was originally envisioned to be. But I give you the equivalent of if we were Microsoft and we were all using Microsoft Word at some point in time, what is going to happen is if you want a better spellchecker, how would you like to be the only organization that pays for that change? That does not work. What you have to do is diversify that increase in capability across a broader audience, and you need to have that focus when you start the Phase I and Phase II SBIR.

Mr. BALDERSON. Okay. Thank you very much for that answer.

Dr. Brown, according to the Census Bureau, female-owned firms account for 36 percent of all American businesses, and that number is steadily rising, which is a good thing. Can you offer any advice

to female entrepreneurs who may be interested in applying to the SBIR program?

Ms. BROWN. One advice I would like to give them is basically a real world story about a friend of mine who is also a woman-owned small business. It is an unfortunate fact of life that women in the defense industry face discrimination. And there have been cases where women have been permitted to be part of the 8(a) program. The 8(a) program has significantly more access to opportunities for businesses than the Women-Owned Small Business program, significantly.

So my friend had faced significant discrimination. She went through quite frankly a humiliating experience which I have elected never to do myself, and she put forward her experiences to the 8(a) and applied to become a member of that program. Other women have been successful in going through that process. She was denied, not because she had not experienced discrimination; she was denied by the SBA because she had persevered and succeeded in spite of that.

Now, no other member of the 8(a) program is required to go, first of all, through that humiliating experience. And secondly, would be judged ineligible for that program just because the fact that they had actually succeeded.

So I would ask that you consider giving women-owned small businesses the same blanket protection that other minorities. We are not a minority but we are definitely a minority in small businesses in government contracting. Please give us the same protection as other 8(a) programs and do not require us to go through this humiliating process even though we have suffered, in many cases, more than other minorities.

Mr. BALDERSON. Thank you very much. And we will help you in any way we can. Thank you.

Mr. Chairman, we are pretty close to being out of time, so I will yield back my remaining time.

Chairman CROW. Thank you. Thank you, the gentleman yields back.

And now I would like to recognize the gentlelady from Pennsylvania, Ms. Houlahan, for 5 minutes.

Ms. HOULAHAN. Wow. I wish I had been here to hear what you were just talking about. I am grateful to you all for your testimony and for coming here.

We actually have a lot in common. I was a program manager in the Air Force. I am also a MIT person. My mom is a GPS person. And I am an entrepreneur and small business owner myself. And so a lot of what you guys talk about really resonates with me. And so some of my questions have to do with training of workforce development. And so one of the things I have heard of consistently that we do not have, for small businesses, a really good pipeline of STEM-trained workforce. I think that people who are from larger and more established businesses do not have quite the same pipeline problem. And so I have had the chance to try and travel within my community—I am from the Philadelphia area—to find programs that are trying to elevate people into that pathway. Specifically, one of them was in the University City Science Center in Philadelphia. And I was wondering how we as a Federal Govern-

ment can help you all in this particular issue, if you could talk about that.

Ms. BROWN. Thank you so much for bringing that up. STEM is actually a passion of mine. I volunteer extensively both with the local universities, mentoring girls as young as 12. I mean, it is being shown that we have to basically get young people excited about technology and moving into our industries at that age, and girls in particular are very disadvantaged in being able to have role models and so forth to move forward.

I would like to circle back on the SBIR program, just give you some real world stories.

When I first moved to Colorado, you know, my main office is actually in Monument, which is not far from your district. And at the time that was a very sleepy little town. It has grown a lot since then but it was very sleepy. I got involved with the local high school, and one of my early employees was actually a high school student, Randy Silva. We sponsored him. He went through University of Colorado. We actually gave him scholarships and so forth. He came back and worked for us and was an absolute star.

I am happy to say we have continued that model. I have a high school student from Salida High School now. We started a field office there. This is a very small, rural mountain town. We quite frankly are very disadvantaged in our local high school in terms of access, broadband access in particular. So this student is just amazing. We have him working on new technologies related to position, navigation technology, deep learning, and we are soon going to start developing some new game technology. He is just lapping it up. And other students there have similar abilities, and when they are given access to the broadband, they are given access to mentors, they are given access to the online courses. He is doing online university course right now. That is revolutionary. And I would like to thank you for the SBIR program because it has enabled companies like mine to bring on and encourage these youth.

Ms. HOULAHAN. Gentlemen? Anyone else?

Mr. SHUKLA. Thank you, Ma'am. I just wanted to say there are lots of imaginative approaches to workforce development in particular going on around the country. I think you will hear from industry generally across the board in innovation and technology that there is a real concern with the preparedness of the workforce and the availability of talent. And clearly, one of the responses has been to import talent using obviously the conventional method of doing so over the years which of course has come under considerable stress as you know more recently.

I will say the one thing you can do as a government is to actually focus on integrating the different efforts in workforce development across the agencies. So labor has a whole bunch of stuff. EDA at the Department of Commerce has a whole range of programs. I think if you start to look at them and see what the common elements of training and block grants, for example, for education and training to the states and to local programs at the community colleges, you will find that you will reduce duplication, reduce the silos between programs, focus on the particular objective of being able to get a well-trained workforce for different kinds of new jobs, and not just technical jobs but jobs that can actually work on crit-

ical thinking across the board. You do not see that very often. You do not see that kind of coordination. In fact, it has been going on now for 25-30 years that I have seen starting in the Clinton Administration and moving all the way down.

Ms. HOULAHAN. No, I appreciate that. And I am a freshman here and in my first 8 months what I have seen is definite silos, you know, whether it is programs that help women entrepreneurs or programs that help veteran entrepreneurs. I am both. You know, and so when I ask questions about the intersectionality of those, there is kind of crickets. And so I think that is a really good point.

I have only 7 seconds left so I yield back the balance of my time. Thank you.

Chairman CROW. Thank you. The gentlelady yields back.

Now I will recognize the gentleman from Tennessee, Mr. Burchett, for 5 minutes.

Mr. BURCHETT. Thank you, Mr. Chairman, Ranking Member, for holding this important hearing.

As all of you know and exemplify, small business owners have to be innovative and willing to take some risks. That is what defines American entrepreneurs and defines all of you all.

I was happy to help introduce the Small Business Innovation Research and Small Business Technology Transfer Improvement Act, and I will require each of you to restate that name to me as you leave today.

That is a joke, by the way. Just making sure you all are listening over there.

And along with my colleagues, including Mr. Baird and Chairman Crow, I feel this legislation will help provide some competitive funding opportunities that encourage small businesses to take risks and pursue innovative research for technology commercialization and frankly do what you all do best.

This is a question for Mr. Shroder. Can you talk a little bit about—and if any of the others want to add in after him that would be great—about how the SBIR program allows companies to take risks on technologies they believe in but might not have the financial wherewithal to work on it?

Mr. SHRODER. You know, I go back to the Shark Tank aspect. We are fortunate to have resource dollars associated with it that we can take the risk of hiring those STEM people into engineering and scientific aspects and not be afraid of failing on a technological approach. We look at failure on a technology basis as just an opportunity to learn what does not work so that we can move to the next aspect. When you are doing that on Department of Defense funding aspect that is very challenging. You do not want to use their money in a way that is questionable or that they would be disappointed by. But when you are doing that with an SBIR program and SBIR dollars, as long as you learn from that and adapt your technology to deal with those under that aspect you are really given an opportunity to succeed. And once you get past those, I will call them the valleys, the challenges, the technological breakpoints and you adapt, I think you then have a much stronger technology that hopefully you can ripple throughout the rest of the organization.

So for us, the SBIR program is unlike any other aspect that we dealt with. It gives you the opportunity to take the risk. Fail until you succeed.

Ms. BROWN. I work in both an advisory capacity for the Department of Defense, you know, through my Air Force Science Advisory Board work as well as a small business. So one of the things that I see that is so important in technology today and bringing it forward in innovation is the willingness to fail fast and learn from your failures. And if you do not take risks, you do not get the great advances. So for example, Iridium. Wonderful system. You know, the first global, low earth orbiting communication system. It has been dramatic in changing lives all over the world. It was developed here in America. And it was developed with a lot of sponsorship from the Department of Defense. But one of the biggest items—it would never have been built as a DOD system, and the reason is because they took the risk to fly all of their satellites with non-space-qualified parts. Space qualification adds a decade into the legacy of technology introduction into military satellites. We are still working with technology, you know, that was developed 10 years ago and was hardened and tested that is considered safe to use in satellites. Iridium took a total different approach. The “gray beards”, as it were, in the defense industry thought it was not going to work. It did work. If they had not been able to take that risk, afford to basically try it, work around it, develop solutions, we would not have that system today and we would not be looking at this huge explosion in broadband satellite Internet that is all going to be based on commercial technology that is coming from the other companies following them.

Mr. BURCHETT. To piggy-back on that, is there any opportunities to advance on others’ failures? I am a gearhead and I like the history of Ferrari. And Mr. Ferrari actually never built a car. He just built a wonderful 12-cylinder engine and had other people build his bodies. But he watched his other racecars would end up crashing and then he would find out what they did and then innovate on it, and so he did not have those same catastrophes.

Mr. SHRODER. I certainly think there is a lot of that. We talk about in our case, you know, maybe he talked to people and figured out his bodies and the cars were not the best, but we oftentimes use the concept that we have two ears and one mouth. Sometimes we have to use them in that proportion. The key is listening to what the customers need and then adapting. And when you start off, to be fair, when you think you understand, let’s take a Phase I SBIR topic, it is a one-page description. For you to imply that you truly understand what they think is the problem is at best a little speculative. So the most important thing you can do in a Phase I or Phase II program is just to sit down and listen and describe to them what you think you have heard them say, let them get a chance to reiterate it, go talk to others that are similar to them so that you end up finding out more and more about what the real problem is, which is way more valuable than the actual topics and the descriptions that come out of the system.

Mr. SHUKLA. So if I might just add one little thing. I know they are talking about the Department of Defense in particular, military procurement. In the civilian agency world, in the SBIR world, risk

is baked into the process itself as they both alluded to and Javier alluded to as well. One thing we do is to ensure that we maintain continuing intelligence about the marketplace. That we can share with additional folks coming into the program, cohorts that we are training. That is extremely important because it is experiential learning that we are able to impart to grantees that they otherwise would not on their own be able to access.

Mr. BURCHETT. Thank you, Mr. Chairman. I have gone over. I appreciate your indulgence, brother.

Chairman CROW. Thank you.

I would like to now recognize the gentlelady from Iowa, Ms. Finkenauser.

Ms. FINKENAUER. Thank you, Chairman Crow.

The topic of today's hearing means a heck of a lot to me. You know, I came to Congress to help Iowa small businesses fuel innovation and create jobs. But more importantly, the underlying part of that is I grew up in a state where I started seeing a lot of my friends that I graduated high school with move away. And we have got to figure out ways to create more opportunity in rural areas, bring people back home, and also make sure that they can stay and find opportunity.

And so one of the first things I tackled was making sure that the Small Business Innovation Research program and the Small Business Technology Transfer program were more accessible because I found that that was a great vehicle to be able to do it.

I was actually sworn in with Chairman Crow on January 3rd, and by January 14th, I was really proud to get to pass my first piece of legislation, the Small Business Stimulating Innovation through Procurement Act of 2019 along with my colleague that I met right across the hallway from me in Cannon, Congressman Curtis. It was a bipartisan bill, one that I knew was incredibly important, again, for our state and for our communities all across the country. You know, the Small Business Innovation Research program and the Small Business Technology Transfer program have truly put innovative small firms on the map. These programs have given our small businesses the opportunity to participate in Federal research and development and commercialize their work. This is a win obviously for small businesses and for economic innovation and growth, again, all across our country.

However, more small businesses could be benefitting from these programs. My bill, actually, requires government personnel to conduct outreach to small firms on the Small Business Innovation Research program and the Small Business Technology Transfer program, specifically, H.R. 246. Obviously, the bill that I have been talking about, they were able to pass, Stimulating Innovation through Procurement Act of 2019. It would add a duty to the role of the procurement center at the SBA to actually assist small firms with these programs.

I am proud of this work. It was one, again, that just made sense and something that we needed to get done, again, to help the next generation, and we have done our work here in the House to get this thing done and passed. But I will keep pushing every day for it to become law.

Mr. Shukla, if this bill is signed into law, how would H.R. 246 help stimulate small business innovation in places like Iowa? What would that mean for rural areas?

Mr. SHUKLA. Thank you very much, Ms. Finkenauer.

I will say, since I have also worked in Iowa, by the way.

Ms. FINKENAUER. Oh, my goodness.

Mr. SHUKLA. Involving food and ag, and life sciences, in particular, two anchors of the state's economy, and in rural Iowa, I will say that you are absolutely on the right track. The one thing I would ask though is for you folks to empower the SBA with funding and staffing. They are really understaffed.

Ms. FINKENAUER. Yes. Absolutely.

Mr. SHUKLA. And to connect in the conventional funding apparatus of SBA which is lending, in particular, with the innovation, which is really, really, really underfunded in terms of staffing.

If you want to be able to increase the output of innovation in rural areas, you have got to be able to expand the scope of what they currently do. They do some great things with the road tour, the roadshow and the road tour to underserved areas and to rural areas, but I think it should be expanded beyond that for outreach and training and procurement and a whole range of things that need to be brought together.

Ms. FINKENAUER. So if this bill were to get signed into law and these procurement officers were made to then work with some of our small businesses to get those government contracts, what would that mean specifically?

Mr. SHUKLA. Well, it would certainly mean that you could have, like you do right now with the SBIR program, in any case to set aside for small businesses, is you establish a core group that you can actually reach out to in rural areas. USDA does a program on rural development but it is frankly underserved in my opinion. So I think you could do some things in rural parts of the U.S., the broadband initiative is one of them, that could be linked directly to the SBIR program itself for topic areas and so on.

Ms. FINKENAUER. Great. Thank you so much. And thanks for explaining that to folks on the Committee and to Washington.

And I just also want to take the opportunity to thank you all for coming to testify here today. It does mean a lot, and we have got some good work to do and I am excited to get to do it.

And thank you, again, Chairman Crow. And with that, I yield back.

Chairman CROW. Thank you. The gentlelady yields back.

I just have one follow-up question. The district that I represent is one of the most diverse districts in the country. I have over 150 languages spoken in one of my cities. Almost one out of every five residents was born outside of the country and they are very unique challenges to our immigrants and refugee communities in starting and growing businesses and accessing these programs.

I would love your thoughts on, just very briefly, on what your experience has been on those challenges and what we could be doing better to make sure that we are reducing barriers and opening those up for those communities.

Mr. Saade, do you want to start?

Mr. SAADE. I will give it a try.

Look, the pathways to economic prosperity have widened, but the people that control the purse strings, and I am not talking about necessarily where we sit today, but in the private sector, have concentrated. So it is not only immigrant communities but anyone, if you look at the general macros and the demographics of the population, something like 30 percent of the population is white males. And I do not have anything against white males, but the reality is that the country is not white male. And if you believe that talent is equally distributed, yet opportunity is not, then a good place to focus is not just necessarily on the raw ingredients of what takes a technology to a company to the capital markets and to eventually millions of pensioners holding the stock of a publicly traded company but just giving the people access to the door because, I mean, at the end of the day, without these programs, 70 percent of the technologies in the Apple phone would not exist. A drug that saved my dad, Rituxan, and Biogen its maker, would not exist without SBIR. So just the fact that they exist is an amazing thing.

But the country is changing. The world is changing. Many countries are out there with knives in their mouth trying to take us off the pedestal across many aspects, including economic diplomacy and entrepreneurial diplomacy. So yes, I agree with you that a focus on less served groups, and that includes immigrants, is smart business. On top of the fact that, one last thing, if you look at the biggest companies in the United States by market cap, 40 percent of them were started by first generation immigrants. So all the money that Wall Street loves and all the stocks we love to buy, it is literally the lifeblood of, and I do not want this to be an immigration pitch, but immigrants are hugely important to the innovation economy.

Chairman CROW. Thank you, Mr. Saade.

Thank you to all the witnesses for sharing your time.

Representative Kim, one of our colleagues, is on his way right now and had a question he wanted to ask. So I would open it up to Mr. Shukla and Ms. Brown and Mr. Shroder, if you have any comments on my last question.

Mr. SHUKLA. Yes, sir.

You know, in 1986, Margaret Thatcher turned to Gorbachev and said, Mr. General Secretary, the ice's most difficult point is breaking up. The fact of the matter is things are in flux, and they are in flux. And what Javier was talking about in terms of immigrants leading economic development in certain areas is true. And access is also becoming a big issue.

Now, I am very optimistic that we are actually finding ways of being able to deal with this issue. Obviously, there are some real concerns on a national level and a Federal level. But at the state level, states like California, for example, are very diverse as you know. I come from one of the most diverse cities on the planet. And it also has extreme inequality. But there are lots of things that are being done to address different aspects of it. And I am very optimistic. That is what I would like to tell you.

Ms. BROWN. Thank you for asking the question. As you have heard, of course, I am an immigrant. I was sworn-in in-front of the Capital, the steps of Colorado as a result of Ronald Reagan's Immigrants Day. It is a day that I always remember.

One of the thing that I think would be most appropriate to try and help your diverse constituents is better and equal access to capital. Immigrants have great ideas, but when you go into a bank and you are looking for a loan and you are trying to get approval, you just have to look at the numbers to see that women and immigrants are disadvantaged in that domain.

The SBA has some fantastic programs. They have had programs, too, that really try to improve rural access to capital, which is even more disadvantaged. So I would encourage, look at the numbers. If the numbers are not showing that we are spreading access to capital equally, look at how do you fix that. Because you cannot make a business without getting a bank loan.

Chairman CROW. Mr. Shroder?

Mr. SHRODER. I am not sure I am the best one to answer the question but I will tell you, as you think through it, if it is more of a discussion, stay focused on the Phase III for just a second. Because you can enter through the immigration. It is a little bit hard for my background because from an immigration perspective it might be hard to get Defense Department clearances to do the classified work. So while being a Caucasian male and having a company I am proud of, et cetera, we have been able to hire a lot of people. We have grown from two states to I think we are in 26 states now across the board. So we would like to think that it is spread out at least more geographically. But as you think of the program in the future, whether it is capital and other things, I think you have got to find that balancing act of when you are actually doing it to generate the start of a new program versus actually the hiring of those immigrants. I know we have hired significantly in Colorado recently. To us, immigrants are fine as long as they can work in that environment, and they have been an important part of growth for us. But you can understand the challenge of clearances and other things that might be associated with Defense Department programs.

Chairman CROW. Thank you.

I would now like to recognize the gentleman from New Jersey, Mr. Kim, for 5 minutes.

Mr. KIM. Thank you, Mr. Chairman. And thank you so much for coming here and talking with our Committee. I was rushing over here from the Conference Committee for the National Defense Authorization Act where we talked a lot about the importance of innovation in our system as well, in our national security, certainly in our energy sector, and so many other important components.

So coming straight out of there, I wanted to rush on over here and just really kind of get a sense from you of some of the steps that we can take. I know that SBIR, STTR, and some of these other programs, they play an important role in terms of spurring the technological innovation. And these programs like these that have allowed the United States to create not only a sustainable workforce but also to become the leader in tech innovation despite strong global competition. As I said, this is particularly the case in clean energy and a number of other places where I think this overlaps with a lot of interest, certainly in my own district as we are thinking about the future role that we can play in that innovation.

So I just wanted to start, Mr. Shukla, you have advised multiple nations on technology-led innovation. What kind of investments should the United States Government make to remain competitive in innovation on a global scale, especially in sectors like clean energy?

Mr. SHUKLA. So I do think that there are incredible investments that have been made by this country in Centers of Excellence across the United States and universities, in cities, in clean tech foundation funds, in the competitions that exist around clean tech. The one concern is there is considerably less coordination than there ought to be. And so when you have funding that comes down different silos, either Federal or state, there really is no coordinated effort to say what are we trying to achieve? What are the success factors that we are looking at? What kinds of jobs are we likely to be able to get from this? Where else can we prime the pump to make sure that we have those kinds of investments that yield results and monitor them?

It is easier when you have a smaller economy. I mean, Germany decided, you know, we are going to go specifically into solar production and solar technology and solar energy and all of the aspects that matter, only to then be bested by China. So when you have countries that do not play by the rules even though they are supposed to play by the rules because they have been inducted in, you have to be particularly careful about this. And it is a cautionary tale only because this has happened in food and ag. It has happened in life sciences. It has happened in materials. And it has happened now in clean tech and clean energy.

So I think we have got to really focus on what is our national goal, in particular, and then make sure that we coordinate over every single agency and also every single state which has programs in this regard. The Federal Government almost leaves this aside and says, you know, that is up to you guys to do this. Under our Federal system that might make sense but I do not think as a national objective it makes sense to be able to leave things to the wind, so to speak.

Mr. KIM. Thank you for that. I appreciate this.

Mr. Saade, I wanted to just seek your thoughts on something in particular.

So for 5 years the SBA has funded the Growth Accelerated Fund competition which awards monetary prizes of \$50,000 to the Nation's most promising small business accelerators and incubators. Now, 60 percent of the funding is steered to support entrepreneurs in one of the following groups: women, socially and economically disadvantaged, opportunity zones, or those located in states underrepresented by SBIR-STTR. Can you please speak to the value of the program and providing support to traditionally underserved groups?

Mr. SAADE. Sure. Thanks for the question.

You can think about it as financial services or banking, but just to focus it on the innovation economy is venture capital and the entrepreneurial activity funding pools pursue is concentrated in basically five states. And in those five states it is six cities. And those cities are magnets for people. They are magnets for the tax revenue they generate. It is very difficult to compete with those.

The fine congresswoman from Iowa was talking about it from her perspective, Iowa. And it cannot be overstated that discovery can happen anywhere but typically what happens is that one of these technologies or one of these companies gets discovered and a venture capitalist from Menlo Park or Brooklyn invest in them. They basically uproot the seed and move them to Menlo Park or Brooklyn. So the reason for that is because those places are ecosystems by design and they have been around for years. No one is ever going to replicate Silicon Valley again for a lot of reasons. There are a lot of ingredients that made that happen. But the reality is that there is a lot of cities and places in America—Boulder, Austin, suburbs of Seattle, that are not trying to be Silicon Valley but are trying to combine all those ingredients and make their entrepreneurial ecosystem important.

This program essentially anchors the ecosystem literally by building and supporting ecosystems. And the hypothesis was pretty simple. By creating the ability for serendipitous collisions to happen and a focus of attention on different communities, including in your state, Mr. Kim, you will support a more entrepreneurial economy. And it has been shown that places with more entrepreneurial energy and more business formation actually have better economies.

So the program, sort of like SBIR and STTR functions as first risk capital because no one else in the private sector would ever take the risk because it is a 30-year runway to develop a national priority. There is no one in the private sector that is going to take a risk on Shreveport or my home town of San Juan. So the government's role with just that little bit of money is to help catalyze some of those things.

And one more thing I will add is that \$50,000 in the great scheme of things is the salary of a person with a college degree, generally. Not much. But the idea around the ecosystem is that it attracts private capital. And at that, the program has been pretty successful. And Congress I think has a match requirement on some of the dollars that go into accelerators. So it is a low risk and low dollar way to kind of open the aperture for opportunity.

Mr. KIM. I appreciate that.

Chairman CROW. Thank you. The gentleman's time is expired.

Mr. KIM. I yield back.

Chairman CROW. Thank you.

Thank you to all the witnesses for your time, sharing your expertise and experiences. This is very valuable for us as we look at all the legislation and the fixes and things that need to happen to make sure that we are remaining competitive.

Increasing our competitiveness by supporting small business innovation is more critical than ever as we heard about today. As our world continues to become increasingly connected, America's lead in technology is crucial to our economic prosperity and national security.

The partnership between federally funded research, academia, and private industry has been pivotal to U.S. technological advancement since the 1930s and has helped the U.S. maintain leadership despite stagnating investments. However, that lead is rapidly evaporating. That is why investment improved access to these

programs and the Growth Accelerator Fund Competition must continue to grow and succeed. The members of this Committee must continue to raise awareness of the value of these programs and lead on developing policies to ensure their success.

I look forward to working with Ranking Member Balderson so that small businesses in the U.S. have the tools they need to innovate, grow, and create jobs on Main Streets all around the country.

I would ask unanimous consent that members have 5 legislative days to submit statements and supporting materials for the record.

Without objection, so ordered.

And if there is no further business to come before the Committee, we are adjourned. Thank you.

[Whereupon, at 11:56 a.m., the Subcommittee was adjourned.]

APPENDIX



"SBA Programs Spurring Innovation"
Testimony before the Committee on Small Business
United States House of Representatives
116th Congress

Alison Brown, PhD
President and CEO
NAVSYS Corporation
abrown@navsys.com

10:30 AM
Thursday, September 19, 2019
Rayburn House Office Building, Room 2360

BACKGROUND

Chairwoman Velázquez, Ranking Member Chabot and Members of the Committee, thank you for the opportunity to testify here today and for your efforts in supporting the Small Business Innovation Research (SBIR) Program.

My name is Alison Brown, and I am the CEO and Founder of NAVSYS Corporation, a small business located in Monument, Colorado. NAVSYS has been developing innovative positioning, navigation and timing solutions for the government and private sector since 1986. Much of our success has been from technology we developed with funding through the SBIR program. As an example, an early device we developed for use on Air Force radiosondes through an SBIR contract transitioned into the first emergency cell phone location system, deployed in Colorado in 1995. I am proud to say that this unit, LocatorNet, is now on display at the Smithsonian National Air and Space museum and the LocatorNet system was instrumental in establishing the FCC mandated E-911 standards that are in place today which have resulted in the saving of countless lives.

Throughout my company's history we have been able to bring innovations to the warfighter and field these solutions rapidly because of the Phase III contracting authority granted through the SBIR program. We are the only small business who has received the prestigious AFEL Excellence in Enterprise Integration Award which we received for our Talon NAMATH system, developed under a Phase III contract. Working with Air Force TENCAP and our industry partner Boeing, we fielded a networked solution to improve the precision of the SDB and JDAM guided weapons in less than a year, enhancing warfighter operations in Afghanistan and Iraq. Only the SBIR contracting authority permitted this innovative new capability to be fielded this rapidly to meet an urgent warfighter operational need.

However, Talon NAMATH unfortunately highlights challenges that small businesses often face working within the defense acquisition system. Despite the success of the Talon NAMATH program, and the positive feedback received from operational warfighters and the MAJCOMs, the GPS Wing at SMC elected to give a sole source contract to their Lead System Integrator, Boeing, to replace the fielded Talon NAMATH system rather than working with NAVSYS to evolve the SBIR-developed and already fielded system. This decision was challenged by the Small Business Administration (SBA) as a violation of their SBIR Policy Directive which states that "*Agencies ... that pursue R/R&D or production of technology*

14960 Woodcarver Road, Colorado Springs, CO 80921
 phone 719.481.4877 fax 719.481.4908 web site www.navsys.com

developed under the SBIR/STTR program shall issue Phase III awards relating to the technology, including sole source awards, to the Awardee that developed the technology under an SBIR/STTR award, to the greatest extent practicable.” A GAO Report¹, requested by Congress to investigate challenges in commercializing technologies in part due to concerns raised by the Talon NAMATH issue², identified that multiple SBIR companies had experienced similar problems where DOD officials appeared to have shared proprietary information with prime contractors who then used the SBIR developed technology to compete against the SBIR awardee. Due to limited staffing at the SBA, they have been unable to respond to many complaints by multiple companies of similar policy violations of the Phase III preference requirement – leaving this important part of SBA legislation effectively unregulated within the Department of Defense. My example with the Talon NAMATH program is illustrative of a problem that many other firms have faced in transitioning their SBIR technology.

Everyone is aware of the need to get new technology to the warfighter. While Congress has enacted changes to the SBIR process, to date most of changes have not been put into the Defense Federal Acquisition Regulations (DFAR). I served on the Government-Industry panel of experts which was convened to prepare a report on Technical Data Rights for the office of the Secretary of Defense in response to NDAA 2016 Section 813. This report included recommendations regarding handling of SBIR data rights on Phase III awards, or work which *derives from, extends, or completes efforts made under prior funding agreements under the SBIR program*³. The panel discussed SBIR Phase III issues that arose when data rights were used as an evaluation factor or when issuance of a contract was made conditional on relinquishing data rights. Multiple small businesses provided examples to the panel of specific examples of where this had occurred, even though requiring relinquishing of SBIR data rights is a direct violation of the SBIR policy directive. The panel recommended that, as the intent of SBIR data rights is to reward small businesses for their innovation and invention by providing intellectual property protection, a revision should be made to 10 U.S.C. 2320 to clarify that an item or process developed under a contract or subcontract to which the SBIR regulations apply shall be treated as though developed at private expense during the protection period authorized in the SBIR regulations. This would afford SBIR similar protection within defense acquisition based on language that Congress has enacted language that clarifies how commercial items are to be handled.

On a number of occasions Congress has tried to improve the technology insertion process into Defense acquisitions. The blue ribbon panel of Government and Industry experts, convened to provide a report on Streamlining and Codifying Acquisition Regulations in response to NDAA Section 809, recommended more than doubling the SBIR allocation, from 3.2% to 7%, and making the program permanent. The report stated that *“DoD should invest more heavily in SBIR and RIF, as both effectively leverage small businesses to further DoD’s mission-related capabilities; however, both programs could benefit from greater speed and flexibility. DoD should factor SBIR technologies more explicitly into its acquisition strategies and plans. Greater speed, as well as the ability to disburse large awards under both programs, will help companies bridge the valley of death and successfully commercialize their products.”*⁴

The SBIR program was established with the purpose of strengthening the role of small, innovative firms in federally funded research and development. It remains today one of the few successful paths

¹ “SPACE ACQUISITIONS, Challenges in Commercializing Technologies Developed under the Small Business Innovation Research Program”, GAO-11-21, November 2010, <https://www.gao.gov/new.items/d1121.pdf>

² Attachment 1: Letter from Senator Wayne Aillard to General Chilton, Commander of AFSPC

³ “2018 Report: Government-Industry Advisory Panel on Technical Data Rights” November 13, 2018, pp 145- 150 <http://www.ndia.org/-/media/Sites/NDIA/Policy/Documents/Final%20Section%20813%20Report>

⁴ “Report of the Advisory Panel on Streamlining and Codifying Acquisition Regulations”, January 2018, Page 193 https://section809panel.org/wp-content/uploads/2018/01/Sec809Panel_Vol1-Report_Jan18_FINAL.pdf

for small businesses to bring innovations into the hands of the warfighters. Recently, Dr. Will Roper, Assistant Secretary of the Air Force for Acquisition, Technology and Logistics, initiated a new SBIR process modeled after commercial investment pitch competitions to deliver a faster, smarter approach to compete for ideas that can solve near-term DoD problems through the accelerating technology ecosystem. The process is a major departure from the lengthy contractual processes typically expected of the military and focuses on rapidly awarding Phase I SBIR contracts to companies based on a simpler streamlined evaluation of white papers and in-person presentations. NAVSYS has competed and won two Pitch Day contracts. In the first Air Force Pitch Day cycle, Air Force contracting officials reviewed 417 submissions received during the 30-day application period and then invited 59 businesses to pitch their proposals in person March 6. Of those 59 businesses, 51 received an initial award⁵. It took only 10 minutes for me to receive that Phase I contract and we expect to receive our Phase II contract award this month, less than 8 months after submission of our Phase I proposal. This process has been a breath of fresh air as the Air Force Pitch Day team worked to connect us quickly and directly to end users who can take advantage of our technology and planning near term demonstrations to deliver prototype and show capability directly to the warfighter. The Navy has recently instituted a similar process to speed awards of Phase II contracts⁶. While the Air Force and Navy programs have sped up the process for some SBIR awards, all agencies need to adopt similar practices to simplify and streamline the SBIR award process with standardized contracts for Phase I, Phase II and Phase III awards.

The SBIR program provides the mechanism to bring innovative companies into the DoD ecosystem. Dr. Roper has said that the next challenge for the Air Force is to organize to do this type of activity at scale. When Congress created Other Transaction Agreements (OTAs) the intent was to bring together nontraditional companies who were agile, innovative and willing to fail fast to provide solutions for the DoD. Instead the DoD has used OTAs to award billions of dollars to the traditional prime contractors. Imagine what could have been accomplished if a fraction of the billions of dollars that have been awarded through OTAs to traditional defense contractors had instead been made to accelerate Phase III transitions from the SBIR program. Using the Phase I and II SBIR funds, the DoD can work with small companies who are agile, innovative and willing to fail fast. The proven SBIR solutions can then be rapidly field through the Phase III process into the hands of the warfighter. Through the Air Force Pitch Day process the SBIR program can be used, in Gen Stephen Wilson's words, to "deliver speed of capability to the battlefield."

RECOMMENDATIONS

1. **Update DFARS to be consistent with the SBIR Phase III and SBIR Data Rights provisions in SBA Policy Directives.**

The SBA Office of Innovation is not staffed for enforcement of the SBIR Policy Directive and when agencies do not follow the Directive there is generally no recourse for Small Businesses. Contracting officers are trained to follow Federal Acquisition Regulations and not the SBA Policy Directive. To avoid instances, such as NAVSYS experienced with Talon NAMATH, the DFARS need to be updated to comply with SBIR legislation and the SBA's Policy Directive so that agencies "*that pursue R/R&D or production of technology developed under the SBIR/STTR program shall issue Phase III awards relating to the technology, including sole source awards, to the Awardee that developed the technology under an SBIR/STTR award, to the greatest extent*

⁵ Air Force Pitch Day Kick-off: <https://www.af.mil/News/Article-Display/Article/1779609/inaugural-air-force-pitch-day-new-contracts-new-partners/>

⁶ Navy Technology Accelerator Flyer (https://www.navysbir.com/docs/Navy_Tech_Acceleration_Flyer.pdf)

practicable.” Also, the provision in the policy directive extending the SBIR data rights to 20 years is not yet in the DFARS.

2. Adopt NDAA 2016 Section 809 Government-Industry Panel Recommendation regarding SBIR

The panel of Government and Industry experts, convened under NDAA Section 809, recommendations included amending 15 U.S.C. § 638 to make SBIR and STTR permanent, increasing the SBIR percentage allocation to 7%, increasing the Rapid Innovation Fund allocation, and updating DoD policy on major weapons system programs to emphasize SBIR technologies as essential components of acquisition strategies and plans.

3. Adopt NDAA 2016 Section 813 Government-Industry Panel Recommendations regarding SBIR Data Rights protection.

The panel of Government and Industry experts, convened under NDAA Section, recommended updates to 10 U.S.C. 2320 to clarify that the intent of Congress is for small businesses to receive protection for their innovations developed under SBIR funding, similar to commercially developed innovations, during the period that SBIR data rights apply to encourage them to commercialize the SBIR developed technology.

4. Increase funding for rapid transition of SBIR developed technology under Phase III

The success of the Air Force Pitch Days has shown the capability for the SBIR program to bring innovation to meet warfighter needs. Following the Air Force model which charters all PEOs to identify and sponsor SBIR transitions using matching program funds as an incentive provides a better, faster way to rapidly field technology innovation to the warfighter.

Attachment 1

WAYNE ALLARD
 COLORADO
 DICKSEN SENATE OFFICE BUILDING, SUITE 521
 PHONE: (202) 224-5941
 FAX: (202) 224-6471

United States Senate
 WASHINGTON, DC 20510-0606

APPROPRIATIONS
 BANKING, HOUSING, AND
 URBAN AFFAIRS
 BUDGET
 HEALTH, EDUCATION, LABOR AND
 PENSIONS
 RENEWABLE ENERGY CAUCUS
 SPACE POWER CAUCUS

June 20, 2007

General Kevin P. Chilton
 Commander
 Air Force Space Command
 Peterson Air Force Base, CO

Dear General Chilton,

An issue regarding NAVSYS Corporation, a Colorado-based company, has come to my attention and I request your assistance in answering some questions regarding their Small Business Innovation Research (SBIR) contract.

In December 2006, U.S. Central Command officials announced publicly that NAVSYS Corporation's Talon NAMATH System had been incorporated into CENTCOM for ongoing small diameter bomb operations. Specifically, space professionals at Schriever AFB and F-15E aircrews successfully incorporated the Talon NAMATH GPS enhancement system into current theater operations to support the Air Force's newest precision weapon, the GBU-39 small diameter bomb. It is my understanding that Talon NAMATH greatly boosts the bomb's accuracy and reduces collateral damage to non-combatants. It has been relayed to me that the end user, Air Combat Command (ACC), is extremely happy with this existing system.

I was particularly pleased to see the integration of Talon NAMATH with our warfighters abroad because of my history supporting the program. As you know, in the past I directed additional funds for the Air Force Tactical Exploitation of National Capabilities (AF TENCAP) Jammer Detection and Location (JLOC) project, of which Talon NAMATH was a follow-on effort.

However, I have recently been informed that the Space & Missile Systems Center (SMC) has initiated a project termed Zero Aged Message and Data Service (ZMDS), which appears to derive from work that NAVSYS had been performing under their SBIR Talon NAMATH contract. The current SMC plan is to fund sustainment of the capability that Talon NAMATH provides but give all follow-on work to another company.

This concerns me a great deal considering that it appears to be a violation of SBIR policy. I highly value the innovative research our nation's small technology companies provide to

7340 EAST CANYON
 SUITE 215
 ENGLEWOOD, CO 80111
 PHONE: 303-220-2414
 FAX: 303-220-8126

5401 STONE CREEK CIRCLE
 SUITE 203
 LOVELAND, CO 80538
 PHONE: 970-461-3630
 FAX: 970-461-3656

111 SOUTH TEXAN
 SUITE 300
 COLORADO SPRINGS, CO 80903
 PHONE: 719-534-6071
 FAX: 719-536-2590

411 TRATCHER BUILDING
 5TH AND MAIN STREET
 PUEBLO, CO 81003
 PHONE: 719-545-8751
 FAX: 719-545-3832

215 FEDERAL BUILDING
 400 ROCK AVENUE
 GRAND JUNCTION, CO 81501
 PHONE: 970-245-9553
 FAX: 970-245-9523

954 EAST SECOND AVENUE
 SUITE 107
 DURANGO, CO 81301
 PHONE: 970-375-0311
 FAX: 970-375-1321

the Department of Defense through the SBIR program. I want to ensure that the efforts put forward by companies like NAVSYS are not shoved to the side by large corporations.

To that end, I would like an explanation as to why NAVSYS appears to have been denied the follow-on work with SMC, especially considering the success that Talon NAMATH has had in the field. Additionally, I would like to know if SMC has had any contact with the Small Business Administration about releasing themselves from their responsibility to follow congressional direction in giving preference to a small business for work that derives, extends or concludes SBIR activities.

Additionally, I am concerned about cost differences from a brand new ZMDS start over integrating the existing Talon NAMATH system. From a taxpayer's perspective, starting over from scratch could be more expensive than continuing with the current operational system that is being used by CENTCOM in theater. I would be interested to see the comparison between what it would cost to start over instead of continuing with the already proven and tested system.

Thank you for your assistance, and I look forward to hearing from you shortly.

Sincerely,

A handwritten signature in cursive script that reads "Wayne Allard".

Wayne Allard
United States Senator

Mr. Rohit Shukla
Chief Executive Officer
Larta Institute

Testimony before the U.S. House of Representatives
Committee on Small Business
Subcommittee on Innovation and Workforce Development

SBA Programs Spurring Innovation

Thursday, September 19, 2019

Good morning Chairman Crow, Ranking Member Balderson, and members of the Committee. My name is Rohit Shukla, and I'm the Founder and CEO of Larta Institute, a leading commercialization service provider. Since founding the organization over 25 years ago, we have worked closely with state and federal innovation programs, including the Small Business Innovation Research ("SBIR") Program, to help companies develop innovations from the earliest stages of research all the way to bringing new technologies and services to the marketplace. For us, this is the essence of our mission: to apply research in a user context, the context of products and services that benefit America and Americans.

I founded Larta Institute in 1993 to help revitalize the economy in California in response to the economic downturn after the decline of the aerospace industry. In 2004 Larta entered the federal space by supporting the National Institutes of Health's ("NIH") commercialization accelerator program. Our success in this role led us to support several other agencies with commercialization services through SBIR Phases I and II. These agencies include the National Science Foundation ("NSF"), the National Institute of Standards and Technology ("NIST"), the U.S. Department of Agriculture ("USDA"), and the U.S. Department of Energy ("DOE"). In serving this wide variety of agencies, Larta has engaged in commercialization support for a wide range of science and technology subjects, and we are proud to have served over 4,000 participants since Larta's inception.

Known as America's Seed Fund, the SBIR Program was designed so that the federal government as well as everyday Americans, can reap the benefits of the technologies that their tax dollars have already paid to develop. And this concept has proven to be beneficial to agency missions, private sector innovation, and our underlying economy. The program has been instrumental in unlocking America's research excellence with the promise of economic reward; indeed, its success has attracted imitators from around the world, including Singapore, Finland, the E.U., Japan and India.

So why are we here today? Unfortunately, despite the success in streamlining an applied research agenda via the SBIR program, the United States is in danger of lagging behind other

developed economies in leveraging cutting-edge technologies and introducing innovations into the private marketplace in areas that are central to our future, including for e.g. artificial intelligence, federal marketplace as well as the private sector.

Spending over \$500 billion a year, the U.S. Government is the world's largest buyer of goods and services. Innovations developed under the SBIR program should seamlessly translate into government acquisition where appropriate. Furthermore, by connecting the right people with the right opportunities, these same inventions can be used to improve our lives in ways that we've never imagined before. The SBIR program was created to do just that.

The SBIR program is composed of three phases: Phase I was designed as the startup phase, to explore the merit of a new idea; Phase II was designed to facilitate the expansion of the idea from Phase I; Phase III is when the idea moves fully from development into the marketplace. Currently there is federal funding available to support small businesses participating in Phases I and II.

Throughout Phases I and II, there are funds for Technical and Business Assistance ("TABAs"). This is where Larta comes into the picture. Prior to the enactment of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 ("NDAA 2019"), technical assistance was provided to SBIR awardees through agency contracts and agreements. Federal agencies generally awarded contracts to a preferred vendor who would work with SBIR awardees in providing assistance in product development and commercialization. Funding for these types of assistance were limited by statute to \$5,000 per year for both Phases I and II. Section 854 of NDAA 2019 amended this program in two important ways:

1. Funding amounts were increased to \$6,500 per year in Phase I, and up to \$50,000 per project in Phase II.
2. Flexibility was introduced to allow SBIR awardees access to technical assistance outside of the approved, preferred vendors.

As a result of the changes, agencies have been waiting to get direction in order to have a consistent framework. This would be forthcoming from the SBA which is empowered to oversee and administer the SBIR Program. Unfortunately Section 854 of NDAA 2019 did not specifically re-emphasize SBA's authority as it relates to the expansion of the types of technical assistance providers. As a result, some agencies have opted to interpret Section 854 on their own, and we're seeing the law implemented in vastly different ways across different agencies. These differing implementations have caused confusion and inefficiencies, allowing new opportunities for waste, fraud, and abuse. Areas of concern include:

First, allowing or requiring SBIR awardees to write their own chosen commercialization vendor into their grant application shifts decision making to potentially ill-equipped awardees. Many entrepreneurs become confused about the types of services they need, or even what

services are available – they simply “don’t know what they don’t know.” This carries a heavy risk – at best, these funds can be used inefficiently, and at worst the funds will succumb to waste, fraud, and abuse, as they respond to outside providers pitching services that may be unnecessary or even damaging to the awardees’ objective interests.

Furthermore, with the expansion of the types of services funded by TABA, a centralized coordination point becomes more critical in ensuring that the right services are engaged at the right time and at the right price. This may be referred to as “informed choice,” where awardees may be able to choose from a variety of services operating via a central hub provider which could help them assess their need for specific services as a prelude to their use of TABA funds.

Second, opening the door to “any” commercialization provider may be viewed as increasing competition; however, under the old model, providers were vetted and contracted for the commercialization assistance services provided to SBIR awardees. The government directly controlled access to providers, with the ability to hold them accountable, and incorporated reporting requirements, transparency, performance surveys, and success metrics as a way of monitoring the program.

The lack of accountability directly to the government reduces the ability to track and report on performance, during and after participation in the SBIR program; furthermore, national contracts let under the traditional model by federal agencies allow for economies of scale as well as create the ability to leverage lessons learned and the sharing of experience and success factors across agencies and SBIR/STTR recipients.

Third, SBIR awardees in rural areas or not in “commercialization hot zones” are at a disadvantage if they are left to their own means to identify commercialization assistance providers and if there is not a preferred agency contract. Those in rural areas or traditionally non-tech areas (precisely the regions where the SBIR/STTR program is seeking to build an inclusive presence & access for applicants and awardees) will find it difficult to identify appropriate and high quality commercialization support services.

Moving forward, and in order to address the issues identified, this committee may want to consider making it clear to SBIR participating agencies that they must wait for SBA to publish TABA policy directives in order to implement the changes in NDAA 2019; and that agencies should offer the option of a preferred solution to SBIR awardees, especially new and more nascent participants.

With respect to ensuring that federal agencies benefit from SBIR funding, we believe that awareness of a commercialization strategy and training and assistance with that strategy should begin for SBIR participants as early as Phase I. Furthermore, we believe that contracting officers around the country need to be specifically trained on the opportunities and procedures to directly award contracts to SBIR participants. In addition, this committee may want to consider streamlining the direct award process for SBIR participants to mirror the direct award processes

in the 8(a) set-aside program. This will incentivize contracting officers to quickly and easily direct award opportunities to SBIR participants.

Lastly, developing a scorecard to track agency performance with respect to SBIR funding as well as outcomes and results would provide a more clear mechanism to monitor the impact of policy changes.

To conclude my remarks, federal commercialization programs such as the SBIR Program are critical for our nation's competitiveness in the world economy. We must embrace new methods for providing these services to the bold and restless innovators who embody the spirit of American ingenuity, while also basing policy decisions on the wisdom of time-tested, evidence-based processes. That is the formula for a prosperous future.

Again I want to thank Chairman Crow and Ranking Member Balderson for holding this important hearing, and I look forward to a robust discussion.

ROHIT SHUKLA
Founder & CEO, Larta Institute

Rohit Shukla, Founder and CEO of Larta (www.larta.org) is a nationally recognized expert on commercialization, and enterprise and science-based innovation. Since he founded Larta in 1993, he has advised governments, multilateral organizations, communities and entrepreneurs around the world. He has developed initiatives that expand entrepreneurship, promote commercialization and enhance the competitiveness of regions.

Larta Institute, under his direction, has established national-scale programs in the life sciences, agricultural biotechnology and food, and cleantech and energy to assist entrepreneurs bring innovative products and services to today's dynamic marketplace. These sectors underscore Larta's commitment and mission to "feed, fuel and heal the world." In the biosciences, he designed and developed the NIH-funded Commercialization Accelerator Program (CAP) in 2004, which has evolved to become a well-recognized national program for NIH SBIR and STTR grantees. Under his direction, Larta conducts several other similar programs for federal agencies and their SBIR/STTR grantees, including NSF, USDA, NIST and DOE. Since 2004, over 3,000 companies have been through Larta's national and global commercialization programs. Nationally, these programs are focused on the commercialization of federally-funded research. Larta has a strong track record in achieving success for companies under its programs, including acquisitions, investment and collaboration.

He has also consulted with OECD, initiatives in Romania, Malaysia, Australia, New Zealand, Japan, Korea, Sweden, Finland and a number of other countries.

He has a Master's in Social and Political Sciences from the University of Cambridge, U.K. and a Master's in Communications Arts and Sciences from Loyola Marymount University, Los Angeles. He developed and taught the first course in *Startup Management* for the MBA program at the Graziadio School at Pepperdine University Los Angeles. He currently serves on the board of BioLA, a new organization established as an initiative of the County of Los Angeles. He is the board chair of Public Policy Charter School, which serves underserved kids in South Los Angeles.

He speaks to audiences around the world on subjects ranging from commercialization and innovation to globalization and entrepreneurship.

com•mer•cial•i•za•tion

/ˈkɒməɹiʃHəleɪzəʃH(ə)n/

noun

1. To bring into everyday use the technologies that are funded by the federal government
2. Applying the fruits of taxpayer-funded research and development for use in everyday life

History of Commercialization in the U.S.

In the 1970s, the U.S. grappled with losing its competitive edge due to globalization. Evidence suggested that small businesses were the key to increasing innovation and job creation in the new economy. Over the next decade, the Small Business Innovation Research (SBIR) program was created to take new technologies already developed by taxpayer-funded research, and apply these breakthroughs to new products in the private sector. The resounding success of the SBIR program has solidified the reputation of the United States as an innovation leader. Since 1993, Larta Institute has proven to be an indispensable component for the success of commercialization programs.

Larta Services



Program Management

Partner with federal agencies to manage commercialization programs for SBIR award recipients



Entrepreneurial Training

Work with SBIR award recipients to develop long-lasting top-notch entrepreneurial skills



Commercialization & Technical Support

Ideation, Product Validation, Market Insights, Growth to Scale, Fundraising, and Management/Execution



Strategic Introductions

Potential customers, industry strategic partners



Plans

Barriers to entry, competitive matrices, 18-month road maps



Market Acceleration Services

Roadshow presentations, regulatory path development, licensing path development, term sheet reviews, coaching on negotiations

An Award-Winning Innovation Accelerator

Larta Institute, founded in Los Angeles in 1993, is an internationally recognized and mission-driven innovation accelerator that helps entrepreneurs transform their science-based ideas into use to "feed, fuel and heal the world." We have been a go-to partner for investors, industry professionals, governments and thought leaders in science-based innovation.

With a global network of entrepreneurs, mentors, investors, industry leaders, research institutions, government agencies and support organizations and a 25-year history of solid achievement, Larta has supported entrepreneurs around the world, helping them bring their life-changing products to a constantly evolving marketplace.

Larta won the 2016 Tibbetts award for excellence in supporting the U.S. federal SBIR/STTR program, referred to as "America's seed fund." We work with the SBIR/STTR program across multiple federal agencies to reduce risks in science innovations. We have also designed and managed programs for global partners and economic development organizations, assisting them in building networks and connections to U.S.-based investors and companies.

What Sets Larta Apart?

Larta operates on a network-centric model, connecting the right people – at the right time – to move industries forward. Our network has the collective expertise in precise areas of need to bring market and technology insights that directly apply to innovation-driven entrepreneurs. Larta works with hundreds of new technology innovations every year, offering comprehensive solutions to global problems. We provide significant benefits to companies pioneering solutions in critical areas that *feed, fuel, and heal the world*.

Statistics

9,574

Companies in Healthcare, IT, & other sectors assisted since 1993

1,278

Companies in Water, Energy, Cleantech, and Ag assisted since 2004

\$6.7B

Public/private investment raised by Larta companies since 1993

Legislative/Policy Priorities

How You Can Help

Technical and Business Assistance (TABAs)

- Support efforts to incorporate legitimate commercialization service providers like Larta back into the award process for SBIR/STTR grants.

SBIR Reauthorization

- Fully fund SBIR programs for all participating agencies.
- Help us to increase awareness of SBIR commercialization opportunities for federally funded research.

Other Innovation Programs

- Encourage agencies to partner with legitimate commercialization service providers like Larta in the implementation of new innovation programs such as I-Corps.

Additionally

- Pass a Sense of the Senate / House of Representatives statement recognizing the immeasurable contributions of small businesses and commercialization service providers to our nation's success as a leading innovator.

Ideas, Energized

Select Success Stories

Micronic Technologies

Micronic Technologies' award-winning MicroEVAP™ technology converts contaminated water into potable water in one pass without chemicals or filters.

BioElectroMed acquired by Pulse Biosciences

Pulse Biosciences' Nano-Pulse Stimulation triggers cell death in cancerous tissue without harming healthy tissue. In June 2016, Pulse Biosciences completed an IPO grossing \$23M.

Ocean Renewable Power Company

Ocean Renewable Power Company's mission is to implement hydrokinetic systems to harness tidal energy. The company built and operated the first revenue-generating, grid-connected tidal energy project in North America, with no adverse impacts on river or ocean environments. The company brought more than \$26M into the Maine economy.

To learn more about our recent successes, visit larta.org

Participant Testimonials

"The level of expertise through the Larta NIH CAP program is essential to any small business attempting to commercialize a technology. Insightful feedback helped us position ourselves within our market niche which was very useful as we began commercialization efforts with two major players in the rapid diagnostics arena."

-DxDiscovery

"This [Larta] program was a beneficial experience overall for business development and it was very useful to have candid feedback from advisors regarding our commercialization process. The broad range of industry experts available for our engagement was helpful as well."

-Diagnostics for the Real World

"The 'boot camp' approach of [the] Larta [NIH CAP] Program has accelerated our goals substantially and created new business competencies that are both necessary and complementary to our translational science."

-Activas Diagnostics

"Larta and their diverse panels of expert advisors have provided Sequela, Inc. with the necessary consultants, insights, and tools to self-navigate the intensely complicated nature of product regulation, reimbursement, IP, and marketing."

-Sequela

**Testimony before Congress of the United States, U.S. House of Representatives
Committee on Small Business | Innovation and Workforce Development Subcommittee
Hearing on “SBA Programs Spurring Innovation”
September 19, 2019 | 10:00 AM | 2360 Rayburn House Office Building**

**Written Testimony by:
Javier Saade
Founder & Managing Partner, Impact Master Holdings
Venture Partner, Fenway Summer Ventures**

Chairwoman Velazquez, Ranking Member Chabot, Subcommittee Chairman Crow, Subcommittee Ranking Member Balderson and distinguished members of the Committee; thank you very much for the opportunity to participate in today’s hearing.

My name is Javier Saade and I am Founder & Managing Partner of Impact Master Holdings and Venture Partner at Fenway Summer Ventures. Impact Master Holdings is a firm that works with and invests in companies that touch on technology, digital inclusion, economic development and impact capital. Fenway Summer is a venture capital firm that has backed about fifty young companies innovating at the intersection of finance and technology.

I serve on the Boards of Trustees of Pan American Development Foundation and The Nature Conservancy in Maryland + DC, and Board of Directors of Foundation for Puerto Rico. I also hold seats on the Board of Directors of a Presidio and Rothschild owned financial services firm, Global Board of Advisors of DocuSign, Inc., Corporate Social Responsibility Board of Univision Communications and Advisory Board of Harvard’s Rock Center for Entrepreneurship.

Previously I served as Associate Administrator, Chief of Investment and Innovation of the U.S. Small Business Administration and held a seat on the U.S. Securities & Exchange Commission’s Committee on Small and Emerging Companies. I led the \$30 billion Small Business Investment Company (SBIC), \$2-3 billion/year Small Business Innovation Research (SBIR), ~\$200 million/year Small Business Technology Transfer (STTR) and Growth Accelerator Fund Competition programs.

In my transition back to the private sector I served as Executive in Residence at Columbia’s Columbia Technology Ventures, Senior Fellow at Georgetown’s Beeck Center for Social Innovation + Impact, Mentor at Stanford’s Latino Entrepreneurship Initiative (LBAN) and in recent past served as a Mentor at Techstars. My foundational career years were forged at organizations that include McKinsey & Company, Abbott Laboratories, Booz Allen & Hamilton and Bridgewater Associates.

My testimony today will specifically focus on SBA’s Growth Accelerator Fund Competition (GAFC) program and the overall innovation and entrepreneurial ecosystem in the United States. That said, if needed, I am happy to address inquiries on other topics, including SBIR and STTR.

The data underpinning this testimony is a matter of public record and is mostly sourced from a recent Federal Research Division, Library of Congress report as well as other government and private sector sources.

GAFC was launched in 2014 under my watch. A bit of backdrop may be helpful to set the stage. The program's genesis and initial conception is rooted in President Obama's first term, specifically the domestic and economic policy agenda that gave birth to among other things: the JOBS Act, Startup America and TARP. There was a lot happening back then with our economy, most of it was bad. A focus on a more inclusive and accessible innovation-driven economy was a key part of the domestic agenda. In some measure, this continues to be the case in the Trump administration. As you know, the economy turned around and regardless of the headwinds it faces today like global trade uncertainty, permanent job dislocation, and high concentration of capital and wealth – our economic indicators are strong, driven in large part by innovation and tech-driven productivity gains.

The economic recovery and expansion has generated prosperity unevenly. It is now more uneven than before the 2007-2008 crisis. The previously mentioned concentration of capital (debt and equity), insatiable demand for technical talent and the magnetic effect of a handful of thriving global economic centers of activity – among other factors – has left tens of millions of people behind. Most left behind are those from underrepresented groups, hard to up-skill or less educated workers, and rural communities.

This dynamic is magnified in our innovation economy: venture capital's geographic, gender and racial persistent homogeneity, evolving business formation pathways, relentless automation of life and work and lack of diversity in private and public company C-suites and boardrooms among others. These affect the productive capacity and growth potential of our economy.

The government's role investing in the building blocks of innovation, empowering innovators, setting the stage for high quality job creation, catalyzing discoveries to support national priorities and clearing a path for anyone with talent to access opportunity can't be understated.

The American innovation ecosystem is one of our country's crown jewels and has been the leading source of economic growth and productivity for more than half a century. The ecosystem includes science and discovery, applied research, raw ideation, at risk capital, forward-looking policy, skilled labor, a safe and sound financial system, efficient capital markets, consumers, and healthy competition. All are critical ingredients and the Growth Accelerator Fund Competition (GAFC) plays a small but important part in our country's ecosystem.

GAFC had two goals, which it accomplished:

- 1) Leveling the playing field with funding for and increased attention to entrepreneurial ecosystems that support innovation-economy development and entrepreneurship in parts of the country with fewer conventional sources of capital.
- 2) Focusing and supporting ecosystems and companies owned by, managed by, or focused on traditionally underserved groups, such as women, minorities, veterans, and those in rural or poor communities.

The program is now in its fifth year and there is certainly room for improvement, which we will cover later on. The following table is a high level summary of GAFC:

2014	\$2.5 million	50 winners	31 states, Washington, DC, and Puerto Rico
2015	\$4.4 million	88 winners	39 states, Washington, DC, and Puerto Rico
2016	\$3.4 million	85 winners	38 states and Washington, DC
2017	\$1 million	20 winners	As above*
Total	\$11.3 million	187 winners	45 states, Washington DC and Puerto Rico
<i>Note: *In 2017 \$1 million was granted to 20 past winners - total prizes 243 to 187 winners</i>			
<i>Note: In 2019 \$3 million has been set aside for up to 60 winners.</i>			
Jobs created or supported:	14,237 (imputed estimates, both accelerators and startups)		
Full Time Equivalents:	3,055 (startups FTEs 2014-2016)		
Capital Raised by Startups:	\$609,243,433 (startup fundraising estimate)		

Innovation-driven entrepreneurial ecosystems are effective and proven. Accelerators, which got real traction right after the 2008 financial crisis, offer programs that typically last 3-6 months and provide shared services, mentorship and technical assistance. The premise is to develop what many term a minimum viable product ("MVP") or prototype that enables agile and fast testing of ideas. Typically accelerators connect entrepreneurs to consultants and provide assistance in the preparation of pitches needed to obtain angel investment and other forms of seed capital – such as SBIR and STTR capital. Success in the accelerator and innovation ecosystem world is punctuated when companies leave the nest; they are acquired or otherwise exit the program with additional investment. Some research points to the fact that accelerated startups obtain more and/or faster funding than those using other avenues.

Entrepreneurial Ecosystem Models

42% of GAFC winners self-identified as hybrid models (hybrid models combine aspects of accelerators, incubators, co-working spaces, non-profit organizations and local government economic development programs), followed by 35% as accelerators, 16% as incubators, 5% as co-working spaces and 2% as tinker/maker spaces.

Incubators and accelerators are more likely to offer high-growth, tech-driven startup mentorship and commercialization assistance, but they are less likely to provide services to underserved communities (such as women, veterans, minorities, or economically disadvantaged groups or locations) than hybrid models.

Accelerators sometimes include a small capital infusion in exchange for equity or future equity. Incubators are much less likely to provide small amounts of angel money or seed capital, or specialized or structured loans, than accelerators or hybrid programs. Hybrid models on the other hand, research found, are less likely to use a selective process to choose participating startups than accelerators or incubators. All models provide their startups with introductions to customers, partners, suppliers, advisory boards, and other players, as well as opportunities to pitch ideas and startups to investors, along with capital formation avenues such as demo days.

About one-quarter of GAFC winners provided seed funding to their most promising startups. Of those that took an equity stake, the average was 5.5% in exchange for an average investment of \$1,827,600.

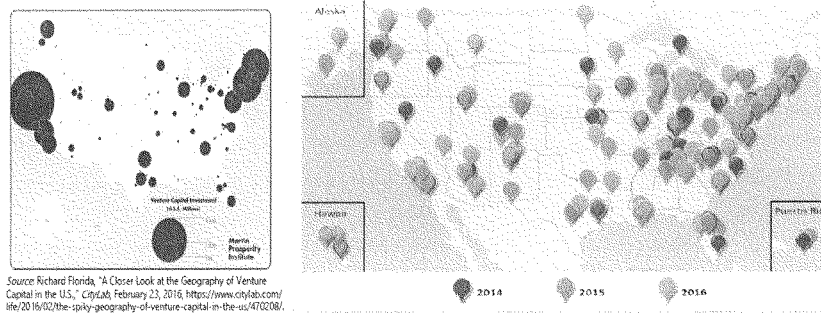
Key innovation ecosystem models and their characteristics are shown in the table on next page:

	Incubators	Angel investors	Accelerators	Hybrid
Duration	1 to 5 years	Ongoing	3 to 6 months	3 months to 2 years
Cohorts	No	No	Yes	No
Business model	Rent, non-profit	Investment	Investment, can also be non-profit	Investment, can also be non-profit
Selection	Non-competitive	Competitive, ongoing	Competitive, cyclical	Competitive, ongoing
Venture stage	Early or late	Early	Early	Early
Education	Ad hoc, human resources, legal	None	Seminars	Various incubator and accelerator practices
Mentorship	Minimal, tactical	As needed by investor	Intense, by self and others	Staff expert support, some mentoring
Venture location	On-site	Off-site	On-site	On-site

Source: Ian Hathaway, "Accelerating Growth: Startup Accelerator Programs in the United States," Brookings Institution, February 17, 2016, <https://www.brookings.edu/research/accelerating-growth-startup-accelerator-programs-in-the-united-states/>.

Entrepreneurial and Innovation Activity Geography

Successful entrepreneurs and their companies create jobs and deliver tax revenues to the IRS and equally important, to their state and local government. Areas with more entrepreneurial activity have better economic outcomes. On this topic, it is well known that about 80% of venture capital (a couple hundred billion dollars per year) is managed by firms and invested in companies located in five states. The map on the left below highlights the concentration, the map on the right depicts where GAFC supported ecosystems are located – a much more geographically dispersed universe.



GAFC winners reported that they received the following benefits:

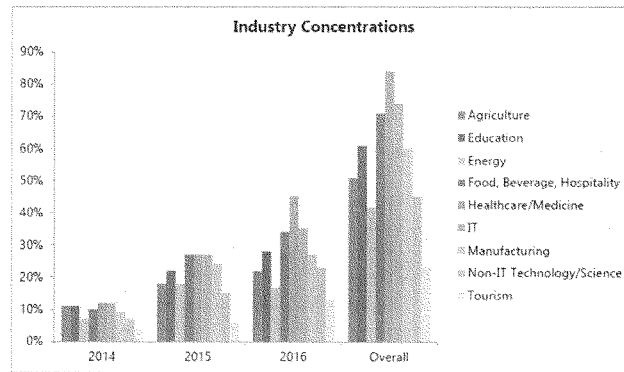
- Increased credibility brought by receiving a federal financial award
- Improvements to the local entrepreneurial culture
- Increased participation in the local entrepreneurial community
- Support of groups / regions not typically served by the VC community
- Increasing the number of startups launched and jobs created
- Belonging to a national network of entrepreneurial ecosystems and their practices

In regions with less robust innovation ecosystems and lower levels of venture capital financing, accelerators become more important as a funding source. Areas with established accelerator and other ecosystem ingredient presence yield higher seed financing activity. Three-quarters of accelerator and incubator activity happens in California, New York, Florida, Illinois, Missouri, Massachusetts, Ohio, Pennsylvania, and Texas.

This is not to be construed as a call to focus solely on the other forty-one states and territories. For instance, an entrepreneurial ecosystem located in an Opportunity Zone in Chicago or one located in Menlo Park but focused on women entrepreneurs are both in fact filling gaps.

Key Characteristics and Demographics of GAFC Winners

Half of GAFC winners described themselves as focused on an industry (such as life sciences or food) or a location (such as rural areas). 41% of the winners described themselves as focused on a demographic (such as women, Native Hawaiians, or veterans) or technology (such as biotech or cleantech). 10-20% described their organizations as being focused on a product, a service, or being a social enterprise. The bar chart in the next page provides with a summary.



Among the GAFC winners, healthcare/medicine was consistently the most represented category among their startups, followed by information technology (IT) and food/beverage/hospitality. Other well-represented sectors include education, manufacturing, and agriculture. Non-IT technology/science, energy, and tourism were the least represented.

Over time the SBA has awarded GAFC prizes to an increasing number of organizations that were owned or led by other underserved populations, such as racial minorities, veterans, and women.

21% of the winners had startups that were owned or led by American Indians, Alaska Natives, or Native Hawaiians. 18% had startups that were owned or led by individuals with disabilities, 70% had startups owned or led by individuals with limited access to capital, 61% had startups located in or serving economically disadvantaged areas, 42% had startups located in rural areas, 80% had startups owned or led by individuals who were racial minorities, 42% had startups owned or led by veterans, and 90% had startups owned or led by women.

GAFC winners are from 45 states, Washington DC, and Puerto Rico. Delaware, Mississippi, Oklahoma, Vermont, and Wyoming have not won any awards so far. California is home to the most winners.

Quarterly reporting shows that the average amount raised by the accelerators from outside investors (excluding the \$50,000 from the SBA) was between \$1,413,106 and \$2,636,024 and that approximately one-fifth of the winners had an operating budget greater than \$1,000,000. Funding from a single source—such as angel investors, corporations or local government funding typically comprised less than 10% of a typical GAFC winner’s operating budget.

Conclusions & Recommendations

The program can certainly be improved, but the data and results point to GACF being a successful component of supporting the American entrepreneurial ecosystem. This is especially the case with STEM-driven early stage ventures not fully served by other agency entrepreneurial programs. At a high level, some items Congress and the agency should think about:

- Establish more permanent support from a policy and funding perspective.
- Enhance the pathways for the thousands of startups being supported to “graduate” and access programs such as SBIR and STTR.
- Improve coordination with other federal agency and state, city programs. All fill different and important niches and include DOE’s Sunshot Incubator Program, HHS’ Ignite Accelerator, DHS’ Emerge Accelerator, NIH’s I-Corp and NSF’s Partnerships for Innovation. All of these have connective tissue to SBIR and STTR, which is also overseen by the U.S. Small Business Administration.
- Enforce tighter administration of the program and more robust reporting and metrics.
- Examine intra-agency overlap with other entrepreneurial support programs.
- Simplify connective tissue between SBIR/STTR and GAFC.
- Improve and continue underrepresented group and geographic gap outreach.
- Think about having different levels of award prizes.
- Tighten communication between accelerators and the SBA and with each other.
- Report on and provide mechanisms to network and distill best practices.
- Based on results and metrics, change the definition of eligible organizations.

Additional Information

- 1) Growth Accelerator Fund Competition (GAFC) -- Private Sector Partners*
- 2) GAFC -- Winners
- 3) GAFC -- Quotes
- 4) GAFC -- Case Studies + Success Stories

* Private sector entities that have invested in or otherwise provided value to GAFC winners.

GAFC Private Sector Partners

American Airlines	Louisiana Business Incubator Association
Baptist Community Ministries	Lyndhurst Foundation
Blackstone Charitable Foundation	Manuel D. & Rhoda Mayerson Foundation
Blue Cross and Blue Shield of Louisiana	Mary Freeman Wisdom Foundation Massachusetts Clean
Boston College	Energy Center
Brown-Forman	Massachusetts Life Sciences Center
Capital One	Microsoft Corporation
Chase Bank	Midwest Foods
Cherokee Preservation Foundation	Mildred V. Horn Foundation
Chicago Community Trust	New Belgium Brewing
Clemson University	Ohio Third Frontier
Coastal Community Foundation of South Carolina	Pathfinder Foundation
Colorado Health Foundation	Patrick Family Foundation
Colorado Impact Fund	Paypal
Colorado Office of Economic Development and	PNC Bank
International Trade	Procter & Gamble
Dick & Betsy DeVos Family Foundation	Roane State Community College
Douglas F. & Marion S. Attaway Foundation	Robert Wood Johnson Foundation
Duke Energy Foundation	Robin Hood Foundation
Exxon Mobil	Roy & Patricia Disney Family Foundation
Ewing Marion Kauffman Foundation	San Diego Regional Economic Dev Corporation
Eugenie and Joseph Jones Family Foundation	Shell
Fifth Third Bank	Siemens
Franks Family Foundation	Silicon Valley Bank
Gaylord and Dorothy Donnelley Foundation	Singing for Change
Goldring Family Foundation	Spaulding Paolozzi Foundation
Google	SunTurst
Greater Cincinnati Foundation	Surdna Foundation
Guggenheim Partners	Target
IBM	Texas 4000
InnovateMass Program	Union Bank of California
James Graham Brown Foundation	University of Southern Florida
JPMorgan Chase	U.S. Bank
Keller Family Foundation	VentureWell
Kickstarter	Verizon
Legler Benbough Foundation	W.K. Kellogg Foundation
Lemelson Foundation	Walton Family Foundation
Linn County Economic Development Fund	Wells Fargo
Local Initiatives Support Corporation	Whole Foods

GAFC Winners (Alphabetical by state, city, name)**Alabama**

Birmingham: Velocity (2015)

Madison: Rocket City Launch (2014)

Alaska

Anchorage: Launch Alaska (2015, 2016)

Homer: Alaska Small Business Incubator, LLC (2015)

Arizona

Flagstaff: Native American Business Incubator Network (2016)

Phoenix: BioAccel (2016); CPLC Pickle House (2015); SEED SPOT (2015, 2016)

Scottsdale: Edson Student Entrepreneur Initiative (2014)

Tucson: Arizona Center for Innovation (2014); Startup Tucson (2016)

Arkansas

Fayetteville: Startup Junkie Consulting (2015)

Little Rock: Local First Delta Spark (2016)

California

Costa Mesa: Urban Workshop (2016)

La Jolla: mystartupXX/mystartupxx at University of California, San Diego (2014, 2015, 2016)

Los Angeles: Los Angeles Cleantech Incubator (LACI) (2015, 2016); MedTech Innovator (2016)

Oakland: Impact Hub Oakland (2015)

Redwood City: NewSchools Ignite/WestEd Research Partnership (2016)

San Diego: CONNECT (2016); Hera Labs (2015, 2016); La Cocina's Business Incubator Program (2016); Rosie Network's Military Entrepreneur Center (2016)

San Francisco: Equita (2015); FAST (2016)

San Jose: Manos Accelerator (2015)

Colorado

Alamosa: San Luis Valley Local Foods Coalition (2015)

Boulder: MergeLane (2015, 2016); Unreasonable Institute (2015)

Durango: Southwest Colorado Accelerator Program for Entrepreneurs (SCAPE) (2016)

Fort Collins: Innosphere (2016)

Loveland: Warehouse Business Accelerator (2015)

Telluride: Telluride Venture Accelerator (2014)

Connecticut

Hartford: LaunchPad for Impact (2015)

Westport: Refinery (2014, 2016)

District of Columbia

Washington: EatsPlace (2014); Halcyon Incubator (2015); Launch Pad (2015); Mess Hall (2015); Village Capital (2016)

Florida

Fort Pierce: Pioneer Business Incubator (2015)

Longwood: Sunshine Labs (2014)

Miami: Venture Hive (2014)

Orlando: Starter Studio (2014); VentureScaleUp (2015)

Tampa: FirstWaVE Accelerator/Tampa Bay WaVE, Inc. (2015, 2016)

Georgia

Atlanta: FOCUS Incubator/BIG Accelerator (2015, 2016); NeuroLaunch (2016); Points of Light Civic Accelerator (2016)

Rome: Makervillage (2015)

Hawaii

Honolulu: XLR8UH (2015, 2016)

Kahului: Maui Food Innovation Center—Maui Accelerator Program/Maui Food X-celerator (15,16)

Kailua-Kona: GVS Transmedia Accelerator (2014, 2015, 2016)

Waimanalo: Ho'okahua Capacity-Building Accelerator (2016)

Idaho

Nampa: James E. Hogge Technology and Entrepreneurial Center (2014)

Illinois

Champaign: I-Start (2015)

Chicago: Bunker Labs (2016); Good Food Business Accelerator Incubator without Walls (2014, 2016); Fulton-Carroll Center (2015); Impact Engine (2015); PROPEL at the iBIO Institute (2016); WiSTEM (2016)

East Hazel Crest: Park Forest Maker Space (2014)

Glencoe: Windy City Harvest (2016)

Park Forest: SouthWorks MakerLab in Park Forest (2015)

Indiana

Anderson: Flagship Accelerator Program (2015)

Fort Wayne: Northeast Indiana Innovation Center (2016)

Iowa

Cedar Rapids: Entrepreneurial Development Center, Inc. (2015); Iowa Startup Accelerator (2014, 2015)

Kansas

Independence: Fab Lab ICC (2016)

Lawrence: Bioscience & Technology Business Center (2014, 2016)

Topeka: 712 Innovations (2014)

Kentucky

Covington: UpTech, Inc. (2014)

Louisville: Chef Space (2016); LVL1, Inc. (2015); XlerateHealth (2014, 2015, 2016)

Louisiana

New Orleans: Idea Village (2015); New Orleans BioInnovation Center (2016); PowerMoves.NOLA (2015);

Propeller: A Force for Social Innovation/Propeller (2015, 2016)

Shreveport: Cohab (2016)

Maine

Portland: E2Tech—Environmental & Energy Technology Council of Maine (2015); Maine Center for Entrepreneurial Development (2015)

Maryland

Baltimore: FastForward (2016)

Columbia: Accelerator for the Commercialization of Technology (2014)

Rockville: Relevant Health (2015)

Massachusetts

Beverly: North Shore InnoVentures, Inc. (2016)

Boston: Fraunhofer TechBridge (2015); InciteHealth (2015); Smarter in the City (2014)

Lowell: EforAll (2016)

Somerville: Greentown Labs (2015)

Worcester: Massachusetts Biomedical Initiatives (2016)

Michigan

Battle Creek: Inge's Place (2015)

Detroit: NextEnergy (2015)

Harbor Springs: Coolhouse Labs (2014)

Lansing: Lansing PROTO (2016)

Minnesota

Minneapolis: NEON Business Incubator (2016)

Missouri

St. Louis: BioSTL Fundamentals (2016); Prosper Women Entrepreneurs Startup Accelerator/Prosper Startup Accelerator/Prosper Women Entrepreneurs (2014, 2015, 2016)

Montana

Bozeman: 406 Labs (2015, 2016)

Nebraska

Omaha: Year of the Startup (2015, 2016)

Nevada

Las Vegas: Mill (2016)

Reno: Center for Unique Business Enterprises (2014)

New Hampshire

Keene: Hannah Grimes Center (2015)

Lebanon: New England Pediatric Device Consortium (2016)

New Jersey

Bridgeton: Rutgers Food Innovation Center—Rutgers Food Accelerator (2014)

Ironia: Great Turning Advisors Social Business Accelerator (2015)

New Mexico

Albuquerque: ABQid (2016); Creative Startups Accelerator/Creative Startups (2015, 2016); iGNITE Community Accelerator (2016); Native Entrepreneur in Residence Program/Native Entrepreneur in Residence (2015, 2016)

New York

Brooklyn: Manufacture New York (2014, 2015); Veteran Incubator (2016)

Buffalo: Upstate Accelerator (2016)

Ithaca: Passenger to Pilot: Empowering Women Entrepreneurs (2015); Southern Tier Hardware Accelerator (2014)

Long Island City: Coalition for Queens (2015, 2016)

New York: Harlem Biospace (2016); KiILN—Keystone for Incubating innovation in Life Sciences Network (2015);

Minority Venture Partners Accelerator (2015)

North Carolina

Charlotte: City Startup Labs (2014); RevTech Labs/RevTech Labs & QC FinTech (2014, 2015)

Cherokee: Cherokee Center for Cultural Art and Technology (2016)

Durham: First Flight Venture Center (2015, 2016)

Wilmington: Center for Innovation and Entrepreneurship (2014)

North Dakota

Grand Forks: Autonomous Alley (2016)

Ohio

Cleveland: VictoryStart (2015)

Cincinnati: The Brandery (2014); First Batch (2015); Mortar (2016)

Toledo: University of Toledo Launchpad Incubator (2016)

Oregon

Medford: Sustainable Valley Technology Accelerator/Sustainable Valley Technology Group (2014, 2015)

Portland: Authentically Confederated Tribes of Warm Springs (2016); ONABEN (2015); Oregon BEST StartSpace (2015); Portland State University Business Accelerator (2014)

Pennsylvania

Allentown: Bridgeworks Enterprise Center (2014)

Harrisburg: Ben Franklin Techcelerator (2016)

Philadelphia: University City Science Center (Digital Health Accelerator/Phase 1 Ventures) (2015, 2016)

Pittsburgh: AlphaLab Gear/Alpha Lab (2014, 2016); Neo Lab: Fast Track to Inclusiveness (2014)

Reading: IDEA Food Accelerator (2015); Jump Start Incubator (2014)

Puerto Rico

San Juan: Codetrotters Academy/Accelerator (2015); EnterPRize Accelerator (2015); Piloto 151 (2014)

Rhode Island

Providence: Social Enterprise Greenhouse Accelerator (2015)

South Carolina

Charleston: Dirt Works Incubator Farm (2014); Local Works (2015, 2016)

Greenville: Greenville Chamber Minority Business Accelerator Program (2015)

North Charleston: Fresh Future Farm, Inc. (2015)

South Dakota

Sioux Falls: SDTBC Business Launch Boot Camp and Accelerator

Tennessee

Chattanooga: CO.LAB (2015); Launch Chattanooga (2016); Launch TN (2016)

Crossville: Cumberland Business Incubator (2014)

Memphis: Start Co. Integration Accelerator (2014, 2015); ZeroTo510 (2016)

Nashville: Jumpstart Foundry (2014); LaunchTN Network (2016)

Texas

Austin: Dreamit Ventures (2014); Texas Health Catalyst (2016)

Texas (cont.)

Dallas: EMERGE powered by Tech Wildcatters (2015)

El Paso: RedSky (2015)

Houston: Circular Board (2016); Fannin Innovation Studio (2016); SURGE Accelerator (2016)

San Antonio: Break Fast & Launch (2014); Live Work Unit Accelerator (2015)

Utah

Salt Lake City: BoomStartup Online (2016); Sustainable Startups (2014, 2015)

Virginia

Arlington: Eastern Foundry (2015); Jefferson Education Accelerator (2016)

Hampton: Peninsula Technology Incubator (2014, 2015)

Manassas: Prince William Science Accelerator (2016)

Richmond: Lighthouse (2015)

Williamsburg: AccelerateHER™, Inc. (2016)

Washington

Seattle: WIN for Life Sciences Entrepreneur Mentoring Program (2016)

Spokane: Ignite Northwest (2015)

Tacoma: The Wedge (2016)

West Virginia

Beckley: West Virginia Hive (2015)

Wardensville: New Biz Launchpad (2016)

Wisconsin

Kenosha: Launch Box Growth Accelerator (2014)

Milwaukee: Manufacturing Diversity Institute (2016); Vettransfer (2014); WERC Bench Labs (2015)

GAFC Quotes

"We've served as a pillar tenant in the turnaround of the Over-the-Rhine neighborhood in Cincinnati. Many of our startups have also opened and will open offices around the area which has contributed to the revitalization of what used to be one of the country's most dangerous neighborhoods."

"The SBA prize and our ability to use that cash to accelerate our activities have helped grow the program internationally. We received 110 applications from 21 countries and 21 US states. This impacts Charlotte as a national/global player in innovative financial technology. It has helped us close a partnership with Wells Fargo."

"...highly promoted in our local media and we received quite a bit of attention and kudos for the recognition. Boise State was very impressed and we are now invited to the table when discussions of economic development programs on campus arise. President Obama recently visited Boise State, and their original inquiry was about the TECenter -we believe in large part because we were one of the winners of this award!"

"The SBA grant inspired and enabled us to launch Piloto Labs, a unique and innovative non-profit comprised of over 15 grass roots organizations in the startup and tech ecosystem that collaborate in the creation of innovative programs and activities for the next generation of Puerto Rican entrepreneurs."

"Jumpstart Foundry is bringing the corporate and startup worlds closer together in the Nashville area through continued partnership, corporate innovation engagements, and events. We have established a partnership with Vanderbilt's undergraduate entrepreneurship club, which will create a pipeline to retain high quality talent in Nashville, provide strong interns for emerging companies, and raise awareness of entrepreneurship as a viable career path."

"The SBA announcement and subsequent visit by the local SBA office, and city and state officials was covered by local press, and was an excellent validation of the strength of the Roxbury neighborhood of Boston and the role that underserved communities can have in the high-tech sector. In our first 7 months of operation, we have hosted dozens of meetings and presentations with and by leaders in the Boston area tech sector. Roxbury, specifically Dudley Square is now of interest to the whole city, and it should no longer be a "surprise" for innovative new businesses to rise up here."

"Due in large part to the support of the SBA, Sustainable Startups has been able to provide a supportive, collaborative community for early-stage, values driven entrepreneurs, many from underserved communities. The SBA prize allowed us to open a new, larger co-working and incubation facility in downtown Salt Lake at the end of 2014. A year ago, there was no community for individuals interested in entrepreneurship and looking to take the first step. Now that community exists."

"XLerateHealth is intimately involved in Louisville's local startup community, and as such, we bring awareness to the economic importance of fostering young startups. We have also established a partnership with I.D.E.A.S. 40203, a Louisville community development organization, to pair artists with startup companies in an effort to encourage creativity and collaboration in the business world. Outside of our direct impact on Louisville, XLerateHealth's graduates have reported individual positive effects on their own communities."

"DreamIt Access, a multi-year commitment to launch minority-led startups in New York and Philadelphia, has helped build a more diverse startup ecosystem by recruiting and developing high potential tech startups with ethnically diverse founding teams. Sponsored by Comcast Ventures, DreamIt Access has launched 25 minority-founded startups since 2011. With receipt of the SBA prize, along with a Pennsylvania Department of Community & Economic Development award, DreamIt Ventures recently launched DreamIt Athena, an accelerator track focused on providing female startup founders with hands-on support to hone their ideas...

"The SBA prize facilitated the relocation of the business incubator to an emerging part of Reno (Midtown Reno) and increase capabilities of the incubator"

"Since our program's inception, UpTech has had a very unique partnership with Northern Kentucky University (NKU). This collaboration has been particularly effective in impacting students across the university --pairing them with our startups to yield real-world experience. What started out as a unique differentiator for our program with the NKU College of Informatics (given our program's focus on informatics) now includes many partnerships, including with the Haile/U.S. Bank College of Business, the Chase College of Law, and several other campus units."

"The major news is that the SBA Accelerator Grant helped us seal the deal on a \$3.5M grant from the Mayor's Office & the NYCEDC on December 4th, 2014. That will allow us to bring at least 280 high quality, middle class jobs to Sunset Park (which is an 87% minority community that was deeply affected by Hurricane Sandy in 2012). Plus, we are now working on a workforce training program with NYCSBS and the Dept of Labor/Commerce."

GAFC Case Studies + Success Stories (Five)

Profile: Supporting Cleantech for the Local Economy

The Los Angeles Cleantech Incubator (LACI), a 2015 and 2016 GAFC winner, aims to "build an ecosystem that supports innovation in sustainable technologies, de-risks the commercialization process, and helps companies deliver market-ready cleantech solutions while fostering the creation of well-paying jobs and support services." It is a private nonprofit organization founded in 2011 as a "cluster-driven economic development initiative supported by the City of Los Angeles, the Los Angeles Department of Water & Power, and the Community Redevelopment Agency of Los Angeles." LACI's startups operate in agriculture, education, energy, information technology (IT), manufacturing, and non-IT technology/science.

LACI is led by a racial minority, a veteran, and a woman, and it has used GAFC funds to support a number of diversity programs, including a steering committee on women in cleantech and a diversity and inclusion advisory council. Similarly, its startups are led/owned by racial minorities, veterans, women, and those who have limited access to capital from traditional sources or are located in or serving an economically disadvantaged area. LACI is a strong believer in diversity: "Diversity is not solely a social issue. It is also the key to the robust and enduring technological innovation needed to overcome the global resource and ecological dilemma[s] that face the world today." It has been recognized by UBI Global, a Sweden-based data and advisory firm specializing in mapping and highlighting the world of business incubation, as "one of the most innovative business incubators in the world." It has helped 67 companies raise \$135 million in funding, created 1,500 jobs, and delivered more than \$335 million in long-term economic value for the city of Los Angeles.

Source: FRD, "Survey of 2014+ 16 GAFC Winners"; LACI, "Homepage," accessed September 28, 2017, <http://lincubator.org>; "First Impact Report on Economic, Environmental and Social Performance of Clean Technology Companies Released by Los Angeles Cleantech Incubator," *Businesswire.com*, July 12, 2017, <http://www.businesswire.com/news/home/20170712005997/en/Impact-Report-Economic-Environmental-Social-Performance-Clean>.

Profile: Supporting Small Businesses in Federal Government Contracting

Eastern Foundry is a young, Arlington, Virginia-based co-working startup community that won the GAFC award in 2015, the same year it was founded. Its niche is helping small government contractors build federal sales capabilities, primarily in the education, energy, healthcare/medical, and IT fields. In order to compete with large government contractors, participating in a co-working setup such as Eastern Foundry can help small government contractors "consolidate the buying and resources of a community of small businesses so that [they] can engage with the market effectively."

Started by four veterans, Eastern Foundry acts as a modified incubator/accelerator, offering educational resources, physical workspace, professional services, and community for innovative tech startups. "The inspiration and core of the business model are rooted in the proven incubator and accelerator models modified to the dynamics of the government contracting market. . . . The growth cycle for government companies is quite long so [it has] to have a model that support[s] companies over years," according to one of founder, Geoff Orazem.

After opening its first location in Crystal City in December 2014, Eastern Foundry expanded to a second location in Rosslyn in June 2016, which houses 138 small government contractors. Eastern Foundry has "a lot of aspirations in growing in different cities and different communities." Aside from the GAFC prize and a small amount of personal capital, Eastern Foundry is supported largely through membership dues.

Source: FRD, "Survey of 2014+ 16 GAFC Winners"; Tajha Chappellet-Lanier, "Eastern Foundry is Bringing a Little Startup Shine to the Government Contracting Space," *fedcoop.com*, July 25, 2017, <https://www.fedcoop.com/eastern-foundry-incubator-federal-contractors/>; Jill R. Aitoro, "Eastern Foundry to Launch Government Contracting Incubator, Signs Lease in Crystal City," *Washington Business Journal*, November 4, 2014, https://www.bizjournals.com/washington/blog/fedbiz_daily/2014/11/eastern-foundry-to-launch-government-contracting.html; Eastern Foundry, "Homepage," accessed September 29, 2017, <http://eastern-foundry.com/>.

Profile: Developing Entrepreneurship in Local Underserved Communities

The Cincinnati-based Mortar accelerator hybrid, a 2016 GAFC winner, aims to "enable underserved entrepreneurs and businesses to succeed; creating opportunities to build communities through entrepreneurship." It offers a traditional accelerator course, access to retail pop-up space, and access to capital for local businesses in the Over-the-Rhine neighborhood, a traditionally working-class area that is more than 75 percent African American. When asked about its challenges, a Mortar representative responded: "One of the most significant challenges Mortar faces is accessing capital. For many Cincinnati entrepreneurs, especially those coming from low-income homes, access to traditional capital is nearly impossible." The organization believes that "by targeting underserved and redeveloping communities, we're offering these nontraditional entrepreneurs the opportunity to use their inherent talents to not just make a dollar, but to positively participate in the rise of Cincinnati." After only three years in business, Mortar's founders believe that "Cincinnati has definitely already benefited from our entrepreneurship program, leading to improved quality of life, business ownership, job creation, and a flourishing local economy."

For the most promising startups, Mortar provides small amounts of angel or seed money and specialized or structured loans. In total, between 2014 and 2016, Mortar invested \$21,000 in its startups. Four Mortar-trained startups secured additional funding upon graduating from the program. Mortar estimates that 36–40 startup jobs could be directly or indirectly attributed to the GAFC award. The organization has a diversified funding base, with half of its annual operating budget coming from family/friends/self, corporate, and local government contributions. The other half comes from a variety of foundations, banks, and other financial institutions.

Mortar has gained a lot of support and publicity in its three short years. Two of its three cofounders, Derrick Brazier and William Thomas, were featured in *Forbes* magazine's 2016 "30 under 30" list as social entrepreneurs. The third cofounder, Allen Woods, has dedicated his career to empowering minority business owners, bringing people who often feel like outsiders into the entrepreneurial community. In July 2017, AOL cofounder Steve Case visited Mortar as part of his "Rise of the Rest" tour, which aims to bring attention and capital to startups and talent between the east and west coasts. Also in July 2017, Mortar was featured on *NBC Nightly News*.

Source: FRD, "Survey of 2014–16 GAFC Winners"; Mortar, "Homepage," accessed September 29, 2017, <https://wearemortar.com/>; *NBC Nightly News*, "These Cincinnati Residents are Building New Businesses as Their Neighborhood Changes," July 31, 2017, <https://www.nbcnews.com/nightly-news/video/these-cincinnati-residents-are-building-new-businesses-as-their-neighborhood-changes-735669315965>; Caroline Howard with Emily Inverso, "2016 30 Under 30: Social Entrepreneurs," *Forbes*, accessed September 29, 2017, <https://www.forbes.com/pictures/akhd45ml/derrick-brazier-29-wil/#7fba6f6675e1>.

Profile: Supporting Women and Minorities in Tech

2015 GAFC winner Minority Venture Partners Accelerator (MVP) is a nonprofit program that helps women- and minority-owned startups commercialize their digital, social, and mobile innovations. Ultimately, its mission is to "increase and expand minority and women-led tech companies across the tri-state area." MVP works with the New York Institute of Technology's School of Management to provide minority tech founders with "access to tech talent, knowledge, mentors, networking, and startup capital in order to successfully bring their product/service to market." MVP considers itself a hybrid incubator/accelerator that supports the development of new technologies and prototypes and then connects entrepreneurs to industry partners. MVP was cofounded and launched by Vanguard Consulting Group, a venture-in-residence at the institute's Center for Entrepreneurial Studies. In 2016, D. Bernard Webster, a managing partner at MVP and Vanguard, reported that MVP "is committed to generating funding to invest growth capital into more than 90 companies over the next four years."

Source: FRD, "Survey of 2014–16 GAFC Winners"; Minority Venture Partners Accelerator, "Homepage," accessed September 29, 2017, www.mvpaccelerator.com/; Carolyn Brown, "New Startup Accelerator Addresses Needs of Minority and Women Entrepreneurs Who Have Limited Access," *Black Enterprise*, March 3, 2016, <http://www.blackenterprise.com/small-business/new-technology-business-accelerator-addresses-needs-of-minority-and-women-entrepreneurs/>.

Profile: Supporting Women Startups in STEM

Three-time GAFC winner mystartupxx (MSXX) is a university-based accelerator focusing on women in STEM—providing them with mentorship, education, and avenues toward funding. MSXX's ultimate goal is to increase and encourage diversity in entrepreneurship. It is housed within the Rady School of Management at the University of California, San Diego, and claims to be "the only accelerator that focuses on females and STEM while they are still at universities." The MSXX program involves building teams, assessing markets, creating value propositions, validating business models, understanding the financing strategies needed to launch a business, and working with mentors and advisors who provide guidance and encouragement. As part of a university, MSXX can't provide funding to startups but it does help connect its students with potential investors to get their feet in the door.

MSXX reports that venture capital (VC) funding is "a huge challenge for women because only approximately four percent of [venture capitalists] are female, and only three percent of VC funded companies have a female CEO." MSXX also states that "mentorship and networking are challenges for women because of the small pool of successful entrepreneurs who have started and run a tech-based company." The MSXX program has developed an ever-growing, diverse community of founders to support and network with one another. The accelerator has supported 26 female-led startups, which have raised more than \$8 million in funding. Since its creation in 2012, the program has grown exponentially, a factor that MSXX cofounder Lada Rasochova attributes to the GAFC program. She considers GAFC "one of the best programs we have experienced. It put us on the map and led to us raising funds from the state."

Success Story: One MSXX student, Rady alum Ashley Van Zeeland, launched the life sciences startup Cypher Genomics in the accelerator and later developed it into a very successful business. Last year, the company was acquired by the biotechnology firm Human Longevity, where Van Zeeland is currently the chief technology officer.

Source: FRD, "Survey of 2014+ 16 GAFC Winners"; mystartupxx, "Homepage," accessed September 28, 2017, <http://rady.ucsd.edu/centers/ciid/mystartupxx/>; Lada Rasochova, "How We Won \$50,000 in SBA Growth Accelerator Fund Contest," xconomy.com, September 12, 2016, <http://www.xconomy.com/san-diego/2016/09/12/how-we-won-50000-award-in-sba-growth-accelerator-fund-contest/#>.

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Ronald D. Shroder

Congressional Testimony

September 19, 2019

House of Representatives

Committee on Small Business Subcommittee on Innovation and Workforce Development

SBA Programs Spurring Innovation

1. 1. Opening – Greeting and Context (SBIR History)

- Chairman Crow, Ranking Member Murphy, and members of the Subcommittee on Innovation and Workforce Development,
 - Thank you for the invitation to speak to you today.
 - It is an honor to participate in your hearing on such an important topic as ways for SBA Programs Spurring Innovation, especially with FTI's history with the Small Business Innovation Research (SBIR) program.
- The history of the SBIR Program starts with National Science Foundation in 1977.
 - Quickly SBA realized it should be across the Federal Government and by 1982, President Reagan signed it into law.

2. Economic Studies

- Over the last 20 years, there have been nearly 2 dozen studies on the effectiveness of the program. All reinforce the conclusion that the Program is the Government's most successful R&D and Small Business program ever.
 - Per a National Cancer Institute study, the investment in the Phase I and II Program over the appropriate period generated more than 3 times that in additional tax revenue, 10 times that in additional revenue for those companies and over 100,00 new jobs.
 - At the DoD level, not only has the program provided important technology to the warfighter, but just one program (the Joint Strike Fighter) reported huge cost savings. F-35 identified \$500 million in savings from SBIR technologies.
- In DoD related studies, a Return on investment (ROI) of 12, 19 and 23 were published.
- Through this program & its success, you have become the Shark Tank of the US Government and created a virtual Silicon Valley across all of your districts. You should be very proud.

3. Education for SBIR

- As you consider ways to spur more economic growth through small business, make sure you understand where the real jobs come from.
 - The community becomes focused on the funding allocated to the Phase I & II awards.
 - However, that is a minor piece of job growth. They fund small businesses to assemble a team of a very limited number of engineers, analysts, and / or other creative problem solvers to develop innovative concepts and then prototypes in response to government expressed needs.



- However, significant jobs come during the Phase III when the technologies solve real problem for customers who have funding. As long as those customers have easy access to the Phase III technologies, real economic and job growth begins, assuming the efforts are “work that derives from, extends, or completes a SBIR Phase I or II effort.”
 - Jobs, Jobs and More Jobs.

4. Thank you - Congress makes a difference

- This committee’s role has been critical as it has adapted the SBIR Program over the 37 years to strengthen and expand the Program.
 - Your pressure on organizations has caused them to educate their community via handbooks that have made a dramatic difference,
 - Getting rid of size standards so the technologies could continue to be used even if the company grew beyond Small Business limits,
 - Supporting the 3% administrative fee for the Government organizations,
 - Urging organizations to speed up the contracting cycle,
 - Providing Rapid Innovation Funds to minimize risk,
 - Strengthening a SBIR firm’s data and Intellectual Property rights.
 - The most significant recent change is requiring agencies to award follow on Phase III contracts to SBIR firms if appropriate. A recent revision of the SBIR/STTR Policy directive based on Congressional intent, strengthens the acquisition requirement to
 - “issue Phase III awards relating to the technology, including sole source awards, to the Awardee that developed the technology under an SBIR/STTR award, to the greatest extent practicable, consistent with an Agency’s mission and optimal small business participation.” and
- So again.... From FTI, our incredibly talented employees and their families . . . thank you for what you are doing!

5. Improvements?

- However, like your predecessors, you have a chance to make additional significant impacts.
 - The first would be to go ahead and make the program Permanent. Thirty-Seven years of successful economic and job growth shows it is a program that should continue.
 - Establish reviews to assure the program stays aligned to your intents
 - Continue the program with key pieces like the 3% administrative allocation and RIF funds to facilitate risk reduction of new technologies
 - And finally, keep the focus on US owned, technology based small businesses, and not on Venture Capital Investors.
 - We will continue to do our best, increase the ROIs, and make you very proud of the program that continues to evolve.

Thank you for inviting me to speak today.



Attachments and Informational References / Links



- Attachments and links to referenced documents

-

- Link to SBIR-STTR Policy Directive
 - <https://sbir.tv/SBA-SBIR-PD-4-2-19.pdf>

Excerpt from: page 12812 Federal Register/Vol. 84, No. 63/Tuesday, April 2, 2019/Notices

(7) Special acquisition requirement.

Agencies or their Government-owned, contractor-operated (GOCO) facilities, Federally-funded research and development centers (FFRDCs), or Government prime contractors that pursue R/R&D or production of technology developed under the SBIR/ STTR program shall issue Phase III awards relating to the technology, including sole source awards, to the Awardee that developed the technology under an SBIR/STTR award, to the greatest extent practicable, consistent with an Agency's mission and optimal small business participation.

(i) Implementing the requirement. In recognition of the prior merit-based competitive selection of, and subsequent commitment of agency funds to SBIR/STTR Awardees and the broad intent of the program to promote the commercial success of these small businesses, Agencies must make a good faith effort to negotiate with such Awardees regarding the performance of the new, related, work and to issue Phase III awards for the work. When implementing this requirement, the agency will evaluate the work for consistency with its documented mission requirements and must consider the practicality of pursuing the work with the Awardee through a direct follow-on award by performing market research to determine whether the firm is available, capable, and willing to perform the work. If an award is made, the Agency must identify the funding agreement as an SBIR or STTR Phase III. The Agency must act in ways consistent with the Congressional intent to support the Commercialization of an SBIR/ STTR-developed technology by the SBIR/STTR Awardee, and all parties must proceed along these steps in good faith.

(ii) Sole Source Awards. If pursuing the Phase III work with the Awardee is found to be practicable, the agency must award a non-competitive contract to the firm.

(iii) Other Preference. If pursuing Phase III work with the Awardee on a sole source/non-competitive basis does not meet the requirements set forth in the above sections regarding availability, practicality and capability, the Agency must document the file and provide a copy of the decision, including the rationale, to the SBA.

- Link to DoD SBIR/STTR Economic Impact Study August 2018 (attached below)
 - <https://business.defense.gov/Portals/57/Documents/BPIIMPTW18%20slides/sbir%20overview%20friesenhahn.pdf?ver=2018-08-21-194211-253>



- Link to AF Economic Impact Study
 - <https://www.sbir.gov/sites/default/files/USAF%20SBIR-STTR%20Economic%20Impact%20Study%20FY2015.pdf>
- Link to Navy Economic Impact Study
 - http://www.secnav.navy.mil/smallbusiness/Documents/DON-SBIR_STTR_Guidebook_V1_2-Apr-16.pdf
- Link to Navy Phase III Guidebook v. 1.2
 - http://www.secnav.navy.mil/smallbusiness/Documents/DON-SBIR_STTR_Guidebook_V1_2-Apr-16.pdf
- Link to Air Force Guidebook
 - http://www.wpafb.af.mil/Portals/60/documents/afri/sbir/PhaseIII_Booklet-APR2017-FINAL-WEB.pdf?ver=2017-04-07-124631-293
- Link to SBTC-SBIR Presentation for DOD
 - <http://sbtc.org/wp-content/uploads/2019/04/SBTC-SBIR-Presentation-for-DOD-RE.pptx>
- Jere Glover Testimony 2019
 - <https://sbtc.org/wp-content/uploads/2019/05/Jere-Glover-Testimony-5-24-Revised.pdf>



DoD SBIR/STTR Economic Impact Study August 2018

- <https://business.defense.gov/Portals/57/Documents/BPIIMPTW18%20slides/sbir%20overview%20friesenhahn.pdf?ver=2018-08-21-194211-253>



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DoD SBIR/STTR Economic Impact Study

Preliminary Results

August 14, 2018

Ray Friesenhahn, MBA, CLP
SBIR & Technology Transition Manager



Background

- Largest, most comprehensive SBIR study ever undertaken
 - Nearly 17,000 DoD Phase II SBIR/STTR contracts
 - Start dates FY1995 through FY2012
 - Total award value \$14.3B
 - Over 4,400 different companies
 - Many acquired, merged, changed names, or out of business
 - Over 93% of companies (with 95.7% of records) complied with data requests
 - Only 1.8% of companies refused to participate
- Builds on foundation of prior national-level SBIR/STTR studies:
 - ✓ *Air Force SBIR/STTR Economic-Impact Study, 2000-2013 end dates (2014)**
 - ✓ *Navy SBIR/STTR Economic-Impact Study, 2000-2013 end dates (2016)**

*available for download at SBIR.gov and TechLinkCenter.org





Methodology

- Initial award and contact info from DoD SBIR/STTR awards database
 - Awards verified using CCR, FPDS, DTIC reports, company input
 - Many additions, corrections to total data set
- Team of 12 experienced market and economic research professionals
 - Standardized methodology, with simple, easy questions
 - Continuous team training and group feedback
 - Emphasized courteous approach, minimal time intrusion
 - Encouraged record trading for different perspectives and approaches
- Assurances that financial data will not be shared with public or government
 - Only aggregated financial data is reported
 - Companies may be asked if willing to participate in written or video Success Story
 - Participation may contribute to future of SBIR program

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Methodology, *cont.*

- Basic questions included:
 - Total sales of new products and services (including R&D) related to DoD SBIR/STTR outcomes?
 - Total military sales (direct to US military or via defense Prime Contractors)?
 - Other sales (licensing income, sales by licensees or spin-out companies)?
 - Other economic results (outside investments, spin-out creation, sale of company)?
- University of Colorado economists will analyze survey data using IMPLAN model:
 - Estimate multiplier effects (*direct and induced*) on national economy
 - Total economic output; value added; employment; labor income; tax revenues

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Preliminary Results*

- More than 60% of contracts had follow-on economic results
- Total combined sales of \$125 billion
 - Military sales total \$28 billion
 - Commercial sales total \$76 billion
 - Sales numbers are extremely conservative
- Estimated total economic impact of \$325 billion
 - Estimated overall ROI 23:1
 - Does not include investments, sale of companies, etc.
- Results by year show accumulating growth of economic impacts

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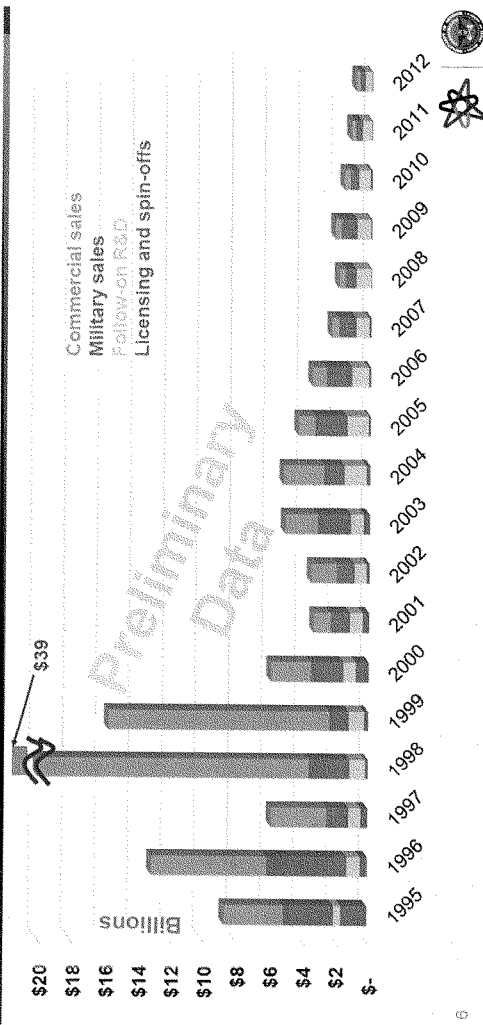
*Prior to final data validation and IMPLAN modeling



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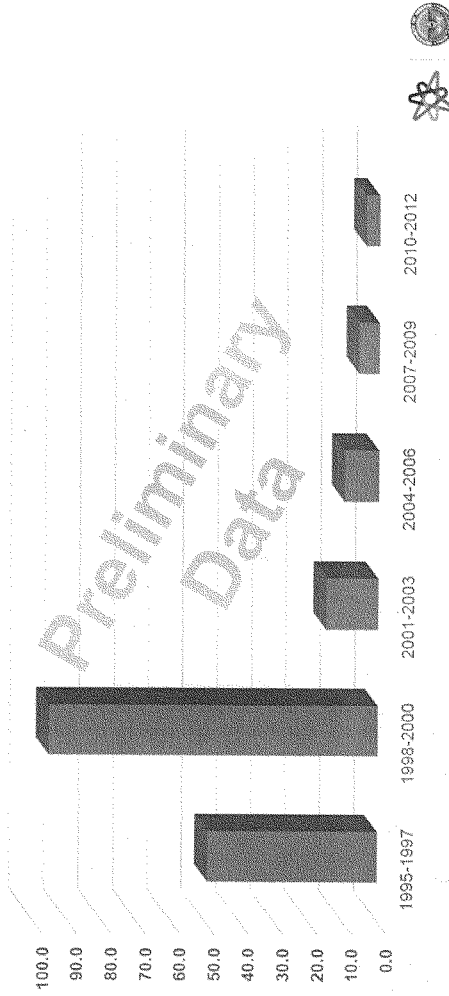


Follow-on Revenues by Year of Award





Est. ROI by Year of Award (3-year avg.)





DoD SBIR/STTR Success Story Examples

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To view dozens of DoD SBIR/STTR Success Story videos and more, go to:
TechLinkCenter.org : Activities : Economic Impact Studies



Insitu Group Inc.

N94-130 "Development of a Prototype Research Facility for Aerosondes within CIRPAS"
(Center for Interdisciplinary Remotely-Piloted Aircraft Studies)
(N00014-96-C-0115 awarded 9/30/96)

- Led to 1st transatlantic UAV flight
 - Aug. 21, 1998: 26 hrs, 2 gal fuel
- SBIR "instrumental" for NextGen UAVs
 - "100% attributable to this SBIR award"
 - o Steve Sliwa, former CEO
- Led to 2008 acquisition by Boeing
- >1 million hours of flight time
- "Single-handedly grew local area out of HUB zone"



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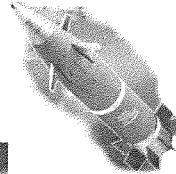




Versatron Corp.

N93-096 "Low Cost Control System Components for Gun Launched Projectiles"
(N00178-95-C-3027 awarded 12/15/94)

- High-G Control Actuation System (CAS): 15,000 G's
- Enabled Excalibur (M982) 155mm precision-guided artillery round with extended range (25 miles)
- Integrated GPS for high precision (5m – 20m CEP), low collateral damage
- Highly successful, next-gen family of projectiles for the U.S. Army and Marine Corps artillery
- Versatron now part of General Dynamics OTS
- GD-OTS has delivered over 10,000 CAS units to Raytheon for Excalibur



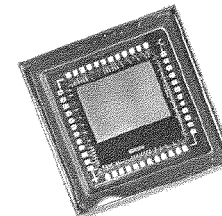
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Photobit Corp.

BMDO97-003 "Visible CMOS Imager with Ultra High Dynamic Range"
(F33615-97-C-1111 awarded 5/1/97)

- Helped develop CMOS technology now in nearly every cell phone, camera, security system, and newer model vehicle worldwide
 - Spun out of NASA JPL in 1995 with patent licenses
 - Phase II SBIRs from NASA and BMDO in FY1997
 - Army and DARPA Phase II SBIRs in FY1998
 - Acquired by Micron Technology in 2001
 - Co-inventors, founders Drs. Eric Fossum & Sabrina Kemeny noted that the DoD SBIRs focused on performance, were critical to company's success



11 "Success has many mothers and fathers" – Eric Fossum 2015

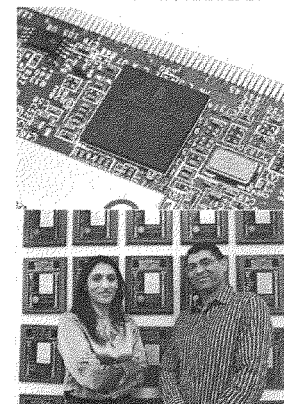




Physical Research, Inc.

SB971-038 "Design of GPS Receiver Module on a Single Silicon Chip"
(DAAH01-98-C-R142 awarded 6/11/98)

- Led to Bluetooth and WiFi chips, merged into **Broadcom**, with major share of mobile market
 - PI Reza Rofougaran, fled Iran in 1980s, '98 UCLA PhD
 - Founded Innovent Systems (2000) with sister Maryam
 - 2002 Broadcom merger for \$440M stock
 - Broadcom co-founder Henry Samueli was Reza's UCLA mentor
 - Now at Movandi, both named among "Top 5 Technology Innovators" for 2017



12 Reza: "This is the only place in the world this could happen. There are no limits,
no discrimination for any solid business idea and a person who can implement it."



Questions?

