



NATIONAL CANCER INSTITUTE



2018 NCI Overview

# ECONOMIC IMPACT ANALYSIS | of the NCI SBIR Program

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES | NATIONAL INSTITUTES OF HEALTH

The National Cancer Institute (NCI) Small Business Innovation Research (SBIR) Development Center commissioned an external pilot evaluation of the SBIR and Small Business Technology Transfer (STTR) programs in 2018. The evaluation had two principal goals: (1) quantify the programs' contributions to the U.S. economy and (2) test a series of questions with the goal of determining key patient and societal impacts resulting from this program. The pilot evaluation was conducted by TechLink, a U.S. Department of Defense Partnership Intermediary organization that specializes in economic-impact studies of federal SBIR programs and technology transfer programs, in collaboration with the Bureau Research Division (BRD) of the Leeds School of Business at the University of Colorado Boulder. The test cohort included all NCI SBIR/STTR Phase II grant awards made between 1998 and 2010 (690 awards). Technologies funded after 2010 were not included in the evaluation due to the long commercialization time needed for biomedical technologies. This study was the first to evaluate and model the economic impact of any SBIR/STTR program within the Department of Health and Human Services (HHS).

## Economic Impact

TechLink conducted economic impact analyses of the SBIR programs for the U.S. Navy and U.S. Air Force. These studies provided the foundation for the current NCI study. Analysts were able to refine a data collection system and demonstrate the use of these data within the well-validated economic model, IMPLAN. The IMPLAN input-output economic model is widely used among federal agencies and within the private sector to determine the economic impact of a program or industry. Major findings of the NCI SBIR Economic Impact Analysis include:



**Table 1.** Economic impact of NCI SBIR/STTR Phase II awards and sales of award-funded technologies for all NCI SBIR/STTR grants funded between 1998--2010 (690 awards)

	Description	Input	Total Economic Output	Employment (1998–2018)	Tax Revenue
Awards	All SBIR Phase II awards granted in 1998–2010	\$787 million	\$1.98 billion	9,908 jobs	\$245 million
Sales	Sales figures reported by responding awardees	\$9.14 billion	\$24.16 billion	98,011 jobs	\$2.69 billion
Total	Sum of award dollars and sales figures	\$9.93 billion	\$26.15 billion	107,918 jobs	\$2.93 billion

## Technology Development

NCI is a mission-driven Institute. Given the institute-wide focus on advancing cancer research, it is critical that evaluations include the impact of NCI SBIR funding on technologies that will ultimately affect the lives of cancer patients. Therefore, the study included a series of high-level questions focused on technology development.

According to interview respondents:

- 89% stated that the NCI SBIR/STTR program provided funding at a pivotal or critical moment for the small business.
- 247 NCI SBIR-funded products were commercialized.
- 110 NCI SBIR-funded products are still in development.
- 65% of the awards funded the development of a new treatment for a group of patients who lacked a treatment option.
- 63% stated that a university was involved in the development of the technology, demonstrating the close relationship between SBIR- and STTR-facilitated development and commercialization of inventions out of U.S. research institutions.

## NCI MISSION

*NCI leads, conducts, and supports cancer research across the nation to advance scientific knowledge and help all people live longer, healthier lives.*



## IMPLAN Economic Model

IMPLAN is used by several industry organizations and federal agencies to determine the effect of their industry and programs on the U.S. economy. IMPLAN draws on a mathematical input-output framework originally developed by Wassily Leontief, the 1973 Nobel laureate in economics, to study the flow of money through a regional economy. IMPLAN assumes fixed relationships between producers and their suppliers, based on demand, and that inter-industry relationships within a given region's economy largely determine how that economy responds to change. Increases in demand for a certain product or service (for example, sales of a new NCI SBIR-developed medical device) cause a multiplier effect—a series of ripples through the economy. This increased demand affects the producer of the product, the producer's employees, the producer's suppliers, the supplier's employees, and others, ultimately generating a total impact on the U.S. economy that significantly exceeds the initial change in demand.

## Non-IMPLAN Modeled Outcomes

As a result of the study design, the economic survey captured additional data that could not be modeled in IMPLAN but had a positive effect on the economy. For example, venture capital investment may be tied to specific activities such as R&D, but it may also be wealth transfer for equity, making it impossible to appropriately model. The following outcomes of NCI SBIR-funded technologies were not included in the IMPLAN model of economic impact:



## NCI SBIR Study Design

**Data Collection.** The data for the 2018 NCI SBIR impact study were collected by a series of telephone interviews. **The survey had a 91% response rate (407 companies out of 444 companies contacted).** Most interview respondents had the position of project principal investigator (PI), C-level executive, or president/vice president. In some cases, marketing managers were interviewed because they were deemed to have the most knowledge about product sales. Interviewees were asked a series of questions about sales (by primary funded entity, spin-out company, or sub-licensee), follow-on research funding, investment funding, company acquisitions, and new company creation around the technology. The survey was conducted by TechLink. All survey data remained anonymous throughout the evaluation and in reports to NCI. **In total, 53% of respondents stated that their technology had generated sales, royalties, and follow-on R&D funding after the NCI SBIR Phase II award.** The full report includes results from an exploratory evaluation of patient and societal impact. Visit <https://sbir.cancer.gov/impact> to view the full report.