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AMERICAN COMPASS

CASE STUDY

Uncle Sam's Top-Performing Venture Fund

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EXECUTIVE SUMMARY

Small technology businesses are a leading source of economic growth and innovation, but they struggle to attract the funding they need before their products are market-ready. Conventional investors, including venture capitalists, don't see the reward as worth the risk—partly because they lack the information to evaluate the risks well, and partly because they can only claim a small piece of the reward. Much of the benefit accrues to workers, consumers, and other innovators. Government bureaucracies, meanwhile, tend to focus their own resources on established firms and research universities.

In 1982, Congress created the Small Business Innovation & Research (SBIR) program to fill this funding gap. SBIR, known as "America's Seed Fund," directs a portion of federal R&D spending to small enterprises developing new technologies and has provided critical support to the major technological breakthroughs made by many of America's most innovative companies.

KEY LESSONS

Public investment plays an indispensable role in high-risk, breakthrough innovations. As venture capitalist David Morgenthaler observes, "The goal of venture capitalists is to make a return for our investors—it is not to develop the economy."¹ The most important and valuable innovations are not necessarily the ones that will deliver investors the highest return, and often they struggle to attract needed capital. Only government has the capacity and incentive to invest in many of the projects that can transform industries.

Productive markets benefit from diffuse investment, not just agglomeration. Financial markets tend to concentrate investors, their resources, and their knowledge in a narrow set of large, lucrative geographic and product markets. But that's not where all the innovation is, and it certainly isn't where the marginal dollar yields the highest social return. Government plays a valuable role in allocating capital more broadly.

KEY FACTS

25%

of R&D 100 Awards earned by SBIR-backed firms, more than Fortune 500 companies or universities

SBIR investments have:

Generated

70k+

patents, as many as all universities combined

Supported nearly

700

public companies

Helped attract

\$41B

in venture capital

SBIR funnels **3X bigger share of its capital** outside coastal metros than venture capital

Policymakers have the information and capacity to address both market and government failures. While financial markets were failing to supply necessary capital to high-potential firms, general government research programs were not doing much better. With SBIR, policymakers successfully identified and addressed the problem through a politically popular and durable program that has generated larger returns.

BACKGROUND

Small technology businesses have played a critical role in innovations that benefit the national interest. Small firms (i.e., businesses with fewer than 500 employees) and their scientists generate 14 times more patents and higher quality than large firms.² Today's technology giants began as small firms themselves, and their growth is responsible for the creation of millions of good jobs.

But small technology businesses face an early-stage financing gap, between initial research and product launch, that analysts call the "Valley of Death."³ Bringing a product to market requires capital at a speculative stage when scale is small and risk is high, presenting a profile unappealing to most investors. While the value of scaling up some businesses is enormous, investors on average capture only about \$1 of private return for every \$3.40 of public return.⁴

By the 1970s, the problem had become acute, as costs rose for bringing increasingly sophisticated technologies to market. Venture capital was barely more than a cottage industry; even in 1978, a year of incredible growth for the industry, it invested only \$750 million, mostly on later-stage enterprises with clear commercial viability.⁵ Federal investment in applied research and development was 24 times larger, but those programs favored large, incumbent firms and established research universities.⁶ Civil servants as well as small business leaders and entrepreneurs believed that only public funding could address the problem, and that it would do so only if required.⁷

In 1977, the NSF Authorization Act required the National Science Foundation (NSF) to direct a minimum of 7.5% of its applied research funding to projects led by small businesses.⁸ The NSF and universities opposed the hard requirements and even attempted to scrap the applied research program that faced the requirement and replace it with an unencumbered one.⁹ Despite the initial resistance, the pilot program was a success, funding companies that went on to complete the Human Genome Map and commercialize software technologies in data management (Ingres, later Actian) and artificial intelligence (Symantec, later NortonLifeLock).¹⁰

The Small Business Administration concluded in 1979 that all government agencies should face similar requirements, and a bipartisan group of lawmakers, led by Senator Ted Kennedy (D-MA), pushed to expand the SBIR program to all federal R&D funding.¹¹ In 1982, President Reagan signed the Small Business Research and Development Act into law, noting that "government must work in partnership with small business to ensure that technologies and processes are readily transferred to commercial applications."¹²

POLICY INTERVENTION

SBIR programs provide federal support to domestic small businesses engaged in research and development. The program has four stated objectives: to stimulate technological innovation; use small business to meet federal R&D needs; foster and encourage participation by socially and economically disadvantaged small business concerns; and increase private-sector commercialization of innovations derived from federal R&D.¹³

SBIR has a decentralized structure coordinated by the Small Business Administration. Each year, the 11 participating federal agencies with budgets for outside R&D that exceed \$100 million are required to allocate 3.2% of this budget to fund businesses with 500 or fewer employees that are pursuing technological innovation and research.¹⁴ Each agency administers its own individual SBIR program within guidelines established by Congress. These agencies designate R&D topics in their solicitations and accept proposals from small businesses. Awards are made on a competitive basis after proposal evaluation.¹⁵

The program initially required programs to allocate at least 0.2% of R&D funding to small businesses. It has since been reauthorized and expanded three times, increasing the minimum set-aside to 1.25% in 1986,¹⁶ 2.5% in 1997,¹⁷ and then 3.2% in 2017.¹⁸ The Small Business Technology Transfer (STTR) program, created in 1992, complements SBIR by facilitating the commercialization of university and federal R&D by small companies.¹⁹

Much like venture capital, SBIR funding is divided across different phases, each associated with a different stage of business development and technological commercialization. Phase I funding up to \$150,000 supports basic feasibility studies, followed by Phase II funding up to \$1 million for advanced R&D and commercialization, concluding with Phase III technical assistance for bringing products to market.²⁰

IMPACT

SBIR is a rare example of an enduring government program with enthusiastic bipartisan support. The program has brought approximately 70% of funded projects to market,²¹ a success rate comparable to venture-backed firms.²² Its public return on investment is enormous. From 1995 to 2012, for example, the Pentagon's SBIR program, every federal dollar spent yielded \$22 in value added, labor income, tax revenues, and other economic impacts.²³ SBIR has also been emulated around the world, from India to the United Kingdom.²⁴

Most SBIR-funded projects could not otherwise have moved forward.

Insufficient funding is the most commonly cited factor in discontinuing private, early-stage research projects.²⁵ In lieu of public support, many such projects would have been discontinued prematurely. According to the National Academy of Sciences, more than 70% of SBIR-backed projects “would probably or certainly not have gone ahead without SBIR.”²⁶

SBIR funding yields success and follow-on private investment, not uncompetitive laggards or cronyism.

Rather than languishing, SBIR-backed projects have outperformed rivals in both the research ecosystem and the marketplace. SBIR awardees have sustained

substantially greater sales growth and employment levels and receive more venture financing than their peers.²⁷ SBIR projects have also earned roughly a quarter of all R&D 100 awards since 2000, more than the Fortune 500 or universities.²⁸

SBIR has achieved its impressive results with a much broader investment portfolio.

Compared to private markets, SBIR has allocated capital more broadly—both across regions and sectors. Venture capital, for example, invests roughly 80% of its funds to just three coastal states²⁹—Massachusetts, New York, and California—and 56% in software and biotech.³⁰ Over the last decade, SBIR has invested in all 50 states with a greater focus on manufacturing and defense technology. Just 36% of investment has gone to Massachusetts, New York, and California, while 29% reached the Heartland.³¹

ENDNOTES

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