
Incumetrics SBIR FAQ

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What is SBIR?

SBIR is a Reagan-era program introduced to help ensure that small businesses participate in Federal R&D programs, in part because Congress was concerned that the small business share of Federal R&D was so small (less than 5%)

The program sets aside 3.2% of the funding that Federal agencies spend on outside research at universities, private companies, and other research institutions. It is highly competitive, and offers initial (Phase I) funding of around \$150,000 for a six-month feasibility study of promising ideas, followed by up to a maximum of \$1.5 million over two years for Phase II (amounts and programs vary by agency). The 11 participating agencies provide about \$2 billion annually, which supports about 4,000 Phase I awards and 2,000 new Phase II awards. No matching funds are required.

What impact does SBIR have on the economy?

Substantial. Two recent studies of the Air Force and Navy SBIR programs modeled program impacts, and found that the \$6 billion invested by these two program from 2000-2013 generated \$94 billion in new economic activity.

This activity created a total of 25,000 jobs annually, at an average salary of more than \$65,000, along with \$8.8 billion in tax revenues. Those taxes alone more than paid for the program. [TechLink 2014 and 2016]

Do SBIR firms commercialize their research?

Yes. The National Academies of Science and Engineering found in a series of studies (NAS 2014-2016) that more than 50% of SBIR projects had already generated sales at the time of the Academies survey, and that about another 25% expected to in the future. Most sales are small, but the huge success of outlier projects is undeniable. The Air Force and Navy studies found that their single top selling project generated sales of \$1.5 billion and \$1.2 billion respectively.

SBIR firms also attract a lot of follow-on funding, some of it from venture firms. The Academies studies found that over 60% of projects attracted additional investment at each of the main SBIR agencies (except NASA).

Is SBIR a government-run venture fund?

No. Venture funds address specific types of opportunities, where projects can scale rapidly and generate massive returns in a short timeframe (typically 3-5 years), while SBIR funds a wider range of technology timelines. Venture funds are also tightly focused on specific kinds of technologies. SBIR funds all kinds of technologies, many not suited to venture funding – for example, technologies that are important but don't scale, like tools for nuclear reactors or the Virginia class submarine. The National Academies studies found that overall fewer than 5% of SBIR firms get venture funding (primarily at NIH and NSF) [NAS 2014-2016].

Doesn't SBIR take money away from the universities?

It's complicated. First, more than half of SBIR funding would otherwise be spent with large companies: 60% of Federal extra-mural R&D goes to industry (almost all to large companies), most of the rest to universities [NSF 2017]. Second, many SBIR projects work with universities: The National Academies found that 35-70% of projects had some university connection (depending on agency), and that at agencies like NIH and NSF, more than 80% of SBIR firms had at least one academic founder [NAS 2014-2016]. Some universities have active programs to encourage SBIR applications from faculty. Third, SBIR supports commercialization of university

research: in contrast, direct Federal funding to universities is almost entirely focused on basic research.

So, while SBIR does share the pool of research funding that includes basic research at universities and funding for large companies' R&D, it uses its limited funding to support thousands of small innovative firms that are seeking to commercialize new ideas. That also helps universities meet their mission.

Isn't SBIR full of small firms who live off the program?

No. Complaints about "SBIR Mills" are wrong. The National Academies found that 25-70% of companies are new to the program every year (depending on the agency) [NAS 2014-2016]; some significant multiple winners have dropped out as they are acquired or exceed program size limits (e.g. Foster-Miller); and some agencies are limiting multiple applications: NSF now allows only one per company, DoE limits companies to ten applications annually. Multiple winners also tend to be focused on DoD where they provide valuable and unique research services for use by the agency.

Do these small firms help expand the US knowledge base?

Yes. The National Academies found that more than half of SBIR projects generate at least one patent [NAS 2014-2016], and IDI estimates that SBIR firms receive at least 5,000 patents annually [IDI 2017]. The Academies also found that more than 80% of projects generate at least one peer-reviewed paper, and most generate at least 2, while NSF estimates that 44% of scientists and engineers in the private sector are at small firms [NSF 2013]. And SBIR supports practical knowledge: Stratatech for example is commercializing an artificial skin graft for burn victims, which will help thousands of patients annually [NAS 2015b].

Does SBIR meet needs for Federal agencies that are otherwise hard to address?

Yes. Sometimes small firms have special expertise. For example, Honeybee Robotics provided the abrasion tool for digging on the surface of Mars. Other times they can get things done quickly: Cybernet Systems delivered a ground-breaking automated ammunition-sorting system for use in Afghanistan within 6 months. Generally, small firms are more agile and innovative.

Shouldn't DoD spend the money on bigger firms that can get the job done?

No. DoD spends much of its early-stage research funding on agency labs; most of the remainder and its testing and evaluation funding goes to large companies. SBIR allows smaller firms to

serve DoD, and offers DoD the chance to identify and work with small, agile, and highly innovative firms. These firms offer the agency flexibility and value for money. A recent review of the F-35 Strike Fighter program found that SBIR had saved the government at least \$500 million in that program alone [Bogdan 2016].

Why do some states get a lot of SBIR funding and other states not much?

Much of the disparity is driven by population – large states have lots of companies that apply. Some states also have many more working scientists and engineers and more innovative firms: for example, R&D accounts for more than 5% of GDP in Massachusetts and Maryland, and 0.5% or less in Louisiana and Wyoming. SBIR agencies are however actively reaching out to states with few awards.

What are some big success stories for SBIR?

Some huge firms had SBIR funding at critical juncture early in their development. Examples include Qualcomm (market cap \$85 billion), Illumina (\$24 billion), Neurocrine (\$3.7 billion), Amgen (\$136 billion) and iRobot (\$1.6 billion). More widely, SBIR has supported the development of thousands of flourishing innovative firms.

What initiatives are under way at the SBIR agencies to improve the program?

Using a small percentage of program funding (less than 3%), Federal agencies have built new programs to reach out to underserved states and populations, accelerate and encourage commercialization, evaluate program outcomes, and train small businesses.

Do other countries have SBIR programs?

Yes. At least 17 countries have introduced programs like SBIR, and delegations from other countries researching the program arrive in Washington every few months. Countries with SBIR-type programs include Finland, Sweden, the UK, Russia, the Netherlands, Japan, Taiwan, Korea India, and Singapore. The European Union included a similar initiative in its 2020 research program.

Have the agency SBIR programs been evaluated by outside experts?

Yes, very much so. The National Academies has completed 17 full scale studies of the program (available online), and concluded that the program is “sound in concept and effective in practice.” Other studies from GAO and other think-tanks have reached much the same conclusions, as did a RAND study focused on DoD. SBIR is, on a per dollar basis, perhaps the most studied Federal innovation program.

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About Incumetrics

[Incumetrics](#) is a small company focused on measuring, evaluating, and assessing innovation and developing policy for companies, nonprofits, regions, and national governments. It is led by [Dr. Robin Gaster](#), who was the lead researcher on the National Academies series of reports on the SBIR program, and who is also publisher of the [Great Disruption](#) blog, focused on the impact of technology and globalization on the future of work.