



# U.S. Department of the Navy **SBIR/STTR PROGRAM**

**Defense Innovation for the Warfighter.  
Commercial Innovation for the Nation.**

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The mission of the Navy is to maintain, train and equip combat-ready Naval forces capable of winning wars, deterring aggression and maintaining freedom of the seas. The SBIR/STTR\* Program provides innovation for this mission and also delivers commercial innovation to American consumers – a unique contribution.

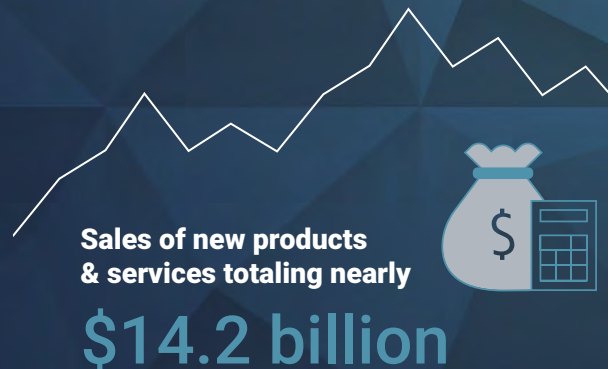
\* Small Business Innovation Research and Small Business Technology Transfer, hereafter SBIR/STTR

# SBIR/STTR BY THE NUMBERS

## SUPPORT FOR THE WARFIGHTER



## COMMERCIALIZATION & SALES



## PHASE II CONTRACTS ALSO LED TO

- 1** Follow-on R&D contracts
- 2** Sales of the licenses for the technology created
- 3** And eventually, spin-out companies that spawned additional job creation

## ECONOMIC IMPACT



Phase II contracts led to approximately **200,000 jobs with an average wage of approximately \$69,000**, which was 42% higher than the average U.S. wage



Federal, state, and local government entities collected approximately

**\$4.9 billion in related taxes**



**19:1 RETURN ON INVESTMENT**

**\$44.3 billion in economic output from a \$2.3 billion investment** from 2000-2013 for the DON SBIR/STTR program

An independent study of the Naval SBIR/STTR Program measured the commercialization and economic impacts in Phase II funding from FY 2000-2013 using a standard algorithm for calculating economic output of technology firms.

# HISTORIC BACKGROUND

## TIMELINE

### 1977:

- ▶ Office of Management and Budget study states “small firms [had] inadequate access to federal research and development moneys and that our country [would] lose significant high technology capability in absence of a concerted effort to increase small business research and development awards.”
- ▶ A Massachusetts Institute of Technology study finds high technology firms with 20 or fewer employees created 66 percent of all net new jobs in the private sector in the previous decade.
- ▶ Roland Tibbetts creates the precursor to the SBIR program at the National Science Foundation.

### 1978:

- ▶ “Small business is necessary – vital – to the creative, innovative process that lies at the heart of scientific and technological advancement,” said U.S. Representative John B. Breckinridge before a Joint Hearing of the Senate Committee on Small Business and the Subcommittee on Antitrust, Consumer and Employment, House Committee on Small Business.

### 1981:

- ▶ Senator Warren Rudman, a Republican from New Hampshire, Congressman John LaFalce, a Democrat from New York, and Congressman Ike Skelton, a Democrat from Missouri, introduce Small Business Innovation Development Act of 1982.

### 1982:

- ▶ President Reagan signs Small Business Innovation Development Act of 1982 creating the SBIR program.
- ▶ Initial federal SBIR fund of \$45 million.

### 1983:

- ▶ Dr. Paul Krause forms PC Krause and Associates (PCKA).

#### Success Story: PC Krause and Associates

Dr. Paul Krause founded PCKA in 1983 when he was on the electrical engineering faculty at Purdue University. Since the mid 1980s, the Navy SBIR/STTR program has awarded many contracts to PCKA. Today, PCKA is delivering 72 prognostics testing units, a \$9 million sale, directly contributing to the support of multiple F-18 variants. Krause’s equipment could also be used on future work for the Marine Corps V-22 Osprey fleet.

### 1987:

- ▶ Qualcomm receives 1st SBIR Award.

#### Success Story: Qualcomm Wireless Communication Technology

When Qualcomm received their first SBIR contract in 1987, the company was 35 people strong, and nearly thirty years later, the company stood with \$11 billion in revenue, 18,000 employees, and 13,000 patents. In FY 2010, Qualcomm paid \$1.4 trillion in taxes which was almost double the Small Business Administration budget for 2010.

### 1992:

- ▶ Congress establishes the STTR program by the Small Business Technology Transfer Act of 1992.
- ▶ Congress reauthorizes the SBIR program with the passage of the Small Business Research and Development Enhancement Act of 1992.

Both SBIR and STTR have a **THREE-PHASE PROCESS** which includes

#### PHASE I



Feasibility study establishes proof of concept

Up to \$225K investment

#### PHASE II



Development and testing of prototype (where the majority of SBIR/STTR funding is spent)

~\$1.5 M investment

#### PHASE III



Maturing the technology for delivery to defense or commercial customers  
Investment from acquisition program funds and industry investment

No SBIR/STTR \$\$



“We must leverage and implement best practices and concepts from industry, academia and international partners to positively impact acquisition, manpower, research and operational processes... A robust industrial base is essential to support growth, lethality and readiness...”

—Secretary of the Navy Richard V. Spencer, December 2017

## 2000:

- ▶ Congress reauthorizes SBIR through the Small Business Innovation Research Program Reauthorization Act of 2000.

## 2003:

- ▶ Using Creare LLC’s technology developed through an SBIR contract, Envelop Protective Covers become the chosen cover for the Department of Defense.

### Success Story: Creare LLC’s Protective Covers

Protective covers on a ship deck help Naval vessels minimize corrosion on important and expensive equipment. Creare’s SBIR-developed technology helped virtually eliminate corrosion on Naval ships with ROI up to 40:1. To date, the company licensed to sell it has \$71 million in sales. Besides its original use as protective covers on ships, the technology is also used in gun cases and for other commercial industries such as the oil and gas industries.



## 2000-2013:

- ▶ Department of the Navy (DON) SBIR Phase II program alone spends \$2.3 billion on Phase II contracts.

## ▶ 2009-December 2011:

- ▶ Through a series of Continuing Budget Resolutions, Congress repeatedly extends the SBIR Program and works toward reauthorization in a series of bills.

## 2010:

- ▶ Poseidon Systems forms as a spin-off of Impact Technologies.

### Success Story: Poseidon’s Gear Box

An SBIR contract allowed Poseidon Systems to develop a system for Naval ship gearboxes providing real-time sensing capability for fluid quality monitoring. But Poseidon quickly found significant interest in this technology for non-military customers in commercial marine, mining, construction, wind power and manufacturing industries. Today, Poseidon projects non-defense sales of \$28 million by 2020.





“Congress has given the Navy additional authorities needed to facilitate technology transition from the Science and Technology community to acquisition programs and the warfighters ... I look forward to working with the Naval Research and Development Enterprise, industry, and acquisition programs to assess the processes in the Department of the Navy to ensure these new authorities are being fully utilized to facilitate greater collaboration and to ensure that warfighters maintain technological superiority.”

—Assistant Secretary of the Navy (Research, Development and Acquisition) James F. Geurts, October 2017

## 2011:

- ▶ Hydronalix files patent on “Motorized Rescue Buoy.”

### Success Story: Hydronalix EMILY

The Emergency Integrated Lifesaving Lanyard or EMILY is a 4-foot-long remote-controlled buoy that incorporates commercial off the shelf software. EMILY can cruise through rip-currents and swift water to reach distressed swimmers faster than human lifeguards. More than \$8 million in sales with an estimated 1 to 1 1/2 rescue events per day on average somewhere in the world.



## 2012:

- ▶ 2012 Defense Authorization Act reauthorizes SBIR. Congress embeds commercialization goals and practices to meet defense and private sector market needs.

## 2016:

- ▶ Both the SBIR and STTR programs are reauthorized as part of the 2017 National Defense Authorization Act.

## 2017:

- ▶ Every car at the 2017 Indy 500 used a Mezzo micro tube radiator and the technology has led to \$6 million in sales annually for Mezzo Technologies.

### Success Story: Mezzo Technologies

Mezzo Technologies began as a company sustained primarily with research and development grants. An SBIR contract helped Mezzo create the micro tube radiator used in the Bradley Fighting Vehicle. The technology used to help enhance our military vehicles was taken to another level in the commercial sector.

## 2022:

- ▶ September 30, 2022 SBIR/STTR set to expire.



## Continued Excellence – Capturing the Imagination and Capability of Next Gen Entrepreneurs

- **Delivering technological innovation**  
From night-vision capability to brain injury scanners, improved batteries and Next Gen communication systems, SBIR/STTR delivers truly advanced technologies to American warfighters and domestic consumers alike. SBIR/STTR helps ensure American warfighter superiority and unheralded innovations to improve American lives.
- **Promoting the entrepreneurial spirit and capabilities of a new generation**  
Systematic outreach to underserved locales throughout America helps surface talented women and minority youth, open doors to SBIR/STTR opportunity, and provide guidance in growing viable businesses.
- **Forming new partnerships, rewarding collaboration**  
Engagement with America's growing crop of Innovation Centers builds bridges to universities, laboratories, non-traditional businesses and industry. The result: Inventions mature into products meeting American defense and domestic needs, and talent finds pipelines of opportunity.
- **Nourishing economic growth across America**  
With nearly \$400 million invested annually and nation-wide, the Naval SBIR/STTR program – alongside other federal agency SBIR/STTR programs – strengthens regional economies through high-wage jobs, small businesses that buy local goods and services, and significant tax contributions. SBIR/STTR is a wealth engine!
- **Driving commercial innovation**  
Naval SBIR/STTR awardees instinctively look for non-defense applications for their tech innovations, knowing that commercial market entry and sales are on a much faster track than defense acquisition. The result? Naval SBIR/STTR firms more than double their sales revenues by entering the commercial marketplace.

Bottom line, SBIR/STTR is a good bang for the American taxpayer's buck. The Navy proved this through a \$2.3 billion investment which generated a total of \$44.3 billion in direct, indirect and other sales – a 19:1 return on investment – using a standard algorithm for calculating economic impact of technology firms. In actuality, researchers believe the projections are significantly lower than the actual value, which means ROI is probably even higher. When Congress reauthorizes these programs, lawmakers are putting money back into your wallet, creating jobs in our local communities, and supporting our nation's armed forces. By supporting these efforts to advance American technology, policymakers are voting for American ingenuity.



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