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# Leveraging Innovation: The Need to Expand Maryland's Role in the Federal Small Business Innovation Research Program

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*The federal SBIR program is already contributing significantly to the state's economy. But there's more in it for the state — if it commits its resources to expanding the program. This report profiles the present program and suggests ways the state can accomplish that expansion. At stake are even more dollars at work in the Maryland economy.*

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# Executive Summary

Promoting high-tech entrepreneurship is a critical component of most state economic development strategies today. Maryland has developed several programs designed to foster entrepreneurship among small, high-tech oriented businesses, and continues to look for new ways to guide the future of this industry. One overlooked opportunity is the federal Small Business Innovation Research (SBIR) grant program which helps small businesses to transfer their research to the marketplace. This program provides an opportunity for the state to leverage the money already invested in Maryland firms to develop them further.

The SBIR program funnels \$400 million in grants annually into small science and technology companies (universities are ineligible) to conduct research and development on innovative products or processes with significant scientific and commercial merit. All federal agencies with R&D budgets exceeding \$100 million participate in the program by devoting 1.25 percent of their budget to SBIR grants. While the Small Business Administration coordinates the program, each agency handles its own application process. As of 1988, 11 federal agencies had made 12,017 awards under the program, worth almost \$1.4 billion.

In 1988, Maryland firms received \$27.2 million for 153 projects. This represented 9.5 percent of total U.S. dollars, the third largest amount behind California and Massachusetts. Approximately 20 percent of the state's total projects and 12 percent of the money went to minority firms, which is higher than the national average. More than 70 percent of Maryland's SBIR awards went to firms in Montgomery and Prince George's counties. In fact, the D.C. metropolitan area ranked third in 1988, while Baltimore ranked 11th. On a per capita basis, the D.C. area ranked seventh, while Baltimore ranked 33rd. In 1988, the majority of Maryland's SBIR awards came through the Department of Defense (48.7 percent), though at a lower-than-average national rate of 53 percent. The second largest amount came from Health and Human Services (33.5 percent) at a higher-than-average national rate of 19 percent. Clearly, Maryland's strengths in the SBIR program lie within the defense and biomedical industries.

The SBIR program is divided into Phase I (grants of up to \$50,000 for six months) and Phase II (grants of up to \$500,000 over two years). Approximately 25 percent of the SBIR grants are devoted to Phase I; of those that complete Phase I, half will be awarded a Phase II grant. The SBIR program has become increasingly competitive over the years. In 1985, 19.85 percent of the SBIR proposals were awarded, yet in 1988, only 14.38 percent were awarded. For Maryland, the award rate dropped from 26.85 percent in 1985 to 16.52 percent in 1988. Finally, while Maryland had the largest number of Phase II grants in 1988, during the first four years of the program its Phase I to Phase II conversion rate was below the national average. While many of the state's firms are moving on to the important Phase II stage, many more of the state's companies are not.

What can be done to maintain or improve the SBIR investment in Maryland? How can the state leverage this critical revenue stream? Already, 36 states have developed programs tied to the SBIR program. Recognizing the opportunity associated with importing federal dollars into the state, most of these programs either provide proposal writing assistance or grants that serve as an incentive to firms to apply for SBIR grants. Others have focused on ways to further improve the commercialization of SBIR projects. Maryland has not developed any programs to augment this federal investment.

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This report argues that it is time for Maryland to take advantage of the SBIR program, which identifies new ideas with commercial potential and invests federal funds to help them succeed. Any effort to leverage SBIR would fit nicely with the state's economic development strategy. Neglecting the importance of this program at a time when competition for this program, and for federal dollars in general, has increased would be a mistake. Assuming that the state does well enough in receiving SBIR money and, therefore, has no need to pay attention to it would be an unfortunate waste of an important state asset: the small technology firms in Maryland that use (or could use) the program as de facto seed capital.

Among the options discussed in this report for developing a Maryland SBIR linkage are:

- **Improve the commercialization of SBIR projects.**

SBA reported that only 13 percent of SBIR firms said that commercialization was unlikely. Beyond the Phase II grant, however, there are no federal funds available to assist with commercialization. This is a very difficult situation for any firm, even those with proven ideas. While Maryland has developed programs to encourage the commercialization of research, it does not target SBIR firms in particular, a group that has already proven that its ideas have commercial merit. Already, a peer group has pre-screened these projects and the federal government has invested in these firms, providing a more efficient and less risky investment to the state. To improve commercialization, the state could develop a database of SBIR firms and track their progress, link them up to other state SBIR firms and/or technology transfer programs, help them to identify and obtain private sector financing, and reward their excellence through a state grant program.

- **Increase the amount of Phase II grants awarded to Maryland firms.**

Phase II is where projects are awarded the largest amount of money and promise the most commercial reward. Maryland could work with Phase I companies to help them make it to Phase II. Assistance could include bridge grants to help them endure the delay between phases, proposal writing assistance, and networking through databases or staff assistance to link the firms up with others working on similar issues or with entrepreneurs to help them with development.

- **Increase or maintain the amount of federal SBIR dollars coming into Maryland.**

While Maryland does well in receiving SBIR dollars, in general, only 13 percent of eligible firms in Maryland apply for them. Those that do apply face even stiffer competition as more and more firms apply for a static amount of money. To increase or maintain the amount of SBIR dollars in Maryland, the state could provide grants as an incentive for firms to apply, market the program, provide proposal writing assistance, and designate/hire an individual to interface with the federal agencies and the firms.

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- **Target specific types of firms in Maryland for SBIR dollars.**

Beyond the sheer number of awards coming into the state, Maryland should be concerned with where the money is going. Different strategies or programs could be targeted to different types of firms depending on their geographic location (Baltimore vs. D.C. metro area); size (under 50 vs. under 500); technology concentration (biotech vs. defense vs. energy); and minority makeup. The state could target programs of marketing and assistance to serve specific types of firms in order to rectify any disparities or encourage the growth in other areas.

Clearly, there are many ways to leverage the federal SBIR dollars invested in Maryland firms. Designating a full-time SBIR coordinator would be the first step. A second step would involve surveying the SBIR firms in Maryland to assess their needs and develop a database. From there, recommendations on a course of action should be decided. What is most important, however, is that something be done soon. Competition is increasing and other states are moving forward to help their firms to compete. A short-term investment now would result in a long-term reward of a stable, diversified economy through the growth of these growing businesses.



# Introduction

The entrepreneur, motivated by a vision and driven by the spirit to succeed, impacts the future of American competitiveness and injects vitality into local economies. The American dream is instilled in our entrepreneur. Though the debate continues over the extent to which small business plays a role in creating jobs, experts agree that the entrepreneur is a major contributor to the future thriving economy.

Understanding that tomorrow's economy will be fueled by today's entrepreneur, states and localities across the country are improving their competitive position by investing in programs that are designed to 1) create a climate that fosters innovation, and 2) help entrepreneurs and small businesses to succeed. Maryland understands the importance of entrepreneurship to its economic future and particularly that associated with new technology or scientific research, because, by definition, such industry will mean importing dollars into the state. Maryland's challenge is to determine what specific actions it should take to promote high-tech entrepreneurship.

One major missed opportunity is the federal Small Business Innovation Research (SBIR) grant program. The program identifies new ideas with commercial potential and invests federal funds in them to help them succeed. Maryland thus has available to it a program that identifies potential success and gives firms modest assistance. The problem is that Maryland takes no advantage of this opportunity. The success of this program on a national level has prompted many other states to invest their resources in programs designed to leverage this critical source of R&D funding.

Historically, Maryland's small research firms have done exceptionally well at receiving SBIR grants. However, as the program becomes more competitive and other states become more aggressive in helping their firms to compete for these grants, Maryland is in danger of losing its edge. More importantly, Maryland is missing the opportunity to capitalize on a ready market of would-be entrepreneurs by neglecting to assist them in commercializing the results of their first-rate research.

It is never too late to start. This paper proposes that the state begin to build upon this critical asset by developing a strategy to enhance or supplement the federal SBIR program.

First of all, the state should survey the SBIR grantees in the state to identify the obstacles facing them and help to remove them.

Second, the state should measure the potential impact of the SBIR program on the long term economic development of the community.

Third, the state should identify Maryland's strengths and weaknesses in the SBIR program and evaluate the various policy alternatives that would complement the state's economic development strategy.

Finally, an action plan should be developed that incorporates a variety of marketing, technical assistance and financial programs.

Maryland has available to it a program that identifies potential success and gives firms modest assistance. The success of the SBIR program on a national level has prompted many other states to invest their resources in programs designed to leverage this critical source of R&D funding.

## Leveraging Innovation: Expanding Maryland's Role in the SBIR Program

In 1988, Maryland ranked third in the number of SBIR awards received. No formal mechanisms have been developed in Maryland to either maintain or leverage this \$27 million annual investment of federal funds.

### Background

The SBIR program provides small science and technology companies with grants to conduct research and development on innovative products or processes with significant scientific and commercial merit. Awards are made only to incorporated entities; higher education institutions do not qualify. In 1982, all federal agencies with R&D budgets over \$100 million were instructed to devote 1.25 percent of their budgets for Small Business Innovation Research grants. The Small Business Administration (SBA) serves as the clearinghouse for information regarding the program while each individual federal agency handles its own grant process, including developing recommendations regarding research focus and instituting a process for reviewing proposals. Traditionally, most agencies use a peer review process to evaluate proposals, ensuring the highest level of competition. Annually, approximately \$400 million is funneled into SBIR firms, accounting for 2,700 projects. As of 1988, 11 federal agencies had made 12,017 awards under the program, worth almost \$1.4 billion.

In 1988, Maryland firms received \$27.2 million for 153 research and development projects (see Table 1). This represented 9.5 percent of the total U.S. SBIR dollars, an increase from 6.25 percent in 1984. Maryland ranked third in total SBIR awards received, behind Massachusetts and California (which together accounted for 40 percent of the total SBIR awards). Approximately 20 percent of the state's total projects, and 12 percent of the money, went to minority firms, a slight increase from the previous year and higher than the national average of 10.4 percent. Maryland ranked fifth in the total awards to minority firms.

The D.C. metropolitan area (which includes parts of northern Virginia and Maryland) received the third highest amount of awards in 1988 (\$38.2 million) though it ranked fourth in cumulative awards (\$120 million), behind Boston, Los Angeles, and the San Francisco Bay Area. The Baltimore metropolitan area ranked 11th in 1988 (\$6.4 million) and 14th, cumulatively (\$19 million). On a per capita basis, the D.C. metro area ranked seventh in total awards (\$33,859 per one million population), behind Huntsville, Santa Fe, Boston, Roanoke, Albuquerque, and Las Cruces, NM. Baltimore ranked 33rd on a per capita basis with \$8,617 per one million population.

Clearly, Maryland firms benefit from the federal government's infusion of SBIR dollars into the region. However, those dollars are concentrated in the D.C. metropolitan area, while the Baltimore region, much less the rest of the state, lags significantly behind. Moreover, no formal mechanisms have been developed to either maintain this level of investment or, more importantly, to help these firms leverage the \$27 million in federal funds that arrive annually.

### Phases I and II: Proposal and Award Rates

Phase I of the SBIR program provides funding for further investigation of meritorious scientific and/or technical processes. For many researchers, it is the primary source of funding available to advance their research toward commercialization. Businesses of fewer than 500 employees may apply to the appropriate agency for Phase I funding of up to \$50,000.

Table 1.

TOP TEN STATES

Historical

FY 1984	\$MM	% Change	% of Top Ten
1. California	\$27,473		30.74%
2. Massachusetts	22,856		25.58%
3. Virginia	6,853		7.67%
4. Ohio	5,856		6.55%
5. Maryland	5,584		6.25%
6. Pennsylvania	5,515		6.17%
7. Washington	5,377		6.02%
8. New York	4,439		4.97%
9. Michigan	2,874		3.22%
10. Illinois	2,539		2.84%
<b>Total Top Ten</b>	<b>\$89,366</b>		<b>100.00%</b>
<b>% of Total SBIR</b>	<b>72.06%</b>		

FY 1985	\$MM	% Change	% of Top Ten
1. California	\$40,181	46.26%	30.90%
2. Massachusetts	28,689	25.52%	22.06%
3. Virginia	12,005	75.18%	9.23%
4. Maryland	9,827	75.98%	7.56%
5. Pennsylvania	9,485	71.98%	7.29%
6. New York	7,657	72.49%	5.89%
7. Washington	6,704	24.68%	5.15%
8. Ohio	5,950	1.60%	4.58%
9. Colorado	5,180	N/A	3.98%
10. New Jersey	4,376	N/A	3.36%
<b>Total Top Ten</b>	<b>\$130,054</b>		<b>100.00%</b>
<b>% of Total SBIR</b>	<b>71.67%</b>		

FY 1986	\$MM	% Change	% of Top Ten
1. California	\$59,668	48.50%	34.79%
2. Massachusetts	34,174	19.12%	19.92%
3. Virginia	13,668	13.85%	7.97%
4. Pennsylvania	10,613	11.89%	6.19%
5. Maryland	10,526	7.11%	6.14%
6. New York	10,155	32.62%	5.92%
7. Colorado	9,602	85.36%	5.60%
8. Texas	8,734	N/A	5.09%
9. Ohio	7,375	23.95%	4.30%
10. Connecticut	7,007	N/A	4.09%
<b>Total Top Ten</b>	<b>\$171,522</b>		<b>100.00%</b>
<b>% of Total SBIR</b>	<b>71.60%</b>		

FY 1987	\$MM	% Change	% of Top Ten
1. California	\$75,658	26.80%	37.20%
2. Massachusetts	41,327	20.93%	20.32%
3. Maryland	16,494	56.70%	8.11%
4. Virginia	15,083	10.35%	7.42%
5. Pennsylvania	12,311	16.00%	6.05%
6. New York	11,655	14.77%	5.73%
7. Texas	8,251	(5.53)%	4.06% (-)
8. Washington	7,888	N/A	3.88%
9. Colorado	7,546	(21.41)%	3.71% (-)
10. Connecticut	7,170	2.32%	3.53%
<b>Total Top Ten</b>	<b>\$203,383</b>		<b>100.00%</b>
<b>% of Total SBIR</b>	<b>73.24%</b>		

FY 1988	\$MM	% Change	% of Top Ten
1. California	\$96,083	26.99%	33.52%
2. Massachusetts	63,317	53.21%	22.09%
3. Maryland	27,232	65.10%	9.50%
4. Virginia	20,093	33.22%	7.01%
5. Pennsylvania	17,172	39.48%	5.99%
6. New York	16,406	40.76%	5.72%
7. New Jersey	12,645	N/A	4.41%
8. Colorado	12,130	60.75%	4.23%
9. Florida	10,930	N/A	3.81%
10. Washington	10,644	34.94%	3.71%
<b>Total Top Ten</b>	<b>\$286,652</b>		<b>100.00%</b>
<b>% of Total SBIR</b>	<b>72.51%</b>		

## Leveraging Innovation: Expanding Maryland's Role in the SBIR Program

Unfortunately, while Maryland has a large number of SBIR firms receiving Phase I awards, it also has a larger-than-average number who are turned down in the critical Phase II stage. This reflects the state's strength in R&D and weakness in commercialization.

for six months. A Phase I award indicates that the company has been able to demonstrate the commercial feasibility of its project. After successful completion of Phase I, the company may apply for Phase II funding of up to \$500,000 over two years. Money must be used for research designed to further develop the project or process for commercial application. Phase II is considered the most important stage in SBIR since it provides the firm with a larger amount of money to move the project closer to commercialization. Historically, approximately 50 percent of the projects receiving Phase I money go on to receive Phase II money.

Approximately 25 percent of the federal grants are devoted to Phase I projects. In 1988, a total of 2,000 Phase I awards were made nationally, accounting for 12 percent of the proposals received. Nearly 95 percent of firms receiving Phase I awards apply for Phase II funding; of the Phase II proposals submitted, 37 percent are awarded. During 1988, Maryland followed Virginia and New York in the number of Phase I awards and had the highest percentage of Phase II awards (33.1 percent), ahead of Pennsylvania (28.7 percent), New Jersey (27.2 percent), Virginia (24.2 percent), New York (23.2 percent), and Ohio (15.3 percent).

According to a 1987 study conducted by the Small Business High Technology Institute in Phoenix, Arizona, on average in the first four years of the program (1983-86), 14 percent of Maryland firms' Phase I proposals were funded, which is better than the 1988 national average. However, 25 percent of the Phase II proposals were accepted, which is lower than the 1988 average of 37 percent. On average, one in 27 projects, nationwide, make it from proposal to Phase II award, but for Maryland the number was one in 29. So, while Maryland clearly has a large number of SBIR firms receiving Phase I awards, it also has a larger than average number who are turned down in the critical Phase II stage.

The SBIR program promises to become more competitive in the future. Federal funds dedicated to the SBIR program are not growing in proportion to the number of requests for SBIR funds. As the program matures, so does the grantwriting ability of firms. More and better proposals lead to increased competition for firms, especially newer and smaller firms. To exemplify how the SBIR awards are becoming more competitive, the 1985 award rate was 19.85 percent and the 1988 rate was 14.38 percent (see Table 2). This increased competitiveness was also seen in Maryland, where the award rate of 26.85 percent in 1985 dropped to 16.52 percent in 1988. This was confirmed by the majority of Maryland SBIR firms responding to a 1989 Abell Foundation survey of 21 Phase II winners, who admitted that they may not apply for additional SBIR awards because they believe that they are not receiving as many awards in relation to the number of proposals they submit.

In summary, Phase II provides the biggest boost to SBIR firms and local economic development because it leads to the commercial application of significant research. Maryland has a significant number of Phase I and II applications and on average appears to have an award rate higher than the national average, yet it scores poorly in its Phase I to II conversion rate. In addition to Maryland's poor conversion rate, the SBIR program is becoming more competitive as witnessed in the decreasing differential between the national and Maryland award rates.

**Table 2.**  
**SBIR FUNDING**  
**U.S.**

Fiscal Year	Phase I (# Awards)	% Change	Phase I (\$MM)	% Change	Phase II (# Awards)	% Change	Phase II (\$MM)	% Change	Total (# Awards)	% Change	Total (\$MM)	% Change
1983	686	-	\$44,500	-	-	-	-	-	686	-	\$44,500	-
1984	999	45.62%	48,000	7.87%	338	-	\$60,400	-	1,337	94.90%	108,400	143.60%
1985	1,397	39.84%	69,100	43.96%	407	20.41%	130,000	115.23%	1,804	34.93%	199,100	83.67%
1986	1,945	39.23%	98,500	42.55%	564	38.57%	199,400	53.36%	2,509	39.08%	297,900	49.62%
1987	2,189	12.54%	109,600	11.27%	768	36.17%	240,900	20.81%	2,957	17.86%	350,500	17.66%
1988	2,013	(8.04)%	101,900	(7.03)%	711	(7.42)%	284,900	18.26%	2,724	(7.88)%	389,100	11.01%

**SBIR FUNDING**  
**Maryland**

Fiscal Year	Total # Proposals	Awards	% Change	Award Rate	National Award Rate	Total Awards (\$)	% Change	# of Companies	\$ per Company
1983	480	45	-	9.37%	7.78%	\$ 2,811,723	-	38	\$ 73,992
1984	338	52	15.55%	15.38%	15.70%	8,186,114	191.14%	60	136,435
1985	391	105	101.92%	26.85%	19.85%	10,851,942	32.56%	109	99,559
1986	646	139	29.52%	21.51%	18.50%	15,203,337	40.09%	152	100,021
1987	812	170	22.30%	20.93%	17.28%	16,494,294	8.49%	N/A	N/A
1988	914	151	(11.17)%	16.52%	14.38%	27,190,617	64.84%	99	274,652

Maryland's strengths in the SBIR program lie within the defense and biomedical industries. These two areas may become increasingly competitive in the coming year.

## Technology Concentration

On average, the Department of Defense (DOD) makes more awards than the other 10 agencies combined (see Table 3). Following DOD, in order of contribution to the SBIR program are Health and Human Services (HHS), National Aeronautics and Space Administration (NASA), the National Science Foundation (NSF) and the Department of Energy (DOE). In 1988, the majority of Maryland's SBIR awards came from DOD (48.7 percent), though at a lower-than-average national rate of 53 percent. Conversely, however, a significantly higher percentage of Maryland's awards are from HHS: 33.5 percent vs. a national average of 19 percent. This is largely attributed to the location of the National Institute of Health (NIH) in Bethesda, as well as the larger number of biotechnology and biomedical companies located in Montgomery County. Maryland receives a lower than average number of awards from DOE and NASA: DOE—4.1 percent vs. 8.6 percent; NASA—7 percent vs. 11.1 percent.

In 1987, the D.C. metro area awards were made in the following technology areas: computer and communication systems, information processing and management, signal and image processing, systems studies, electromagnetic radiation/propagation, and behavioral sciences. In the Baltimore area, awards were made in optical devices and lasers, materials performance, propulsion/combustion technology, biotechnology and microbiology, behavioral sciences, and physiology and miscellaneous life sciences.

Clearly, Maryland's strengths in the SBIR program lie within the defense and biomedical industries. Unfortunately, these two areas may become increasingly competitive in the coming years. Increased national attention on the "peace dividend" may find the defense budget, and its related SBIR budget, decreasing significantly. The peace dividend may provide a windfall for the DOE and/or NASA, but Maryland is not positioned as significantly in these areas. While the NIH and NSF budgets are likely to increase regardless of the peace dividend, so are the number of biotechnology-oriented companies. The peer-review process that is used so successfully in awarding basic scientific research grants is also used in the SBIR program. Over the past few years, that process has become increasingly popular because few research and development dollars are available to fund the increasing number of innovations. In addition, grantwriting skills are improving and biotechnology firms are maturing, making the competition for these funds even stiffer.

## Profile of Firms

The 1989 Maryland High Technology Directory (published by CorpTech Info Services for the Department of Economic and Employment Development) profiled 1,036 high technology companies in Maryland, including both private and public companies, government laboratories and university-affiliated organizations. After eliminating the 72 government agencies and university labs, there remain 797 private companies and 167 public companies. Most of the public companies are Fortune 500 firms like Westinghouse, IBM, and Martin Marietta.

**Table 3.**  
**U.S. PROPOSAL AND AWARD RATES BY AGENCY**  
**FY 1986-1988**

FY 1986	DOD	DOE	HHS	NASA	NSF	OTHERS <sup>1</sup>	TOTAL
Phase I Proposals	5,555	699	2,036	1,628	1,199	1,332	12,449
Phase I Awards	1,028	100	421	150	126	120	1,945
Phase I Award Rate	18.51%	14.31%	20.68%	9.21%	10.51%	9.01%	15.62%
Phase I (\$MM)	\$55,760	\$4,883	\$20,376	\$7,380	\$4,896	\$5,199	\$98,494
Phase II Proposals	394	100	366	100	56	96	1,112
Phase II Awards	253	45	110	69	44	43	564
Phase II Award Rate	64.21%	45.00%	30.05%	69.00%	78.57%	44.79%	50.72%
Phase II (\$MM)	\$94,867	\$24,094	\$35,919	\$28,105	\$10,026	\$6,383	\$199,394
Total SBIR (\$MM)	\$150,627	\$28,977	\$56,295	\$35,485	\$14,922	\$11,582	\$297,888
% Change (\$)	-	-	-	-	-	-	-
% of Total SBIR	50.56%	9.73%	18.90%	11.91%	5.01%	3.89%	100.00%

FY 1987	DOD	DOE	HHS	NASA	NSF	OTHERS <sup>1</sup>	TOTAL
Phase I Proposals	7,536	942	1,883	1,828	1,248	1,288	14,725
Phase I Awards	1,270	111	356	172	155	125	2,189
Phase I Award Rate	16.85%	11.78%	18.91%	9.41%	12.42%	9.70%	14.87%
Phase I (\$MM)	\$67,087	\$5,487	\$17,292	\$8,441	\$6,052	\$5,228	\$109,587
Phase II Proposals	1,500	90	457	140	91	112	2,390
Phase II Awards	401	43	147	81	50	46	768
Phase II Award Rate	26.73%	47.78%	32.17%	57.86%	54.95%	41.07%	32.13%
Phase II (\$MM)	\$126,645	\$22,903	\$49,056	\$23,319	\$10,636	\$8,323	\$240,882
Total SBIR (\$MM)	\$193,732	\$28,390	\$66,348	\$31,760	\$16,688	\$13,551	\$350,469
% Change (\$)	28.62%	(2.03)%	17.86%	(10.50)%	11.83%	17.00%	17.65%
\$ of Total SBIR	55.28%	8.10%	18.93%	9.06%	4.76%	3.87%	100.00%

FY 1988	DOD	DOE	HHS	NASA	NSF	OTHERS <sup>1</sup>	TOTAL
Phase I Proposals	8,660	1,214	1,970	2,379	1,513	1,303	17,039
Phase I Awards	1,056	131	350	204	160	112	2,013
Phase I Award Rate	12.19%	10.79%	17.77%	8.58%	10.58%	8.60%	11.81%
Phase I (\$MM)	\$55,936	\$6,470	\$17,015	\$10,030	\$7,785	\$4,699	\$101,935
Phase II Proposals	1,000	100	359	172	152	116	1,899
Phase II Awards	334	62	132	82	50	51	711
Phase II Award Rate	33.40%	62.00%	36.77%	47.67%	32.89%	43.97%	37.44%
Phase II (\$MM)	\$152,176	\$23,801	\$53,265	\$37,402	\$9,302	\$8,921	\$284,867
Total SBIR (\$MM)	\$208,112	\$30,271	\$70,280	\$47,432	\$17,087	\$13,620	\$386,802
% Change (\$)	7.42%	6.62%	5.93%	49.35%	2.39%	.51%	10.37%
% of Total SBIR	53.80%	7.83%	18.17%	12.26%	4.42%	3.52%	100.00%
Maryland %	48.66%	4.05%	33.47%	6.90%	4.30%	2.63%	100.00%

<sup>1</sup> Other Agencies - DOA, DOC, EPA, NRC, DOT

## Leveraging Innovation: Expanding Maryland's Role in the SBIR Program

Approximately 13 percent of the total high tech firms in Maryland received SBIR funding in 1988. 70 percent of Maryland's SBIR funds are concentrated in Montgomery and Prince George's Counties.

The following highlights some of the characteristics of the private firms:

- 40 percent were founded in the 1980s;
- 33 percent were founded in the 1970s;
- 73 percent have annual revenues under \$10 million;
- 61 percent have under 50 employees;
- 90 percent have under 500 employees (qualifying for SBIR).

For these small high tech companies, there are few funding sources available for applied R&D. The value of the SBIR is to enable companies to initiate and develop products and also to provide resources for growth and expansion. In essence, SBIR funding cannot be duplicated elsewhere because it fills a critical gap in financing between basic research in the scientific/academic laboratory and the first applied research.

In FY88, the SBIR program provided R&D funding to approximately 13 percent of the total high tech firms in Maryland. This represented 103 companies receiving 153 awards totaling \$27.2 million (see Table 4). These awards were concentrated in Montgomery and Prince George's counties with 68 companies receiving \$19.1 million or 70.2 percent of total state funding. The next ranking localities included: Anne Arundel County (six companies, \$2.9 million); Baltimore City (five companies, \$2.1 million); and Howard County (11 companies, \$1.7 million.)

A study by Peat Marwick in 1985 concluded that the companies that win SBIR grants typically are five years old, have fewer than 50 employees, and earn revenues of less than \$5 million a year. A 1988 SBA study concluded that the typical Phase II awardee had been in business between five and nine years and had about 10 employees at the time of the first award but had grown to 30 when the survey was conducted—at least one year after completion of the Phase II project. A study by Zoltan Achs of the University of Baltimore found that the average Maryland SBIR firm was 10 years old with 35 employees.

The Abell Foundation survey found that all 21 companies interviewed had received multiple SBIR awards. Most companies received their first award in 1986. Together, the companies estimated receiving approximately 191 SBIR Phase I & II awards totaling \$36 million. The recipients are small, established (average 7.7 years in business) firms capitalized not by SBIR or venture funds, but by personal funds. Only two companies started with SBIR funding. Most companies started as a spin-off of a larger firm or government institution. The companies have grown over the years; many started with one or two employees and now average more than 30.

### Commercialization

Because it takes an estimated eight to 10 years for a product to develop, the Government Accounting Office (GAO) will undertake a comprehensive study of the commercialization success of SBIR projects in 1991. In the meantime, several other studies have attempted to track the results. In a 1987 GAO survey, it was found that 11 percent of the sample projects that received a Phase II award were finished with their research. Of these, less than half had results available for commercial sale. By 1989, a GAO study found that 24 percent of the Phase II projects were completed and that the number of firms that reported having products

**Table 4.**  
**MARYLAND SBIR AWARDS**  
**by Firm and County**

**FY 1988**

County	City	Company	Phase I	Agency	Phase II	Agency	% Total
Anne Arundel	Annapolis	Energy Concepts Co.			\$227,000	NSF	
		Glynn Scientific, Inc.			530,000	AF	
		J & D Scientific, Inc.	\$49,968	Army	489,000	Navy	
	Harwood Severna Park	Converging Tech., Inc.	49,968	SDIO	494,000	Navy	
		Arctic Energies, Ltd. Band, Lavis. Assoc.	49,990	Navy	493,000	HHS	
<b>Subtotal</b>			<b>\$149,926</b>		<b>\$2,764,000</b>		<b>10.72%</b>
Baltimore City	Baltimore	Brimrose Corp. of Am.	80,773	SDIO	520,000	SDIO	
		Fein-Marquart Assoc.	50,000	HHS	495,000	SDIO	
		Molecular Diag. System	50,000	HHS	500,000	HHS	
		Nova Pharmaceutical	50,000	HHS			
			4,600	HHS			
			46,000	HHS			
			50,000	HHS			
<b>Subtotal</b>		Spectrum 39 (SI Div.)	<b>\$331,373</b>		259,000	AF	<b>7.74%</b>
Baltimore County	Timonium	Dejamette Research Sys.	50,000	HHS			
<b>Subtotal</b>			<b>\$50,000</b>				<b>0.18%</b>
Carroll	Westminster	Loats Associates, Inc.	50,000	HHS			
	Woodbine	Rekenthaler Tech. Assoc.	49,998	Navy			
<b>Subtotal</b>			<b>\$99,998</b>				<b>0.18%</b>
Charles	Waldorf	Cardinal Scientific, Inc.	53,566	Army			
<b>Subtotal</b>			<b>\$53,566</b>				<b>0.20%</b>
Frederick	Frederick	Operational Tech. Assoc.	49,990	Army			
	Ijamsville	K T Analytics	34,000	DOT			
		Biol. Research Faculty				420,000	HHS
<b>Subtotal</b>			<b>\$83,990</b>		<b>\$920,000</b>	<b>HHS</b>	<b>3.69%</b>
Harford	Bel Air	Survive Eng. Co.	49,900	AF			
<b>Subtotal</b>			<b>\$49,900</b>				<b>0.18%</b>
Howard	Columbia	Ard Corp.	49,981	AF	271,000	Navy	
			50,000	Navy			
		Electronics Dev. Corp.	51,333	Army			
		EVI Inc.	45,838	Army			
		GMS Eng. Corp.	47,121	AF			
			50,791	Army			
		H-Cubed Corp.	51,784	Army			
		Hittman Materials & Med. Mfg. & Tech.	49,897	Navy			
			50,000	DOE			
	Columbia	Martek Biosciences Corp.	46,000	HHS	473,000	HHS	
			50,000	HHS			
			47,000	NSF			
	Ellicott City Hanover	NKF Eng. Inc.	50,000	Navy	202,000	NSF	
Vantage Point Systems		50,000	DOA				
Kruth-Microwave Elec.		49,464	Army				
<b>Subtotal</b>			<b>\$789,209</b>		<b>\$946,000</b>		<b>6.38%</b>

Maryland SBIR Awards  
FY 1988 (cont.)

County	City	Company	Phase I	Agency	Phase II	Agency	% Total
Montgomery	Bethesda	JG Van Dyke & Assoc.	50,000	NSF			
		Unison	50,000	HHS			
	Chevy Chase	Power Silicon	46,739	NASA	200,000	NSF	
		Compression Telecom	49,000	NSF			
	Gaithersburg	Epoch Eng., Inc.	49,138	Navy	480,000	HHS	
		Genex Corp.	50,000	HHS			
				50,000	HHS		
				50,000	HHS		
				52,789	Navy	499,000	HHS
			Industrial Quality, Inc.				
			LKC Systems, Inc.				
			Oncor, Inc.	50,000	HHS		
			Quality Biological, Inc.	50,000	HHS		
			Rapidan Research Corp.	50,000	NSF		
			Scientific Technology	50,000	NASA		
				49,000	NSF		
			Summit Research Corp.	48,250	Navy		
		Potomac	Potomac Research, Inc.	45,000	NSF		
			Progressive Learning Sys.	49,615	AF		
		Rockville	American Blotech	495,000	Navy		
			BK Security	50,000	Army		
			Bioresources Lab., Inc.	48,000	HHS		
			Biotronic Systems Corp.	50,000	HHS		
				50,000	HHS		
			Centra Tech., Inc.	49,954	Navy	500,000	Navy
			Defense Research Tech.	50,089	SDIO	300,000	Army
			Digital Video Proc.			377,000	Army
						500,000	DOE
						484,000	HHS
			F.A.S.T. Systems, Inc.				
			Health Research, Inc.	21,000	HHS		
			Industrial Quality, Inc.	50,000	NSF	205,162	ED
			Integ. Microcomp. Sys.				
			Intelligent Autom.	50,000	NSF		
				55,366	SDIO	497,000	HHS
			La Jolla Mgmt. Corp.			500,000	HHS
			Large Scale Biology Corp.	50,000	HHS	447,000	HHS
			Microbiology Assoc.	50,000	HHS	461,000	HHS
						495,000	Army
			Quantex Corp.			500,000	HHS
						500,000	NASA
			Rayex Corp.	50,358	Army		
			Sema, Inc.	50,000	NSF		
		Silver Spring	Adrian Engineering	50,000	DOT	299,000	DOT
			Barnett Tech. Services			500,000	HHS
		Birch & Davis Assoc.			81,000	HHS	
		Caelum Research Corp.	53,566	AF			
		DV Communications Tech.	49,984	NASA			
		General Eng. & Sys. Anal.	49,844	AF			
		General Technology, Inc.	50,000	DOT			
		Infrared Fiber System, Inc.			500,000	NASA	
		Potomac Medical System			500,000	HHS	
		Ramsearch Co.			700,000	AF	
					700,000	AF	
		Solon Consulting Group	50,000	HHS			
<b>Subtotal</b>			<b>\$2,312,692</b>		<b>\$10,225,162</b>		<b>46.11%</b>

Maryland SBIR Awards  
 FY 1988 (cont.)

County	City	Company	Phase I	Agency	Phase II	Agency	% Total	
Prince George's	Beltsville	Eng. Assoc., Inc.	49,547	AF				
		Bonnie Walker Assoc.	50,000	HHS				
	Bowie	Techno-Sciences, Inc.	49,901	NASA				
		Astrox Corp.	47,823	AF				
	College Park	Cyto Fluid. Inc.	50,000	NSF		500,000	HHS	
		Digene/U. of M.				500,000	AF	
		Potomac Photonics, Inc.	50,000	AF				
		Atlantic Aeros. Electron.	67,782	Army				
	Greenbelt	Omnitron, Inc.		50,000	NASA			
			Techno-Sciences, Inc.	51,264	AF			
		Applied Research Corp.		59,991	SDIO			
				50,000	HHS	500,000	DOE	
				49,000	NASA	481,000	NASA	
	Lanham	A M Systems & Res.		55,160	SDIO			
				54,286	SDIO			
		American Electronics		49,779	AF			
			Cemcom Research	28,000	ED	500,000	Navy	
			Orbital Systems, Ltd.	49,940	AF	495,000	Army	
	Laurel	TS Infosystems, Inc.		50,000	AF			
			Adv. Tech. & Research	48,240	NASA			
		Adv. Tech. & Research	49,871	Army				
	Riverdale	Business & Tech. Sys.		49,308	Navy			
				50,720	AF			
		Century Computing		50,922	Navy			
			Computational Eng.	52,512	AF	450,000	SDIO	
	Seabrook	LNK Corp.		80,000	AF	509,000	Navy	
				50,000	NASA	499,000	SDIO	
		Business & Tech. Sys.	49,000	NSF	564,000	Army		
Upper Marlboro	Chemical Dynamic Corp.		49,862	AF				
			49,908	AF				
			50,000	HHS				
<b>Subtotal</b>			<b>\$1,542,816</b>		<b>\$4,998,000</b>		<b>24.06%</b>	
St. Marys	Hollywood	PRB Assoc., Inc.	49,985	Navy			0.18%	
<b>Subtotal</b>			<b>\$49,985</b>					
	Ft. Washington	Applied Ordnance Tech.	50,000	Navy			0.18%	
<b>Subtotal</b>			<b>\$50,000</b>					
<b>TOTAL MARYLAND SBIR AWARDS</b>			<b>\$5,563,455</b>		<b>\$21,627,162</b>		<b>100.00%</b>	

## Leveraging Innovation: Expanding Maryland's Role in the SBIR Program

Licensing, which is considered a significant choice among small high technology firms, puts Maryland at a disadvantage because the state has few of the large firms that buy new technology and manufacture biotech products.

and services which are now being sold varied among agencies; for HHS, 48 percent were being sold commercially.

Respondents to the 1989 GAO survey defined their commercialization activities as follows: market testing (16 percent); selling or licensing production results (11 percent); and forming partnerships and joint ventures (18 percent). Of those firms with sales, 54 percent had 25 or fewer employees; 78 percent had 1987 revenues of less than \$5 million; and 45 percent indicated that less than 25 percent of the firm's revenues derived from SBIR awards.

Additionally, the 1987 GAO survey examined plans for commercialization and only 16 percent of total survey respondents (Phase I and II) indicated that they had no plans to take the product to market. The remaining respondents indicated their plans as follows: obtain government contract (50 percent); obtain private contract (50 percent); apply for patent (32 percent); sell rights or license (29 percent); manufacture product or service (13 percent). DOD funded the highest percentage of projects planning to obtain a government contract and DOE funded the highest percentage of those planning to obtain a private contract. In both categories, HHS funded the least.

In a related SBA study, 13 percent of the projects completing Phase II reported sales; 10 percent reported that commercialization was likely because the company had received capital, or a commitment for capital, or had signed an agreement for assistance in commercialization; and 22 percent were actively pursuing possibilities. SBA also reported that 42 percent of the projects indicated that they were interested in commercialization but had taken little or no action, and 13 percent reported that commercialization was unlikely. Among the SBIR agencies, 40 percent of the projects funded by HHS reported present or highly prospective success. Comparable figures for other agencies were NSF, 26 percent; NASA, 22 percent; and DOE and DOD, 15 percent.

GAO found that 34 percent of the projects had obtained follow-on commitments with the largest number of these commitments (27 percent) in the range from \$100,000-\$250,000. The most common source of follow-on commitment was from the firms' own funds, followed by funds from other firms and venture capital institutions. SBA reported that the typical SBIR Phase II awardee needed an additional \$1 million in outside capital.

A study by Zoltan Achs of the University of Baltimore found that only one-third of Maryland SBIR firms interviewed in 1989 had commercialized a part of their R&D. The Abell Foundation's informal survey revealed that all but four of the 21 firms interviewed were optimistic about taking their product to market. The University of Baltimore study also noted that while the state and universities have traditionally maintained a strong base in R&D funding, their record of patents, commercialization and company spin-offs has been strikingly weak. When commercialization does occur, it usually involves licensing the technology to an out-of-state firm. Licensing, which is considered a significant choice among small high technology firms, puts Maryland at a disadvantage, because the state has few of the large firms that buy new technology. While royalties may come back to the firms down the road, the potential jobs and larger revenues are exported along with the technology. Better linkages to the entrepreneurial infrastructure must be cultivated in order to encourage these firms to manufacture and produce their innovations locally.

### Phase III

Phase III of the SBIR program encourages private or public sector seed financing for final development of the project. Traditionally, Phase III financing comes from state seed funds, venture capital, federal contracts, and/or personal funds. The SBIR program does not finance any Phase III projects. Increasingly, however, many agencies will give favored status to those Phase II applicants who have secured Phase III financing.

Phase III is considered the most valuable stage because it represents the commercialization of the most excellent projects. Also, it promises to establish private sector acceptance for the SBIR program. Few firms have made it to this stage, yet. According to an NSF study, those who did make it to this stage found an average private investment of \$8 dollars to every NSF-SBIR dollar awarded to a company. While several states have seed capital or related programs that might provide this function, none are dedicated solely to SBIR grantees. Many, however, include language that encourages SBIR-company participation or provides some form of Phase III-related assistance (see Appendix).

Phase III is considered the most valuable stage because it represents the commercialization of the most excellent projects and promises to establish private sector acceptance for the SBIR program.

### Bridging the Gaps

Despite the fact that the SBIR program provides a useful source of R&D money for small firms, many companies do not participate. Some SBIR officials speculate that firms do not participate in the program for the following reasons:

- unaware that the program exists;
- limited understanding of how the program works, who to contact, and how to apply;
- uncertainty about whether or how their project might qualify;
- lack of proposal writing experience or assistance;
- fear that federal money will inhibit their research or organizational objectives;
- lack of financial resources to commit to developing the proposal and learning more about the program;
- grant amounts too small to warrant the investment in developing a proposal;
- timing on the request for proposals differs and/or is not in conjunction with the timing of the research project;
- lapse of time between proposal and grant award requires the expenditure of company funds to keep the research team together.

To help bridge this gap, many states (not Maryland) have developed programs to market and coordinate the SBIR program. State SBIR programs are usually designed to accomplish the following: marketing, education and coordination; proposal assistance and incentives; matching or bridge grants/loans; and/or Phase III assistance. More than 36 states have some type of program designed to either market the federal SBIR program or boost their firms' participation in it. Most often, the program is folded into the state's technology office or a state center for technology advancement. Among the states that have concentrated on marketing and coordinating the program, a few have noticed an improvement in both the

## Leveraging Innovation: Expanding Maryland's Role in the SBIR Program

More than 36 states have some type of program designed to either market the federal SBIR program or provide bridge grants. Many have noticed an improvement in both the number and quality of SBIR proposals.

number and quality of SBIR proposals. Marketing and promotion programs include the following elements:

- promote the program to small business and university communities (print and distribute literature, hold conferences, maintain database);
- link potential applicants with technical resources within the state at colleges and universities;
- provide assistance for proposal development or refer to the appropriate business development center.

Also facing SBIR recipients is a gap in funding between phases. After completion of a Phase I project, many companies must often wait between three to 12 months before receiving a decision on their Phase II proposal. As a result, many firms choose not to apply for Phase II. Those that do apply, and wait, often lose valuable time spent on further research and development of the project. Many times, research teams are dissolved because there is no money to pay salaries. To help bridge this gap, some state governments (not Maryland) have developed bridge grant programs that provide critical funding to ensure continuity in research during this waiting period (see Table 5 on pages 20 and 21).

### State SBIR Grant Programs

Because some states view the SBIR program as a critical source of R&D for small technology firms, they have invested in programs designed to help bridge the funding gaps facing these firms. Many states have recognized the value of saving time, money, and risk by simply piggy-backing on the federal government's program and investing in pre-screened projects. Usually, this effort also serves the purpose of feeding into the state's broader goals of creating a climate for entrepreneurship. The following provides a brief summary of the more active state SBIR grant programs:

**Connecticut** has invested \$743,900 in 57 projects in 30 different firms since its inception in 1988. While it is still too soon to tell whether or not this investment made a difference, the state's goals for the SBIR program include: 1) promoting the program, 2) awarding those who achieve excellence, and 3) providing bridge financing to sustain research.

**Illinois** found that larger companies (of at least 30 employees) did not want to take a gamble with the SBIR program and run the risk of losing money on developing a proposal (which can often cost \$18,000). The state is currently designing a bridge grant program which it believes will attract larger and higher quality firms. One representative in Illinois said that he believed the SBIR program to be one of the best federal programs ever and that it was unproductive for states not to join in on this partnership with the federal government and business. He remarked that a \$2 million effort to bring \$9 million in awards to the state would yield \$50 million to the state in taxes and other benefits.

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## Leveraging Innovation: Expanding Maryland's Role in the SBIR Program

**Iowa** uses state lottery money to underwrite up to 50 percent of the total cost of preparing a proposal up to \$5,000. Since 1988, Iowa has made more than 40 awards, totalling \$120,000. Additionally, Iowa provides bridge grants of up to \$25,000 to keep the research team together during the gap in phases. Since 1989, Iowa has had four requests resulting in two awards. As a result of the state's efforts, Iowa has seen the quality of SBIR proposals improve. The appropriation will move from lottery funds to general funds in the fall.

**Kansas** provides a matching grant of up to \$5,000 for screening and developing proposals. Using its program to help companies enter the marketplace, Kansas has made 13 awards. The state is considering the possibility of developing a bridge grant program.

**Kentucky** uses its bridge grant program as a carrot to encourage Kentucky firms to innovate. The state provides grants of up to \$30,000 to eligible Phase I grantees. In the two years since its inception, this program has invested \$136,000 in six projects. The grant must be used for an interim research project during the waiting period.

**Michigan** was the first state to provide technical assistance and conferences for SBIR firms. In addition, the State Research Fund provided bridge grants of \$18,000-\$25,000 for a total of \$210,000 in 1989. Michigan plans to streamline its program in the future by offering maximum awards of \$15,000 to be disbursed on a quarterly basis (instead of semi-annually) and by concentrating specifically on projects in critical subject areas and on firms who are in danger of losing either a key researcher or the project itself due to an interruption in the research cycle. Additionally, SBIR firms will be required to demonstrate the following: 1) the willingness, intent and capacity to commercialize their research; 2) a contingency plan should Phase II money not be awarded; and 3) strong indications that a Phase II award is likely. The state also hopes to use the SBIR program to encourage the automotive industry to increase its product development efforts.

Much of Michigan's philosophy, as exemplified in the Michigan Strategic Fund program, is to use state funding to encourage the financial intermediaries to invest more in innovative firms. Therefore, a significantly smaller amount is awarded directly to firms for product development. Similarly, the state believes that technology transfer is not a natural process; firms need incentives and linkages every step of the way.

**New Jersey** uses its bridge grant program to encourage the commercialization of innovative ideas by requiring recipients to use a portion of the money towards developing business plans and patent research. According to Hugh Fenwick, who runs the program, a \$25,000 grant significantly contributes to keeping the research team together, but does very little to assure that the business itself will succeed or that the end product will result in commercialization. While the New Jersey program entitles every completed Phase I project to a grant, the size of the grant may vary according to the project's focus and goals. Those firms interested solely in research are awarded the minimum of \$10,000, while those firms eager to turn their product into a commercial success are awarded grants of up to \$70,000.

While approximately one-third of the New Jersey SBIR grantees do not participate in the state program, those that do receive a great deal of assistance. The SBIR program

**Table 5.**  
**STATES WITH AN SBIR FUNDING ASSISTANCE PROGRAM**

State	Contact	Program	Description
1. Connecticut	Eric Ott (203) 258-4305	Bridge Grant	Phase I winners are eligible for a \$20,000 award. Eligibility is lost to unsuccessful Phase II applicants.
2. Delaware	Gary Smith (302) 736-4271	Matching Grant	Program will match the amount of a Phase I award.
3. Hawaii	Bill Bass (808) 625-5293	Bridge Grant	Phase I winners are eligible for a grant up to 50% of the Phase I award NTE \$25,000 subject to availability of funds.
4. Illinois	Lowell Foreman (312) 814-2478	Bridge Loan & Grant	A Phase I winner in between a Phase I and II award eligible for a loan or grant.
5. Iowa	Doug Getter (515) 281-3036	Proposal Preparation Grant  Interim Funding Grant	Program will pay up to 50% of proposal preparation cost.  A Phase I winner in between a Phase I and II award is eligible for a grant NTE \$25,000.
6. Kansas	Kevin Carr (913) 296-5272	Matching Grant	Program will match the cost incurred in proposal development for Phase I and Phase II.
7. Kentucky	Dr. D. M. Stein (502) 564-7870	Bridge Grant	Phase I winners are eligible for 60% of award NTE \$30,000. An additional \$5,000 is available upon receipt of another award during the same Federal year.
8. Louisiana	Mike Williams (504) 342-5675	Matching Fund	A Phase I winner is eligible for matching funds up to \$50,000.
9. Maine	Terry Shehata (207) 289-3703	Grant Product Development	Program participants may be eligible for up to \$5,000 for proposal assistance and product development.
10. Michigan	Sharon Woodard (517) 335-2139	Bridge Grant	Provides maximum awards of \$25,000; plans to limit maximum awards to \$15,000.
11. Nebraska	Nettle A. Nelson (402) 475-5109	Commercialization Financing	The Nebraska Research and Development Authority serves as primary contact for the SBIR program. The Authority is the state's only seed/venture capital company, and will consider commercialization financing for SBIR Phase II recipients.
12. New Mexico	Gary Smith (505) 277-7110	R&D Institute Seed Capital Fund	Program provides technical assistance to SBIR applicants. Refers all SBIR applicants seeking funding assistance to the New Mexico R&D Institute.
13. New Jersey	Hugh Fenwick (609) 633-2739	Bridge Grant	Phase I winners are eligible for awards ranging from \$10,000 - \$40,000.
14. New York	Mark S. Tebbano (516) 473-9746	Bridge Funding Promotion	A Phase I winner under consideration for a Phase II award is eligible for a 50% matching fund (of the Phase I award) up to \$25,000. Specific program evaluation criteria applies.
15. North Dakota	David Watt (701) 777-5253	Technical Assistance Funding	Technical Assistance funding is available for University R&D personnel that assist SBIR applicants in proposal preparation.
16. Oklahoma	Sherilyn Sickley (405) 838-2633	Phase I Incentive Funding	Phase I applicants are eligible for 50% of proposal preparation cost on a reimbursement basis NTE \$3,000.

States with an SBIR Funding Assistance Program (continued)

State	Contact	Program	Description
17. Ohio	Mark Skinner (614) 466-5867	Bridge Grant	Maximum awards of \$45,000.
18. Rhode Island	Claudia Terra (401) 277-2601	Grants and Bridge Loans	(1) Phase I applicants are eligible for a \$1,000 award NTE three such awards in one year.  (2) University consultants of a Phase I winner are eligible to be paid 50% of proposal preparation cost NTE \$2,500.  (3) A Phase I winner who has submitted a Phase II proposal is eligible for a no-interest bridge loan.
19. Texas	Annette Argall (512) 472-5059	Product Commercialization Fund (SBIR Priority)	SBIR Phase I and II winners are given priority consideration for low interest rates.
20. Virginia	Dave Miller (703) 689-3025	Commercialization and Resource Matching Assistance	Program provides direct commercialization assistance to Phase II winners. Also available is resource matching assistance for SBIR applicants.
21. Wisconsin	Caroline Garber (608) 267-9383	Advisory Proposal Review  Bridge Financing	Phase I applicants may request to have their Phase I proposals critiqued prior to submission by a two-person team consisting of (1) a university scientist and (2) a representative from a successful SBIR company.  Phase I winners are eligible for a loan up to \$40,000 while in between a Phase I and Phase II award (25% of the loan amount must be matched by the award recipient). If the research project does not lead to product commercialization, then the loan is treated as a grant.

Source: Small Business High Technology Institute, Phoenix, Arizona, July 1990