



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)**

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*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





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





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

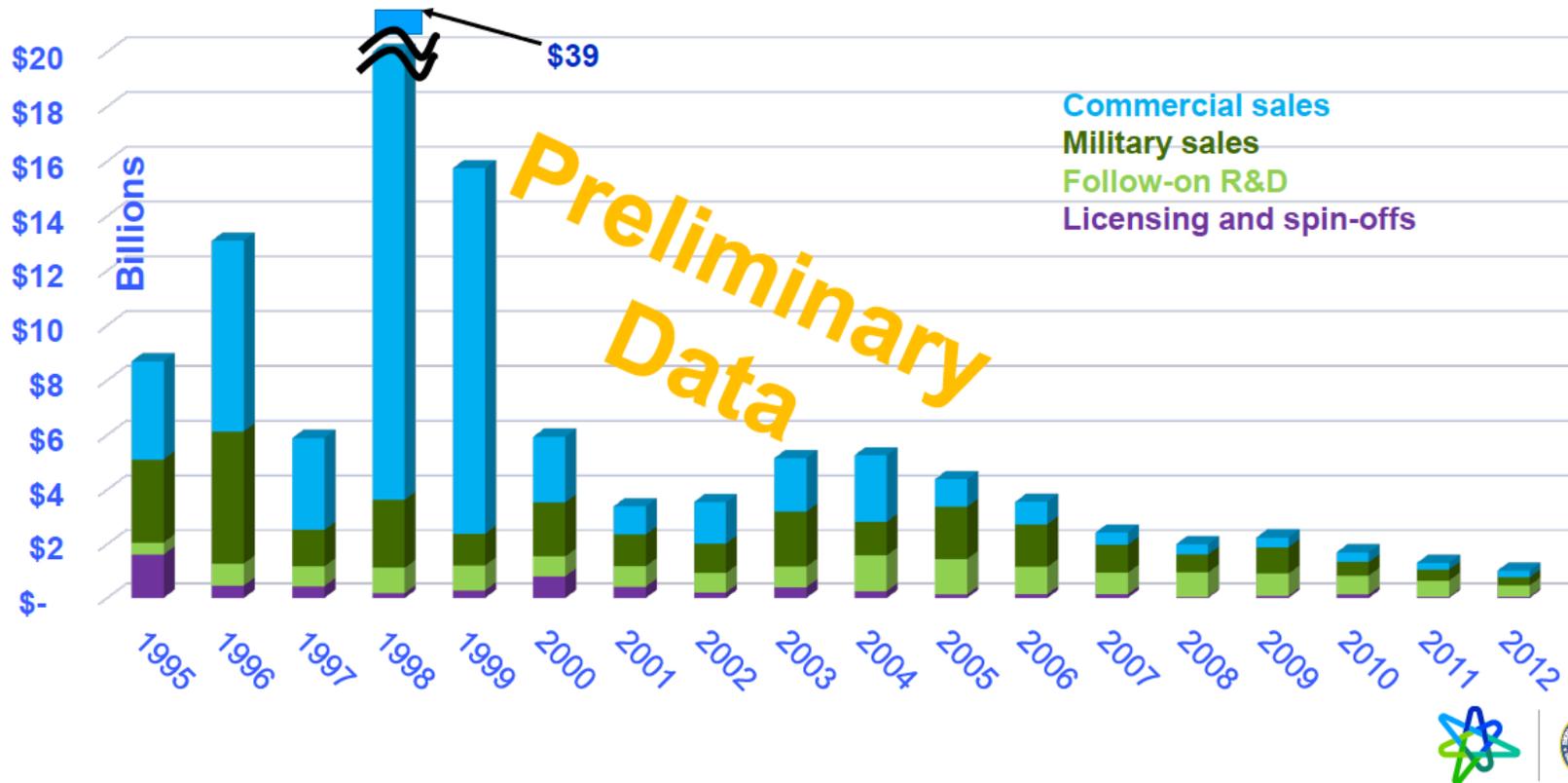
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*Prior to final data validation and IMPLAN modeling





Follow-on Revenues by Year of Award





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



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DoD SBIR/STTR Success Story Examples

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 Aerossondes 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”
 - 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”





Versatron Corp.

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

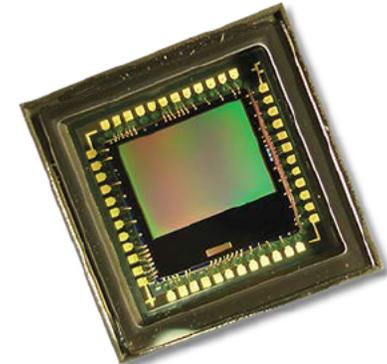
- High-G Control Actuation System (CAS): 15,000 G's
- Enabled Excalibur (M982) 155mm precision-guided artillery round with extended range (25 miles)
- Integrated GPS for high precision (5m – 20m CEP), low collateral damage
- Highly successful, next-gen family of projectiles for the U.S. Army and Marine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



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



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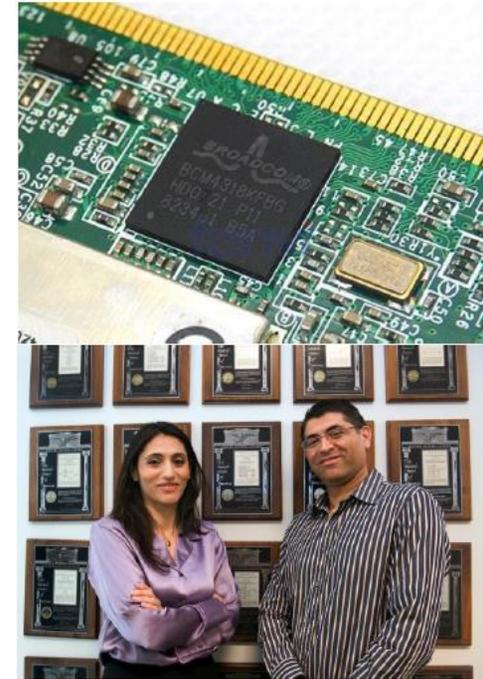
“Success has many mothers and fathers” – Eric Fossum 2015



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



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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?

