

# Examining Access to Capital and Other Headwinds to Entrepreneurship

Testimony before

The Committee on Small Business and Entrepreneurship  
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## ***Introduction***

Members of the Committee, thank you for the opportunity to testify today.

My name is Dr. Jon Anderson. I am employed at LI-COR Biosciences Inc. in Lincoln, Nebraska as Manager of the Advanced Research and Development department. I also serve on the Nebraska Business Development Center (NBDC) advisory board and I am a grant reviewer for the Small Business Administration (SBA), where I primarily review Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants for the National Institute of Health (NIH).

## ***Small Business, Accessing Capital***

There are several avenues to accessing capital for a small business venture. Small business and microloans through local, state, or federal programs, venture capital, and even crowdfunding are sources that often come to mind. Research grants and contracts for small businesses, however, are another valuable option for small businesses. SBIR and STTR funding is a tremendous resource for companies in the early stages of research and development. The SBIR/STTR program can provide needed capital to small businesses and encourages them to engage in research and development projects that may lead to commercialized products or services.

## ***Brief Overview of the SBIR/STTR Program***

The SBIR/STTR program is a highly competitive government program, encouraging small businesses to engage in research and development that has the potential for commercialization. Small businesses, for-profit businesses with fewer than 500 employees, apply for grants or contracts from one of eleven federal agencies. Federal agencies with R&D budgets over \$100

million are required to allocate 3% of their R&D budget to the SBIR program for fiscal year 2016. Agencies with budgets over \$1 billion also participate in the STTR program. The current SBIR participating agencies include:

- Department of Agriculture
- Department of Commerce
- Department of Defense
- Department of Education
- Department of Energy
- Department of Health and Human Services
- Department of Homeland Security
- Department of Transportation
- Environmental Protection Agency
- National Aeronautics and Space Administration
- National Science Foundation

The mission of the program is to “support scientific excellence and technological innovation through the investment of Federal research funds in critical American priorities to build a strong national economy.”<sup>1</sup> The SBIR/STTR program has four primary objectives:

- Stimulate technological innovation.
- Meet Federal research and development needs.
- Foster and encourage participation in innovation and entrepreneurship by socially and economically disadvantaged persons.
- Increase private-sector commercialization of innovations derived from Federal research and development funding.<sup>1</sup>

The SBIR/STTR program is structured as a three-phase program. Phase I provides initial funding for a firm to establish feasibility of a project and to assess the commercial potential of the research effort. A typical Phase I effort provides \$150,000 in funding and is completed in about 6 months. Phase II awards build upon the work shown in Phase I and often involve commercial development of a product or service. Typical Phase II awards are \$1 million, with efforts lasting 2 years. Phase III involves the commercialization of the product or service, with no additional funding provided by the program.

### ***The Importance of the SBIR/STTR Program***

SBIR/STTR funding can be crucial for both startup enterprises and established small businesses. For startups, the capital from an SBIR/STTR can help launch a new business and provide the funding needed to develop an initial product for sale. For established small businesses, such as LI-COR Biosciences, SBIR/STTR funding is used to help mitigate the risk associated with state

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<sup>1</sup> SBIR Mission and Program Goals: <https://www.sbir.gov/about/about-sbir>

of the art research. Highly innovative and differentiated products set LI-COR Biosciences apart from its competitors in the market. Continual innovation requires high risk projects that need to be moved from concept, through feasibility, to development, and finally into commercialization. These stages are well matched with the SBIR/STTR three phase program and allow LI-COR Biosciences to be an innovative leader.

Beyond the funding provided by the SBIR/STTR program, the actual process of applying for these grants is seen as extremely valuable to the company. The SBIR/STTR grants are highly competitive. To be successful requires a solid understanding of a significant problem, an innovative solution to the problem, a well planned approach to achieving the solution, the facilities and resources to carry out the approach, and the skilled personnel able to carry out the research. Applying for an SBIR/STTR grant focuses your attention on the problem and how it can be solved. The grant review provides a platform for validating the research through a peer review process and provides feedback that can be extremely valuable.

LI-COR received its first SBIR award in 1994 which helped develop reagents for a DNA sequencing system. At the time of its first award, LI-COR employed 98 individuals. Since then, LI-COR has been awarded 25 additional SBIR/STTR grants and has grown to 336 employees, with over 250 employees based in Nebraska. With the help of SBIR/STTR funding, LI-COR has been able to develop and commercialize the following products:

- LI-7500 Open Path CO<sub>2</sub>/H<sub>2</sub>O Gas Analyzer
- IR-labeled phosphoramidites
- Acyclo-DNA sequencing terminators
- Odyssey Imaging System
- LI-7700 Methane Sensor
- Reactive Oxygen Species Probes

Additionally, LI-COR has launched more than 50 new products since 2001, many of which are offshoots, accessories, and reagents for the products developed under SBIR/STTR funding.

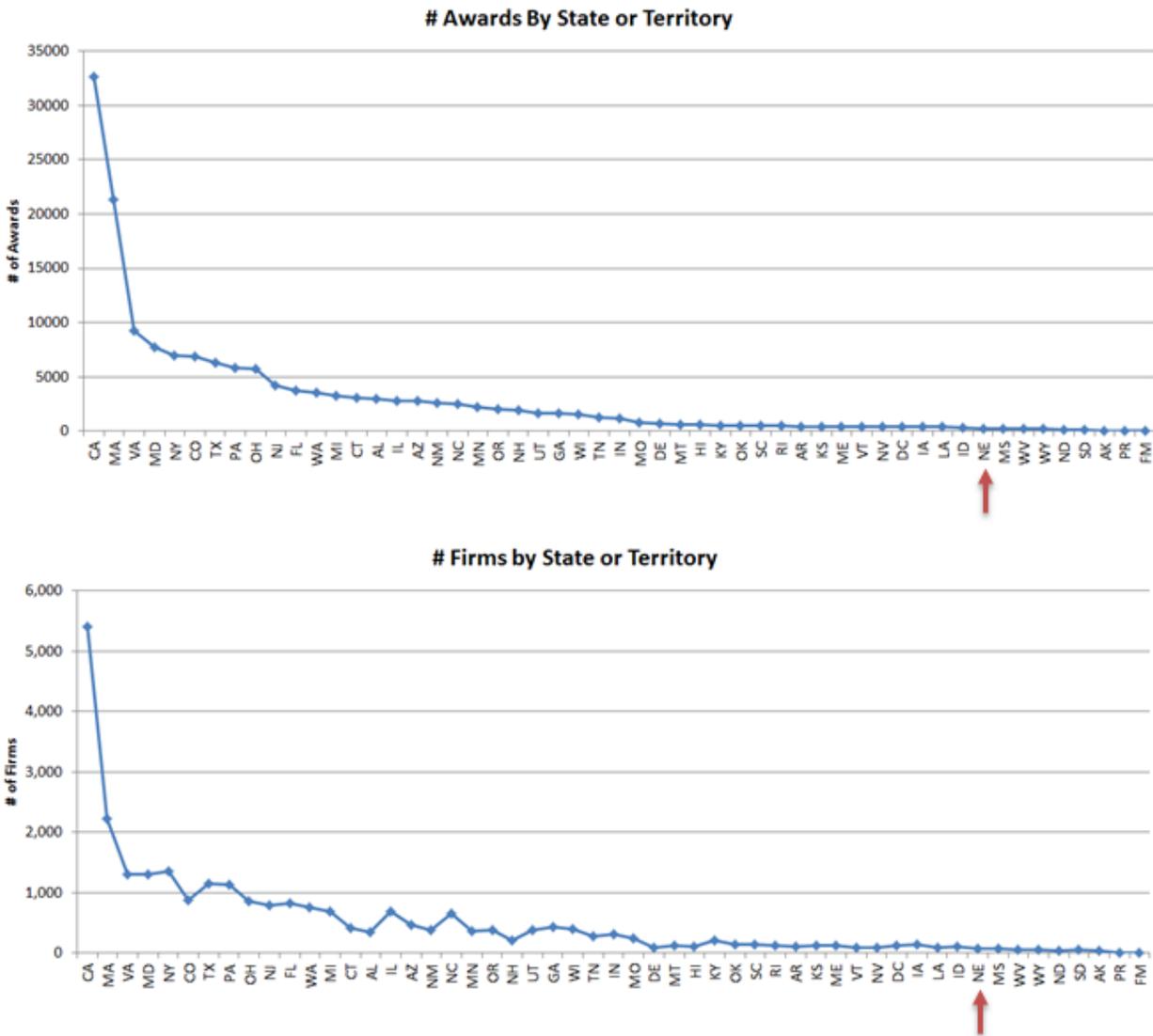
Overall, SBIR/STTR funding has helped LI-COR investigate innovative solutions to worldwide problems, grow its business, employ skilled personnel, and commercialize products that are used worldwide for studying such topics as drug discovery, global climate change, environmental monitoring, and cancer research. In 2015, LI-COR was selected as a Tibbetts Award winner, honoring small businesses for exemplary roles in the SBIR/STTR program.

### ***Nebraska SBIR/STTR Funding***

Many Nebraska small businesses have benefitted from the SBIR and STTR federal programs. Since 1983, Nebraska has received 263 SBIR/STTR grants totaling over 72 million in capital for small businesses. Nebraska, however, is an underrepresented state with respect to SBIR/STTR

funding. In total awards, Nebraska is ranked 44<sup>th</sup> out of the 50 states and ranked 45<sup>th</sup> when including the District of Columbia and other territories (Figure 1).

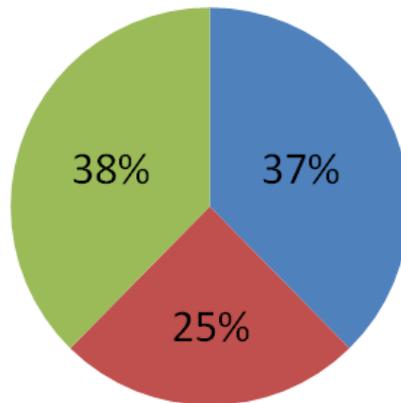
Of the 263 grants and contracts that have been awarded to Nebraska businesses, 37% of these have been awarded to only three firms, 21<sup>st</sup> Century Systems, Inc., LI-COR Biosciences, Inc., and J.A. Woollam Company, Inc. <sup>2</sup> (Figure 2). These firms have proven successful in obtaining SBIR/STTR funding and could serve as role models for other Nebraska firms that are seeking funding.



**Figure 1:** Number of SBIR/STTR awards and the total number of firms applying for awards in each state or territory from 1983-2015. Data for Nebraska is indicated by red arrows. Data Source: [https://www.sbir.gov/analytics-dashboard?view\\_by=State](https://www.sbir.gov/analytics-dashboard?view_by=State)

<sup>2</sup> Data Source: [https://report.nih.gov/success\\_rates/index.aspx](https://report.nih.gov/success_rates/index.aspx)

■ Top 3 Firms ■ Next 6 Firms ■ Remaining 62 Firms



**Figure 2:** Pie chart showing the percent of the total Nebraska SBIR/STTR awards going to the top three Nebraska based firms, the next six firms, or the remaining 62 firms that have received awards from 1983-2015. Data Source:

[https://www.sbir.gov/sbirsearch/award/all/?f\[0\]=im\\_field\\_state%3A105835](https://www.sbir.gov/sbirsearch/award/all/?f[0]=im_field_state%3A105835)

In looking at Nebraska's national rank for receiving SBIR/STTR funding, both the total number of applications submitted to the program and the success rate of firms from Nebraska must be considered.

From 2006-2015, there were 54,024 SBIR/STTR applications submitted nationwide with 10,864 receiving funding. During that same period, Nebraska submitted only 178 applications and was successfully funded 29 times, representing only 0.3% of the nationwide total for submissions and for awards.<sup>3</sup> In terms of successful submissions, the national average from 2006-2015 was 20.1%, while Nebraska firms were successful only 16.3% of the time. Therefore, Nebraska firms submit fewer SBIR/STTR applications and are less successful than the nationwide average.

Though Nebraska firms account for only 0.3% of the awarded grants since 1983, the data is somewhat skewed by the fact that two states, California and Massachusetts account for 34.2% of the total number of awards. For a more regional comparison of the number of applications and the success rates of Nebraska firms, Nebraska was compared to all bordering states. From Table 1, it can be seen that only South Dakota and Wyoming have had fewer total and funded applications than Nebraska, while South Dakota, Wyoming, and Missouri have a lower success rate.<sup>3</sup>

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<sup>3</sup> Data from: <https://www.sbir.gov/reports/state-summary>

Overall, Nebraska remains an underrepresented state for SBIR/STTR funding. Finding ways to increase both the number of submitted applications and the success rate for Nebraska firms is the only way to bring in additional funding to our state.

**Table 1:** Numbers of SBIR/STTR applications submitted, the total number of funded applications, and the overall success rate for Nebraska and bordering states from 1983-2015, along with numbers nationally.<sup>4</sup>

	Applications	Funded	% Success
Nebraska	178	29	16.3%
South Dakota	80	5	6.3%
Iowa	307	60	19.5%
Kansas	194	45	23.2%
Missouri	341	50	14.7%
Colorado	1217	243	20.0%
Wyoming	56	9	16.1%
Nationally	54024	10864	20.1%

### *Improving Nebraska’s Competitiveness*

The SBIR/STTR program can provide the funding needed for startup companies to compete in the marketplace and it can provide a critical peer review that can strengthen the overall goals for the small business effort. What is needed is more strong applications from Nebraska based small firms. As a state, Nebraska is not lacking in technical talent and entrepreneurial drive. Recently, Lincoln was featured in an article on the “Silicon Prairie”, highlighting the fact that Lincoln has become home to more than 100 software startups.<sup>5</sup> Through leveraging startups such as these, Nebraska may have the opportunity to increase the number of submitted SBIR/STTR applications, helping these startups to grow into established companies that can benefit our economy and provide additional job opportunities.

Program awareness and education may be the crucial factors that need to be initially addressed in order to improve Nebraska’s competitiveness. Providing information on the SBIR/STTR program to both startup and established companies in Nebraska may increase the overall interest in the program and could lead to additional applications. Firms that intend on submitting an application can greatly benefit from additional education, including workshops, additional training, and other resources that deal with the SBIR/STTR application process. Education on the application process and keys to a successful application may increase both the total number of reviewed applications and the percentage of funded projects. One statistic that is difficult to

<sup>4</sup> Source: [https://www.sbir.gov/analytics-dashboard?view\\_by=State](https://www.sbir.gov/analytics-dashboard?view_by=State)

<sup>5</sup> Source: CBS News article, Feb. 25, 2016, “Silicon Prairie”, America’s new entrepreneurial frontier. <http://www.cbsnews.com/news/silicon-prairie-great-plains-midwest-startup-tech-companies-entrepreneurs/>

assess is the number of applications that never get reviewed due to formatting and application requirement errors. Such applications never get an opportunity to be reviewed and are usually rejected because of clerical errors.

Several resources for SBIR/STTR education are currently available in Nebraska, but many firms may be unaware of their existence. The Nebraska Business Development Center (NBDC) offers a range of services, from workshops and classes on preparing SBIR/STTR applications, to marketing research. The Nebraska Department of Economic Development offers assistance through its Business Innovation Act (BIA). The BIA provides support for applications to the SBIR program by offering Phase 0 grants and matching grants for Phase I and Phase II projects.<sup>6</sup> Phase 0 grants provide funds to help a firm prepare for an SBIR Phase I application.

In addition to providing awareness, education, and resources to increase new Phase I applications, resources that support transition from Phase I to Phase II could also increase the overall success of Nebraska firms. Firms that were successfully funded for Phase I and are applying for Phase II funding must endure a period of no federal funding while the Phase II application is being reviewed. Having the option to apply for state assisted bridge funding that covers the gap between federal SBIR/STTR Phase I and Phase II funding periods would help alleviate potential problems with capital during this time.

### ***Conclusions***

From the data, it is clear that the number of SBIR/STTR applications from Nebraska firms will need to be greatly increased if Nebraska wants to no longer be considered underrepresented. Nebraskans have the talent, resources, and entrepreneurial drive to create and grow new firms. The SBIR/STTR program can help develop these firms through funding opportunities and peer review. Increasing awareness and education about the SBIR/STTR program could increase the number of applications and the percent of successful applications. Engaging small firms in the SBIR/STTR program can provide the capital needed to move novel concepts into commercialized products. Using SBIR/STTR funding to help startups succeed will have a positive impact on the local and national economy, providing new products and services, new jobs, and keeping us on the forefront of technical innovation.

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<sup>6</sup> Source: <http://www.neded.org/business/talent-a-innovation-initiative/business-innovation-act>