STATE-SUPPORTED SBIR PROGRAMS

AND

RELATED STATE TECHNOLOGY PROGRAMS
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## Part II: State Technology Development Programs

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<td>West Virginia</td>
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<tr>
<td>Wisconsin</td>
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<td>Wyoming</td>
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STATE-SUPPORTED SMALL BUSINESS INNOVATION RESEARCH PROGRAMS

INTRODUCTION

In 1982 Congress passed the Small Business Innovation Development Act creating the federal Small Business Innovation Research (SBIR) program. The purpose of the program is to provide the opportunity for small firms to participate in federal research and development. In addition to encouraging small business participation, the program is designed to encourage the conversion of research findings into commercial applications.

The Small Business Administration (SBA) which has monitoring and oversight responsibility for the program, estimates that a total of $1.1 billion in SBIR awards will be awarded to small businesses under the program by the end of FY 1987. Total awards for FY 86 and FY 87 are estimated at $320 million and $450 million, respectively. During fiscal years 1983 to 1985, the twelve participating federal agencies obligated over $355 million under SBIR. During the same period, these agencies released 43 solicitations, received approximately 27,000 proposals, and made about 3,800 SBIR awards. A listing of FY 86 awards by state is shown in Table 1.

At the same time that the SBIR program was being put in place, state governments were becoming increasingly active in supporting the development and growth of new, technology-based businesses. A report prepared by the Minnesota Governor's Office of Science and Technology reported that states spent over $700 million in FY 86 for technology programs.

These state technology programs cover a range of activities from directly investing in research and development to providing seed capital and technical assistance for fledgling entrepreneurs. The advent of the federal SBIR program provided states with another tool to assist their small businesses. Since the program was established, a number of states have set up programs designed to increase the number of SBIR awards made to firms within their state and/or to provide supplemental support to SBIR recipients. This report will describe some of these new SBIR-related programs and how other state programs are being used to complement the federal SBIR program.

The Federal SBIR Program

In order to understand how the various state programs support the SBIR program, it is necessary to understand how the federal program operates. The Small Business Innovation Development Act mandated that each federal agency with an external research and development budget exceeding $100 million spend a specified percentage (up to 1.25 percent) of such budget via a special SBIR program. Since FY 1983, twelve federal agencies have conducted SBIR programs.
<table>
<thead>
<tr>
<th>State</th>
<th>Number of Awardees</th>
<th>Dollar Amount*</th>
</tr>
</thead>
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<td>Alabama</td>
<td>44</td>
<td>$3,933,843</td>
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<td>2</td>
<td>192,750</td>
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<td>Arizona</td>
<td>32</td>
<td>2,972,168</td>
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<tr>
<td>California</td>
<td>600</td>
<td>59,668,494</td>
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<td>Colorado</td>
<td>80</td>
<td>9,602,222</td>
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<tr>
<td>Connecticut</td>
<td>74</td>
<td>7,007,197</td>
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<tr>
<td>District of Columbia</td>
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<td>State</td>
<td>Number of Awardees</td>
<td>Dollar Amount*</td>
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<td>---------------</td>
<td>-------------------</td>
<td>----------------</td>
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<td>South Carolina</td>
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<td>South Dakota</td>
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<td>Tennessee</td>
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<td>Texas</td>
<td>75</td>
<td>8,734,101</td>
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<td>Utah</td>
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<td>4,051,421</td>
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<td>Virginia</td>
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<td>Vermont</td>
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<td><strong>TOTALS</strong></td>
<td><strong>2509</strong></td>
<td><strong>$239,556,799</strong></td>
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</table>

*Based on awards issued and funding obligations for new awards only.

Source: U.S. Small Business Administration
Under the SBIR program, federal agencies request proposals from small businesses in response to solicitations outlining their research and development needs. After evaluating the proposals, each agency awards grants for determining the technical feasibility of the research and development concepts proposed. These awards are referred to as Phase I funding. If found to be feasible, the firm can apply for a Phase II grant which funds full-scale research and development. Once Phase II work is finished, the firm is expected to obtain Phase III funding, i.e., funding to commercialize research results, from non-federal sources.

STATE-SUPPORTED SBIR PROGRAMS

State governments have actively supported the SBIR program by 1) promoting the program to the small business community, 2) providing information and technical assistance to SBIR applicants, 3) providing matching grants to SBIR recipients and 4) helping firms to obtain Phase III funding from both private and state sources. In addition, states operate programs which provide assistance for SBIR-type activities. These programs are discussed below.

Information and Technical Assistance to SBIR Applicants

The most common activity which states have undertaken in support of the SBIR program is to promote the program to the small business and university communities. This is accomplished by printing and distributing literature on the program, holding informational conferences or workshops and maintaining data on solicitations. In addition states seek to link potential applicants with technical resources within the state at colleges and universities. In some cases, applicants are given business assistance services and/or help in preparing a proposal. The state agencies listed in Table 2 are among those that provide information and technical assistance to SBIR applicants. The type of service each provides is described below.

In Maine, the state's Science and Technology Board co-sponsors an annual meeting on the SBIR program in conjunction with the Eastern Maine Development Corporation and the University of Maine. Last year, fifteen companies attended the conference and at least one firm successfully competed for an SBIR award.

The Georgia Advanced Technology Development Center (ATDC), an organization created jointly by the state of Georgia and Georgia Institute of Technology, also holds seminars to acquaint Georgia entrepreneurs with the SBIR program. Each seminar includes presentations by 1) a program manager from one of the federal agencies administering an SBIR initiative, 2) an ATDC staff member who discusses the nuts and bolts of putting a proposal together, 3) a representative of an accounting firm who discusses the financial impact of receiving an SBIR award, and 4) one or more successful SBIR applicants who relate their experience with the program. In addition, the ATDC has several SBIR award winners on staff who provide assistance to SBIR applicants.

In Kentucky, the Office of Business and Technology, within the Kentucky Commerce Cabinet, acts as a clearinghouse for information on the SBIR program, providing access to technical expertise and other resources. Business assistance services are often provided by the state's Small Business Development Centers. The Arkansas Science and Technology Authority and the Connecticut Department of Economic Development provide similar services.
Table 2
EXAMPLES OF STATE PROGRAMS PROVIDING INFORMATION AND TECHNICAL ASSISTANCE TO SBIR APPLICANTS

<table>
<thead>
<tr>
<th>State</th>
<th>Program Administered By</th>
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<td>Arkansas</td>
<td>Arkansas Science and Technology Authority</td>
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<tr>
<td>Connecticut</td>
<td>Connecticut Technology Assistance Center</td>
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<tr>
<td>Georgia</td>
<td>Georgia Advanced Technology Center</td>
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<tr>
<td>Illinois</td>
<td>Illinois Governor's Commission on Science and Technology</td>
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<tr>
<td>Kentucky</td>
<td>Kentucky Office of Business and Technology</td>
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<td>Maine</td>
<td>Maine Science and Technology Board</td>
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<td>Minnesota</td>
<td>Minnesota Project Innovation</td>
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<tr>
<td>Missouri</td>
<td>Missouri SBIR-High Tech Small Business Development Center</td>
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<td>New Jersey</td>
<td>New Jersey Commission on Science and Technology</td>
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<tr>
<td>New Mexico</td>
<td>New Mexico Technological Innovation Project</td>
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<tr>
<td>New York</td>
<td>New York State Science and Technology Foundation</td>
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<tr>
<td>Pennsylvania</td>
<td>Pennsylvania Ben Franklin Partnership Program</td>
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</table>
In Connecticut, for example, the Connecticut Technology Assistance Center, a division of the Department of Economic Development, acts as a clearinghouse, maintaining pre-solicitation and solicitation notices, SBIR guides and contacts at each federal agency. The office also maintains lists of who's doing what kind of research throughout the state. This information is used to link business owners with researchers and thereby stimulate joint projects.

One of the main elements of Pennsylvania's Ben Franklin Partnership Program is to provide support services to local entrepreneurs. These entrepreneurial assistance services are provided by the state's four advanced technology centers. In addition to providing incubator space, services offered to entrepreneurs include business plan development, financial and management counseling, contacts with venture capitalists, and seminars, conferences and other assistance.

The Advanced Technology Centers have actively promoted the use of the SBIR program and have assisted potential applicants by providing them with assistance in preparing applications as well as providing access to the services listed above. The Centers have helped 784 entrepreneurs participate in the SBIR program. As of August 1986, firms assisted by the centers had received forty-six awards totaling more than $3,770,000.4

While other states use existing entrepreneurial assistance programs to help SBIR applicants, at least one state, Missouri, has established a center specifically to promote the SBIR program and to assist potential applicants. Missouri's SBIR/High Tech Small Business Development Center (SBDC) is housed within the Missouri Department of Economic Development. This SBDC promotes both federal grant programs and state economic development programs which are available to small, science and technology-based businesses. The main focus of the SBDC, however, is to promote the use of the SBIR program and to serve as a liaison for small businesses participating in the program.

Staff of the SBIR-High Tech SBDC seek to match solicitation topics to potentially interested Missouri small businesses and individuals, assist proposers in identifying university researchers interested in collaborating on SBIR proposals and act as liaison between proposers and federal agencies in Washington. In FY 86 twelve SBIR awards were received by Missouri small businesses, totaling over $946,000.

Another state which is proposing establishment of a center which would specialize in providing assistance with regard to the SBIR program is Illinois. Presently, one staff member on the staff of the Governor's Commission on Science and Technology is responsible for providing information and assistance on the SBIR program to interested individuals.

Two additional state programs which provide support services for SBIR applicants and/or awardees are Illinois' Technology Commercialization Centers and the Illinois Resource Network. The state's Technology Commercialization Centers serve as the contact and transfer point for businesses to access university and other research institution resources and expertise. The Illinois Resource Network is a computerized data base listing university faculty and other researchers and their area of research.
In New Mexico, assistance is provided to potential SBIR applicants through the state's Technological Innovation Program (TIP) which is housed at the University of New Mexico. TIP, which is funded by the state's Economic Development and Tourism Department, is responsible for assisting entrepreneurs in developing technology-based businesses. TIP offers technical entrepreneurs assistance with market research, strategic planning, patent searches and product testing. Entrepreneurs can also receive help in drafting a business plan.

TIP has recently expanded its efforts to assist SBIR applicants. TIP currently maintains a center where individuals can examine agency solicitations and has established an SBIR hotline to put small business owners in contact with local information about SBIR opportunities. A current project underway is the creation of a database which will index all the solicitations by technology. In addition, information is being collected on the type of research being conducted by New Mexico businesses, and universities are being surveyed to determine what technologies university researchers are examining. Once collected this information will be put in a database and used to refer SBIR applicants to consultants and technical resources.

The New York State Science and Technology Foundation operates an SBIR Promotion Program which includes providing information on the program and assisting potential applicants in addition to providing direct financial support to SBIR grantees.

In order to publicize the program, the Foundation in conjunction with the state Department of Economic Development holds a series of five or six seminars throughout the year to provide information and technical assistance to potential SBIR applicants. The seminars are organized in cooperation with a variety of local organizations, including, for example, local chapters of the Chamber of Commerce, as well as the Small Business Administration and other federal agencies.

The Foundation does not help applicants prepare applications although it makes available sample sets of successful Phase I and Phase II proposals. Technical assistance is provided to individual SBIR applicants through the state's ten Technology Development Organizations (TDOs). TDOs are regional organizations responsible for supporting existing technology-based businesses and promoting entrepreneurial development. Actions taken by TDOs to provide SBIR assistance include helping potential applicants identify appropriate agencies and topics, as well as librarians to do literature searches, and linking applicants with researchers who can provide guidance and advice on the preparation of proposals.

In Minnesota, a private nonprofit corporation, Minnesota Project Innovation, was established to improve the ability of Minnesota firms to obtain SBIR awards. The corporation receives approximately half its funding from a contract with the Governor's Office of Science and Technology, a division of the Minnesota Department of Economic Development. Additional funding is provided by corporate sponsors and through the federal Small Business Development Center (SBDC) program.

The corporation provides hands-on-assistance to potential SBIR applicants and aggressively seeks to promote the program among the small business community. The staff includes a research specialist who performs literature searches and assists in the preparation of Phase I proposals and a business specialist who assists Phase I winners in preparing a business development plan.
plan as well as their Phase II proposal. The corporation, which had an FY 1987 budget of approximately $230,000, serves an average of approximately 200 clients annually.

The New Jersey Commission on Science and Technology is about to launch a new program aimed at marketing the SBIR program to potential New Jersey applicants. The Commission is seeking to subcontract with a private firm which will be responsible for (1) encouraging New Jersey firms to submit SBIR applications, (2) reviewing applications prior to submission in an effort to improve the quality of the proposals submitted, and (3) to follow-up on the status of proposals which have been submitted. This latter task will be achieved by contracting for representation in Washington to provide liaison between New Jersey applicants and the federal agencies participating in the SBIR program. The program is expected to cost $50,000 a year and is scheduled to be in place by January, 1988.

State SBIR Grant Programs

Six states have established grant programs which provide funds to firms which are either applying for or have received SBIR awards. See Table 3. Four of the programs are not yet operational.

In 1987, the Oklahoma legislature created a new state agency, the Oklahoma Center for the Advancement of Science and Technology (OCAST). The mission of OCAST is to foster innovation in existing and developing businesses by supporting basic and applied research, by facilitating technology transfer, and by providing seed capital for innovative start-up enterprises.

The legislation creating OCAST authorized five new programs including an SBIR Planning Grant Competition. The purpose of the program is to increase the number of SBIR applicants from Oklahoma. The program was developed in response to the belief that Oklahoma businesses have not taken advantage of the opportunities provided by the SBIR program.

As envisioned, potential SBIR applicants will be able to apply for a planning grant of $1,000 to be used in developing an application. Those firms that receive SBIR awards will receive an additional $5,000. Although the actual grant amount is small, it is hoped that the availability of funding will publicize the program and spark interest within both the research and business communities.

Using funding from the state's lottery, the Iowa legislature has authorized a similar program to provide financial assistance to help individuals prepare SBIR proposals. The proposed program would allow the state to underwrite up to 50 percent of the total cost of preparing the proposal, which might cost as much as $8,000 - 12,000. The legislature has approved a maximum of $200,000 in funding for the first year of the program. Actual funding, which is dependent on lottery revenues, is expected to be in the range of $140,000 - 150,000. No administrative rules have been drafted yet. The program will be administered by the Iowa Department of Economic Development. Funding decisions will be made by a committee of the state's High Technology Council.
## Table 3

### STATE SBIR GRANT PROGRAMS

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<thead>
<tr>
<th>STATE</th>
<th>PROGRAM TYPE</th>
<th>DESCRIPTION</th>
<th>ADMINISTERED BY</th>
<th>FUNDING (FY '87/88)</th>
<th>DATE ESTABLISHED</th>
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<tr>
<td>Connecticut</td>
<td>Bridge Grant</td>
<td>$15,000 grant made to Phase I winners at the conclusion of Phase I research. $5,000 for each additional award.</td>
<td>Connecticut Dept. of Development</td>
<td>$500,000</td>
<td>1987'</td>
</tr>
<tr>
<td>Iowa</td>
<td>Proposal Preparation</td>
<td>Grants to underwrite up to 50% of proposal preparation costs.</td>
<td>Iowa Dept. of Economic Development</td>
<td>$140,000 - 150,000²</td>
<td>1987'</td>
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<tr>
<td>Kansas</td>
<td>Matching Grants</td>
<td>Even match for Phase I winners who have submitted Phase II applications. Funds can also be used to provide assistance for proposal development.</td>
<td>Kansas Technology Enterprise Corporation</td>
<td>$250,000</td>
<td>1987'</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Bridge Grants</td>
<td>Grants are awarded automatically to firms upon submission of Phase I final report. Awards range from $10,000 to $40,000.</td>
<td>New Jersey Commission on Science and Technology</td>
<td>$300,000</td>
<td>1985</td>
</tr>
<tr>
<td>New York</td>
<td>Matching Grants</td>
<td>Grants of up to $50,000 to businesses that have completed Phase I research, had Phase I report accepted and submitted its Phase II proposal.</td>
<td>New York State Science and Technology Foundation</td>
<td>$3.6 million</td>
<td>1984</td>
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<td>Oklahoma</td>
<td>Proposal Preparation</td>
<td>Planning grant of $1,000 to develop an application. SBIR award winners will receive $5,000 bonus.</td>
<td>Oklahoma Center for the Advancement of Science and Technology</td>
<td>$90,000</td>
<td>1987'</td>
</tr>
</tbody>
</table>

1. Not yet operational.
2. Estimate, actual amount will depend on lottery revenues, $200,000 maximum.
While the Oklahoma and Iowa programs are designed to meet the entrepreneur's need for up-front financing, other states provide financing to either supplement the SBIR award or to bridge the gap between Phase I and Phase II.

New York was the first state to establish an SBIR grant program. The New York State Small Business Innovation Research Promotion Program was established by legislation in 1984. In addition to providing information and technical assistance to SBIR applicants as described above, the state provides matching research contracts of up to $50,000 to small businesses which have received Phase I SBIR grants. This program is administered by the New York State Science and Technology Foundation.

To qualify for a matching award, the applicant must have completed its Phase I research, had its Phase I report accepted, and submitted its Phase II proposal. The awards are thus used to enable the researcher to continue his or her work during the gap in funding between Phase I and Phase II.

The funding gap results from the time it takes each federal agency to evaluate the results of Phase I research and make a determination as to whether a recipient will receive a Phase II award. A recent study by the General Accounting Office found that the average amount of time which elapses between receipt of the last Phase I payment and the first Phase II funds was eight months, although the average time differed by agency ranging from three months for the Department of Energy to twelve months for the National Science Foundation. This gap in funding can create hardships for small firms making it difficult, if not impossible, to maintain continuity of research and personnel. The New York program is designed to assist the firm through this time period. The following criteria must be met to be eligible to receive an award under New York's program: the firm's principal place of business must be located in New York state, and the firm must have 250 or fewer employees. Conditions of the award are that 1) research funded must be completed in New York state, 2) only one-third of a grant may be used for research sub-contracts, and 3) no funds may be used for travel, equipment, or facilities.

If the company meets the necessary qualifications, they must submit a New York State proposal. The proposal must represent an extension of the Phase I work, i.e., not be duplicative of Phase I and will be proposed in Phase II. Since the program was established in 1984, the state has provided $9.4 million in funding. These funds have been matched by $12.2 million in federal awards. The New York State Science and Technology Foundation reports that in the first year of the program, New York firms registered a 75 percent increase in SBIR awards.

Another state program designed to provide continuity of funding between Phase I and Phase II is New Jersey's SBIR Bridge Grant Program. This program, established in FY 86 provides grants of up to $40,000 to firms which have completed Phase I and have filed a Phase II application. The program is administered by the New Jersey Commission on Science and Technology.
To qualify for an award, the applicant must be a New Jersey-based company with less than 250 employees. An automatic award of $10,000 is made within four to five weeks of the submission of a Phase I final report. Although the initial award is automatic subject to the availability of funds, objective criteria have been developed to determine whether additional funding should be awarded and/or to be used when the demand for initial funding cannot be met.

The criteria include:

1. whether the research focuses on an area of technology compatible with New Jersey's Advanced Technology Centers;
2. financial need of the firm;
3. degree of association with New Jersey research institutions or universities; and
4. whether the firm is minority, women- or handicapped-owned.

New Jersey's program has been funded at a level of $608,000 over a two year period (FY 86 & 87). During this period twenty-six companies were awarded grants ranging from $10,000-$40,000. In the first year of the SBIR program, eleven New Jersey companies received awards. As of September, 1987, forty-five companies have received a total of sixty awards. Six companies have completed Phase II awards and have gone on to obtain Phase III financing.

Both Connecticut and Kansas have established SBIR bridge programs although neither are presently operational. In July 1987, the Connecticut legislature passed a bill creating an SBIR bridge grant program. The program will provide $15,000 grants to Phase I winners at the conclusion of Phase I research. In addition, firms which receive additional SBIR awards will be eligible for an additional $5,000 in state funds. The program is administered by the Connecticut Technology Assistance Center (CONTAC), a division of the Department of Economic Development. For FY 1988, $500,000 has been allocated to the program. Regulations for the program are currently under development.

Kansas' SBIR Matching Grant Program was authorized in 1987 under legislation creating the Kansas Technology Enterprise Corporation. Under this program, Kansas will provide matching grants to Phase I winners who have submitted Phase II applications. Unlike New Jersey's program where awards are made automatically, awards will be made on a competitive basis. The three primary criteria used in making award decisions are:

1. the economic development impact of the proposal on the Kansas economy;
2. the comparative need of the applicant in relation to its existing financial resources; and
3. the technological adequacy and business potential of the proposed project.

The legislation establishing the program allows funding to be used to provide up-front assistance to a firm to get an application prepared, similar
to the Oklahoma planning grants program. It is expected that such funding may be provided on an individual basis. The program has been funded at the level of $250,000 for FY 88.

A number of additional states are considering establishing SBIR grant programs. Both Hawaii and Illinois, for example, will introduce legislation during the 1988 legislative year to set up programs. Hawaii's proposed legislation, which will be introduced in January, will include matching grants, bridge grants and an incentive for projects including university affiliations.

Illinois' proposed program would provide gap funding for companies that have completed Phase I and applied for Phase II. Illinois is considering a phased approach in which awards of up to $12,500 would be made per quarter. It is believed that the use of periodic payments will prevent the funds from being exhausted prior to the receipt of Phase II funding.

**Phase III Funding**

Given the newness of the SBIR program, only a small number of firms have reached the Phase III stage. A few states have, however, worked with these firms to obtain Phase III funding.

In New York, the state's Science and Technology Foundation, which administers the SBIR Promotion Program provides venture capital through its Corporation for Innovation Development (CID) Program. CID is a source of early stage capital for companies trying to commercialize innovative technologies. The fund provides equity investment and long-term debt financing. Investments normally range from $50,000-$150,000 but may approach $250,000 under certain circumstances. This financing, which is primarily used for working capital, requires a three-to-one matching investment on the part of the firm.

It is expected that the CID program will be one source of support for firms which have completed their Phase II research and development and are preparing to commercialize their research findings. Several CID participants have won Phase II awards.

The New Jersey Commission on Science and Technology reports that they have already worked with several firms which have reached the Phase III stage. For the most part, these firms have obtained financing in the private sector, although the state agency has played a role in linking these businesses with potential funding sources. Financing has been obtained from private venture capitalists, by taking the company public or by arranging for licensing agreements. Another way in which a company may obtain Phase III funding is by obtaining a contract with a federal agency.

The New Mexico Research and Development Institute (NMRDI) is a state agency created in 1986 to administer advanced technology research and development programs. The NMRDI program seeks to promote the development and growth of technology-based businesses by providing research and development seed capital to start-up or small companies to commercialize advanced technology-based products, processes or services in New Mexico. To leverage their funds, NMRDI has co-funded projects receiving SBIR grants. In addition, NMRDI can provide funds for Phase III through the Institute's Seed Capital for Entrepreneurial Technology Developments program.
The NMRDI Seed Capital Program provides high-risk, early stage financing to small businesses. In return for investments of up to $500,000, in cases where a NMRDI-sponsored product succeeds, the state shares in the resulting gross revenues of the company in accordance with an established royalty-based repayment schedule.

Seed funds from NMRDI may be used only for advanced technology R&D activities related to new products having a clear path to commercial markets. Assistance in acquiring follow-up capital for initiating commercial scale manufacturing and for establishing marketing and sales programs is provided by NMRDI on request.

A number of additional state programs provide assistance for SBIR-related activities. A sample of these are described below.

FINANCIAL ASSISTANCE FOR SBIR-RELATED ACTIVITIES

The innovation process has been described as a continuum going from the idea stage through research and development, to the development of a prototype and finally on to full-scale production and marketing. The SBIR program provides support for activities in the research and development/prototype development phase. States have developed a host of programs to address each stage of the innovation process. The two types of programs which fund activities prior to and subsequent to the SBIR program are research and development grant programs and seed capital programs.

Research and Development Grant Programs

A common element of state efforts to promote technology development is through research grant programs. As of 1986, twenty-nine states reported providing research grants. The vast majority of these programs provide funding for applied research and development, although a few states also fund basic research. Often the research is conducted jointly by a university and a business sponsor with the business providing matching funds.

The Arkansas Science and Technology Authority provides funding for both basic and applied research conducted at Arkansas colleges and universities. In the applied research program, industry or business co-sponsors provide at least 50 percent of each project's costs, with the Authority providing the remainder. Co-sponsors are eligible for state income tax credits for their contributions.

The Missouri Research Assistance Act (MRAA) enacted in 1982, provides funding for cooperative research projects undertaken by Missouri universities and businesses. The Act created two funds: the Higher Education Research Fund and the Higher Education Applied Projects Fund. The former funds basic research conducted at the University of Missouri, St. Louis University and Washington University. The latter funds applied research at all public and private higher education institutions in Missouri with the exception of the University of Missouri.

The MRAA was amended in 1986 to make participation more attractive to small businesses. The new legislation provides a 2:1 match of state to private sector funding when the participating firm is a small business. Normally, the match is two state dollars for every one private dollar.
Maryland's Industrial Partnership program (MIPS) also differentiates between large and small businesses in terms of matching requirements. The MIPS program, which is administered by the University of Maryland, provides matching funds for industry/university research partnerships. MIPS matching grants are awarded on a competitive basis for projects based on proposals submitted jointly by Maryland companies and University of Maryland researchers.

Matching requirements for a large firm (more than 250 full-time employees) must equal the MIPS contribution. At a minimum, 75 percent of this contribution must be in cash. While a small firm (250 employees or less) must also match the MIPS contribution on a 1:1 basis, only 40 percent of the contribution must be in cash. A start-up firm, i.e., one with no established product or business base, must provide only one-half of the MIPS contribution and there is no requirement for a cash contribution. In-kind contributions can include equipment, employee project involvement, or demonstration of an investment commitment from an outside investor.

While many state research grant programs provide funds primarily for university-based research, the Pennsylvania Small Business Research Seed Grant Program provides direct grants of up to $35,000 to small firms doing research in selected areas. Firms with fewer than 250 employees are eligible to participate in the program, although preference is given to firms with fewer than 50 employees. Funding for this program increased from $660,000 in 1985-1986 to $1 million in 1986-1987.

New York has sought to use the resources of the state's various research and development initiatives to complement the SBIR program. During the first year of the state SBIR Promotion Program, e.g., information on the state's applied research and development grant program was sent to every SBIR grant recipient. In that same year, 25 percent of the projects receiving research and development awards under the New York program were related to SBIR firms.

Seed Capital Funds

States have become increasingly active in providing funding for early stage, start-up companies. Often this is the type of capital needed by a firm which has completed the type of research that could be funded under the SBIR program. Seed capital programs provide funding at the earliest stage of business development. Activities to be funded include: development of a working prototype; preparation of a business plan; development of an initial market analysis; and assembly of a management team.

States have taken several approaches to establishing seed capital funds. In some instances the state operates the fund directly, as in the case of Ohio, while in other states, such as Michigan and Pennsylvania, state funds have been used to spur the creation of privately managed funds.

Ohio's Edison Seed Development Fund provides matching funds for research and development leading to the commercialization of new-technology driven products, processes and systems. Two types of funding are available under the program: Class I projects can receive funding of up to $50,000 for feasibility studies; under Class II, funding of up to $250,000 is made
available for prototype development; Class II funding is structured so that the state receives a payback from its investment.

To qualify for funding, the applicant must be an Ohio firm and the research must be conducted in conjunction with an Ohio university. The matching requirement can be met by cash or in-kind contributions in terms of research time, materials or equipment. The program has been used in conjunction with the SBIR program with the SBIR grant providing the necessary match.

Michigan has taken a somewhat different approach from Ohio. Rather than operate a seed capital fund directly, Michigan is capitalizing four privately managed seed capital funds. In July 1986 Michigan issued a Request for Proposals for the establishment of private seed capital companies. An initial capitalization of $2 million per fund was provided by the Michigan Strategic Fund (MSF). The MSF is a state agency created in 1985 to increase the availability of business financing in Michigan. The MSF's programs are funded from oil and gas lease revenues. To qualify for the $2 million initial investment, each fund was required to raise at least $1 million privately. In return for its investment, the MSF will be repaid at 9 percent interest over a ten year period with all interest and principal due at the end of ten years.

In January, 1987, four funds were chosen. Two are in the process of receiving applications and two are still raising private funds to match the state's investment. Investments by the seed capital companies will be limited to new companies, companies with no prior investment by an institutional investor and companies with the potential for rapid growth.

Pennsylvania's approach is somewhat similar to Michigan's. Four seed capital funds have been established in conjunction with the state's Advanced Technology Centers. Each ATC serves as a limited partner in one of the funds. The funds were initially selected in a competitive process. The state provided $750,000 for the initial capitalization of each fund requiring a 2:1 or 3:1 match from the private sector. The funds operate as private venture capital companies although they must abide by the following restrictions:

- investments are limited to Pennsylvania companies;
- the funds are prohibited from investing in mercantile businesses, i.e., retail and restaurants; and
- limited to investing in companies with fewer than 50 employees.

As of August, 1986, a total of $30.4 million is available for investment from Pennsylvania's seed capital funds. Thus the state's appropriation of $4.5 million has been matched by $27 million in private funds.

For a more complete discussion of state programs providing early-stage capital, please see Capital Formation in the States published by the Office of Advocacy, U.S. Small Business Administration. Table 4 is taken from this report.
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</tr>
<tr>
<td>Wisconsin</td>
<td>4.5MM</td>
<td>Wisconsin Community Capital Inc.</td>
<td>1984</td>
<td>4.5MM</td>
</tr>
<tr>
<td></td>
<td>12.0MM</td>
<td>Wisconsin Venture Capital Fund</td>
<td>1983</td>
<td>12.0MM</td>
</tr>
<tr>
<td>Wyoming</td>
<td>2.0MM</td>
<td>Capital Corp. of Wyoming, Inc. (SBIC)</td>
<td>1979</td>
<td>2.0MM</td>
</tr>
</tbody>
</table>

x = Varies
MM = Millions
(a) Excludes other Advanced Technology Center Funds and private sector matching dollars.
(b) Private leverage total non-state funds leveraged by the program, includes private companies, universities, and non-profit foundations. Private companies are the largest.

SUMMARY

This brief description of state-supported SBIR programs clearly indicates that the states have found the SBIR program to be very useful to their small technology-based businesses. The objectives of the state programs differ, however, based on their experience with the federal program. In some states, the objective of the program is to increase the number of applicants from the state. This can be achieved by publicizing the program, providing information on solicitations, and holding workshops and seminars.

Other programs have been designed to improve the quality of the applications submitted by providing assistance with the preparation of proposals and helping to link business owners with researchers and university resources. Finally, some of the programs are designed to build upon award winners by providing seed capital and other forms of commercialization assistance.

An important fact to keep in mind regarding the state programs is that the promotion of the SBIR program is usually one component of a much more comprehensive effort to promote the growth and development of small, technology-based businesses. States are providing direct funding for both basic and applied research, seed capital for early-stage, start-up companies, business and management assistance services for new entrepreneurs and in some cases physical facilities to house new technology-based businesses.

The next section of this report provides a very brief description of state programs which provide assistance to small technology-based businesses. In many states, such assistance is provided by a specific office of science and technology. In other states, assistance is provided by the state economic development agency as part of the state's general small business assistance. A contact person is provided for each state for those desiring additional information.
Endnotes

Part I:


3. The twelve agencies are:
The Department of Agriculture
The Department of Commerce
The Department of Defense
The Department of Education
The Department of Energy
The Department of Health and Human Services
The Department of the Interior
The Department of Transportation
The Environmental Protection Agency
The National Aeronautics and Space Administration
The National Science Foundation
The Nuclear Regulatory Commission


6. Research and Development Plan for the 76th-78th Fiscal Years (July 1987 through June, 1990), New Mexico Research and Development Institute.
STATE TECHNOLOGY DEVELOPMENT PROGRAMS

In July, 1987, the National Governors' Association conducted a survey on the structure and function of state science and technology offices. The survey identified thirty-one states which have established offices responsible for promoting the growth of technology-based businesses. Most of the remaining states provide assistance to technology-based businesses either through the state economic development agency, the state university system, or private organizations. The following section draws on the NGA survey data providing brief descriptions of state technology initiatives along with a contact person in each state who can provide additional information.

ALABAMA

Alabama does not have a specific office of science and technology. Assistance to small and new businesses is provided by the Alabama Development Office.

CONTACT: Jack Hammontree
Director
Alabama Development Office
135 South Union Street
Montgomery, AL 36130
(205) 263-0048

ALASKA

Alaska does not have an office of science and technology. Programs to assist small and new businesses are housed in the Department of Commerce and Economic Development.

CONTACT: Dr. Henry Cole
Special Assistant for Science Affairs
Office of the Governor
P.O. Box AM
Juneau, AK 99811
(907) 465-3568

ARIZONA

Arizona does not have a state office of science and technology. General business assistance services are provided by the Department of Commerce.

CONTACT: Thomas Caldwell
Director
Arizona Department of Commerce
1700 W. Washington St., 4th Floor
Phoenix, AZ 85007
(602) 255-5371
ARKANSAS

The Arkansas Science and Technology Authority was established as an independent state agency in 1983. The Authority, which is governed by a public/private board appointed by the Governor, is responsible for funding basic research at Arkansas colleges and universities, stimulating applied research partnerships between private industry and Arkansas colleges and universities, assisting small businesses in identifying and applying for funds to conduct research and development work on innovative technical ideas, transferring knowledge and technology from college, university and government laboratories to private industry, and creating facilities to foster the growth of technology-based enterprises.

The Authority administers three programs:

- **Basic and Applied Research Grant Programs** - provide matching grants to Arkansas colleges and universities for basic and applied research projects.
- **Business Incubator Facilities Program** - funds, in cooperation with Arkansas colleges and universities, facilities to foster the growth of technology-based enterprises.
- **Seed Capital Investment Program** - assists in the initial capitalization of technology-based enterprises in Arkansas in order to stimulate the state's economy.

**CONTACT:**

**SBIR Assistance**
Alan Gumbel
Arkansas Science and Technology Authority
100 Main Street, Suite 450
Little Rock, AR 72201
(501) 371-3554

**General Information**
John W. Ahlen
President
Arkansas Science and Technology Authority
100 Main Street, Suite 450
Little Rock, Arkansas 72201
(501) 371-3554

CALIFORNIA

California does not have a state office of science and technology. The Office of Small Business Development within the California Department of Commerce provides technical and management assistance for small businesses and operates several loan programs.

**CONTACT:**

Richard Nelson
Office of Small Business Development
Department of Commerce
1121 L Street
Sacramento, CA 95814
(916) 445-6545
COLORADO

Colorado does not have a state office of science and technology. The newly established (1987) Small Business Office of the Department of Local Affairs provides assistance to small firms. Two additional organizations which provide assistance to technology-based businesses, including technical assistance to SBIR applicants, are the Colorado Advanced Technology Institute and the Small Business Assistance Center in Boulder.

CONTACT: Pat Coyle
Director
Small Business Office
Department of Local Affairs
1313 Sherman, Room 523
Denver, Colorado 80203
303/866-2205
Business Hotline 1-800-323-7798

CONNECTICUT

Connecticut does not have a state science and technology office. The Connecticut Technology Assistance Center, a division of the Department of Economic Development, provides a range of services to technology-based companies and entrepreneurs. CONTAC will administer the state's new SBIR grant program.

Financing for technology-based businesses is provided by the Connecticut Product Development Corporation. CPDC provides venture capital grants for smaller companies developing new products or processes. In return for sponsoring a product, CPDC receives a limited royalty on future sales. Within CPDC, the Connecticut Innovation Development Loan Fund provides working capital for companies with new products and processes ready for manufacture, promotion and sale.

CONTACT: SBIR Assistance
Betsy Hunt
CONTAC
Department of Economic Development
210 Washington Street
Hartford, CT 06106
(203) 566-4587

Financial Assistance
Burton Jonap
Vice-President
Connecticut Product Development Corp.
93 Oak Street
Hartford, CT 06106
(203) 566-2920
DELAWARE

Delaware does not have a state science and technology office. Business assistance services are provided by the Delaware Development Office.

CONTACT: Louis H. Papineau
Director
Delaware Development Office
99 Kings Highway
P.O. Box 1401
Dover, DE
(302) 736-4271

FLORIDA

The Florida High Technology and Industry Council, established in 1984, is housed in the Governor's office. The Council, which consists of high technology business executives, provides direction to the State for the development of Florida's high technology economic base.

The Council administers three programs:

- The Applied Research Grants Program - provides funds for applied research in seven key technology areas.
- Centers of Electronic Emphasis and Specialization - competitive funding for 21+ Vocational Education Centers that provide industry validated state-of-the-art training to students.
- Innovation Research and Development Fund - provides seed capital for soft development costs of small high technology businesses.

CONTACT: Ray Iannucci
Florida High Technology and Industry Council
501A Collins Building
107 West Gaines Street
Tallahassee, Florida 32399-2000
(904) 487-3134

GEORGIA

Georgia does not have a state science and technology office. The Advanced Technology Development Center (ATDC) at Georgia Institute of Technology was created by the state and Georgia Tech to encourage the creation of new technology-based firms. ATDC assists firms in business planning and marketing, provides contacts in business accounting and financial communities, and provides access to Georgia Tech resources, including labs, equipment, library and faculty.

The ATDC provides both information and technical assistance to individuals interested in the SBIR program. Activities include holding four seminars a year throughout the state and providing advice and assistance in the preparation of SBIR proposals.
**HAWAI'I**

In 1965, the state of Hawaii passed legislation creating a science program. The program is housed within the Business and Industry Development Division of the State Department of Business and Economic Development. The division is responsible for encouraging research and development and science-related industrial firms to locate in Hawaii, encouraging federal agencies to support research and development activities in Hawaii; and for preparing and disseminating information on the State's resources to assure fuller participation in national research and development and science-related programs.

The Hawaii Invention Development Program provides loans of up to $50,000 to help businesses develop product prototypes and bring inventions to the marketplace. Loans may be used to acquire new equipment, machinery, materials, or as working capital.

**CONTACT:**
Carl E. Swanholm  
Science and Technology Officer  
Department of Business and Economic Development  
P.O. Box 2359  
Honolulu, HI 96804  
(808) 548-8741

**IDAHO**

In 1987 Idaho created a Division of Science and Technology within the Idaho Department of Commerce. The initial purpose of the office was to coordinate statewide activities, both public and private, relating to the preparation of a Superconducting Super Collider proposal. General business assistance services are provided by the Department's Division of Economic Development.

**CONTACT:**  
Richard B. Tremblay  
Administrator  
Division of Science and Technology  
Statehouse, Room 108  
Boise, ID 83720  
(208) 334-4721

**ILLINOIS**

The Illinois Governor's Commission on Science and Technology, established in 1983, is housed in the Illinois Department of Commerce and Community...
Affairs. The Commission staff provides informational and technical assistance to potential SBIR applicants.

The Commission administers the following programs:

- **Technology Commercialization Centers grants** - a state-supported network of centers which serve as the contact and transfer point for businesses to access university and other research institution resources and expertise.

- **Business Innovation Fund** - provides financial assistance of up to $100,000 for a business working with a university or research institution to commercialize new technologies into marketable products. Requires 1:1 leveraging with private funds, repaid by a royalty on the product or products.

- **Technology Information Transfer Grants** - grants to universities and research institutions to provide systems which primarily transfer technology information to Illinois businesses.

- **Technology Challenge Grants** - grants for creative systems or projects which bridge the needs of businesses with Illinois' technology resources.

**CONTACT:**

**SBIR Assistance**
Lowell Foreman
Governor's Commission on Science and Technology
100 West Randolph Street
Suite 3-400
Chicago, IL 60601
(312) 917-3982
Business Hotline: 800-252-2923

**General Information**
John J. Straus, Jr.
Assistant Director
Governor's Commission on Science and Technology
100 West Randolph St., Suite 3-400
Chicago, IL 60601
(312) 917-3982

**INDIANA**

The Indiana Corporation for Science and Technology is a private, nonprofit organization established in 1982 to help strengthen the economy of the state through the development and application of science and technology. In addition to investing in research projects, CST invests in early-stage, start-up companies. The corporation also provides technical counsel and assistance to medium and small businesses.
IOWA

Iowa's programs to promote the growth of technology-based businesses are housed within the Iowa Department of Economic Development. The Economic and Agricultural Research and Development Grants program provides matching research grants for projects undertaken at Iowa's schools of higher education. The Department also provides financial assistance to individuals applying for the federal SBIR program.

CONTACT: Doug Getter
Bureau Chief
Iowa Department of Economic Development
200 E. Grand Avenue
Des Moines, IA 50309
(515) 281-3036

KANSAS

The Kansas Technology Enterprise Corporation (KTEC) was established by the State of Kansas as a nonprofit public instrumentality in January, 1987. The mission of KTEC is to create and maintain employment by fostering innovation, especially through the creation, growth and expansion of existing and developing Kansas enterprises. KTEC administers the following programs:

- Research Matching Grants - provides grants of up to 40 percent of the cost of mission-oriented, collaborative research projects between academic research institutions or research organizations and particular firms, with the firms providing at least 60% of the project cost.

- Centers of Excellence - funds university-based research centers which focus on a particular area of technology. Since 1984, three centers have been funded.

- Seed Capital Investment Fund - KTEC is authorized to provide financing for the development, refinement and commercialization of products, processes or innovations, whether for the start-up of new firms or the expansion or reconstructing of small firms.

- SBIR Matching Grants - will provide assistance to Kansas firms in obtaining Phase I awards as well as to provide bridge funding for preparation of Phase II applications.
KENTUCKY

In 1985, Governor Collins created a new Office of Business and Technology within the Kentucky Commerce Cabinet (Kentucky's economic development agency). The Office, which serves as a link between businesses and the technological resources and research capabilities of the state's universities, provides coordination of technology transfer to the private sector, and provides staff assistance to the Governor's Council on Science and Technology. Providing assistance to potential SBIR applicants is an ongoing activity of this office.

CONTACT: D. M. Stein, Ph.D.
Executive Director
Office of Business and Technology
Kentucky Commerce Cabinet
Capitol Plaza Tower, 24th Floor
Frankfort, KY 40601
(502) 564-7670

LOUISIANA

Louisiana does not have a state science and technology office. In September, 1986 Louisiana citizens voted to create an Education Quality Trust Fund with the proceeds from the resolution of a state/federal oil revenue dispute. A portion of this fund has been earmarked for the enhancement of higher education and promotion of economic development within the state. The Louisiana Board of Regents is responsible for implementing this program which funds endowed chairs, supports a graduate fellows program, a competitive equipment grants program and a research and development program.

General assistance to small businesses is provided by the Small Business Assistance Center within the Office of Commerce and Industry.
In 1985 based upon the recommendation of a task force on technology, Governor Brennan established the Maine Science and Technology Board. The primary program administered by the Board is the Technology Innovation Project (TIP) Grants program which funds technology transfer projects to strengthen Maine’s economy through technology.

**CONTACT:** Patricia Tanski  
Executive Director  
Maine Science and Technology Board  
One Memorial Circle  
Augusta, ME 04330  
(207) 622-6345

**MARYLAND**

Maryland has no state science and technology office. The following programs, designed to promote the growth of technology-based businesses, are administered by the University of Maryland’s Engineering Research Center (ERC). The ERC conducts four principal programs to further university-industry cooperation.

- **Technology Extension Service** - offers technical assistance to Maryland businesses from five regional offices. Each office is staffed by industrially trained engineers.

- **Technology Advancement Program** - has established an incubator facility offering space and support services for entrepreneurs and start-up companies engaged in developing technically-oriented products with commercial potential.

- **Maryland Industrial Partnerships** - provides matching funds for industry/university research partnerships. MIPS matching grants are awarded on a competitive basis for projects based on proposals submitted jointly by Maryland companies and University of Maryland researchers.

**CONTACT:** A. Lawrence Lauer  
University of Maryland  
Engineering Research Center  
College Park, Maryland 20742  
301/454-7941
MASSACHUSETTS

Created in 1985 by Governor Dukakis, the Massachusetts Centers of Excellence Corporation is a quasi-public corporation responsible for promoting the development and application of new technologies in Massachusetts. The corporation through a research and development grants program supports partnerships between industry and academia in the following technological areas: biotechnology, marine sciences and polymer sciences.

The Massachusetts Technology Development Corporation provides technical assistance and start-up capital to small, innovative, technology-based businesses. The MTDC provides both debt and equity investments in the form of direct purchase of common or preferred stock accompanied by a loan on favorable terms.

CONTACT: Megan Jones
Director
Massachusetts Centers of Excellence Corporation
Room 2110
One Ashburton Place
Boston, MA 02108
(617) 727-7430

Robert Crowley
Massachusetts Technology Development Corporation
84 State Street, Suite 500
Boston, MA 02109
(617) 723-4929

MICHIGAN

Michigan's technology development program is housed within the Michigan Department of Commerce and includes a number of programs which provide financing and technical assistance for small, technology-based businesses. Programs include:

- **Centers of Excellence** - Michigan has created four Centers of Excellence to stimulate industrial development through increased research and development.

- **Research Excellence and Education Fund** - This $25 million annual fund supports basic and applied research at Michigan's public universities in areas of relevance to the state's economic development.

- **Michigan Modernization Service** - assists firms with fewer than 500 employees as they adopt programmable automation.

- **Technology Transfer Network** - provides one-stop access for businesses to the skills and expertise of faculty and researchers at the state's five major research universities.

- **State Research Fund** - provides up to $50,000 seed money for businesses working in conjunction with a university or college on the development of new technology products.
• Venture Capital Fund - using funds from the state's pension funds, this program invests in qualified, high-potential, small businesses or venture capital firms.

• Seed Capital Fund - provides $2 million initial investment in four privately-managed seed capital funds.

• Office of New Enterprise Services - assists technology-based entrepreneurs with assessments of business plans, technologies, markets, and management and helps with access to appropriate sources of financing.

CONTACT:

Seed Capital Program
Lawrence R. Schrauben
Program Manager
Seed Capital Program
Michigan Strategic Fund
P.O. Box 30234
Lansing, MI 48909
(517) 373-0349

General Information
James Kenworthy
Manager
Research and Technology Program
Michigan Strategic Fund
P.O. Box 30234
Lansing, MI 48909
(517) 373-7550

MINNESOTA

The Governor's Office of Science and Technology was created in 1983 to conduct research on science and technology policy issues, advise the Governor and chief policymakers on state science and technology policy, build closer ties among government, education and industry, expand the science and technology resources of the state, and make the existing resources widely known.

Additional state-supported activities designed to promote technology-based businesses include:

• Technology Product Loan Program - makes loans up to $250,000 at below-market rates for the development and marketing of software products. In return, the state receives royalties of up to 25 percent of the net receipts of the product over a period of seven years.

• Enterprise Development Partnership Program - awards grants to community coalitions with projects that draw on untapped community resources to assist local entrepreneurs. Grants have been awarded for the development of small business incubators, start-up money for seed capital funds, and management assistance centers.
Minnesota Project Innovation - a nonprofit organization created to promote and support innovative small business research and development in the state. MPI provides assistance to SBIR applicants.

**CONTACT:**

**SBIR Assistance**  
Jim Swiderski  
Executive Director  
Minnesota Project Innovation  
1107 Hazeltine Boulevard  
Chaska, Minnesota 55318  
612/448-8826

**General Information**  
Beverly Jones  
Governor's Office of Science and Technology  
900 American Center Building  
150 East Kellogg Blvd.  
St. Paul, MN 55101  
(612) 297-4367

**MISSISSIPPI**

Mississippi does not have a state science and technology office. The state has provided support for the Mississippi Institute for Technology Development, a private, nonprofit corporation which acts as a broker to coordinate public/private research efforts. General business assistance services are provided by the Mississippi Department of Economic Development.

**CONTACT:**  
Gerald McDonald, Director  
Department of Economic Development  
1200 Walter Siller Building  
P.O. Box 849  
Jackson, MS 39205  
(601) 359-3449

**MISSOURI**

The Missouri Corporation for Science and Technology was established in 1983 as a private, nonprofit corporation with the exclusive purpose of contributing to the betterment of the state's economy by fostering science and technology development.

Individual programs designed to promote the development of technology-based businesses include:

- **Higher Education Applied Projects** - applied research grant program available to all public/private higher education institutions other than the University of Missouri system which has its own research fund. Provides a 2:1 match of public to private dollars for small businesses.
Innovation Centers - four centers which provide low-cost physical space, shared administrative and clerical services, access to managerial, financial and technical assistance to promising start-up companies.

Centers for Advanced Technology - authorized program which will establish university-based centers to conduct basic and applied research, product and process development and technology transfer in collaboration with private industry in areas of technology identified as having significant potential for economic growth in Missouri.

Tax Credits for Seed Capital - authorizes up to $10 million in tax credits for donations to qualified seed capital funds. Any person or corporation making a contribution to a qualified fund may receive a 30% state tax credit.

Venture Capital Funding - legislation passed in 1987 requires a 3-5 percent set-aside from the Missouri State Employees Retirement fund for investment in small businesses.

Small Business Innovation Research Program - provides assistance to potential SBIR applicants.

CONTACT:  
SBIR Assistance  
Lisa Kane  
SBIR Coordinator  
SBIR/High Tech Program  
P.O. Box 118  
Jefferson City, MO 65102  
(314) 751-5178  

General Information  
John Johnson  
Executive Director  
Missouri Corporation for Science and Technology  
P.O. Box 118  
Jefferson City, MO 65102  
(314) 751-3906  

MONTANA  
The Montana Science and Technology Alliance is a division of the Montana Department of Commerce. The Alliance is a public/private partnership responsible for encouraging scientific and technological development within the state. The Alliance operates two research grant programs, provides technical and management assistance to technology-based businesses and administers a seed capital investment program.

CONTACT:  
Samuel T. Hubbard  
Executive Director  
Science and Technology Alliance  
Montana Department of Commerce  
46 N. Last Chance Gulch - Suite 2B  
Helena, MT 59620  
(406) 449-2778
NEBRASKA

The Nebraska Research and Development Authority (RDA) was established in 1987 as a quasi-governmental partnership among industry, government and education to stimulate and diversify the economic base of the state. The RDA invests in innovative business start-ups in exchange for equity or royalties, supports applied research leading directly to a business start-up, and serves as a clearinghouse for research, technical referrals and information.

CONTACT: Nette Nelson
Vice President
Nebraska Research and Development Authority
NBC Center, Suite 646
13th and O Streets
Lincoln, NE 68508
(402) 475-5109

NEVADA

Nevada does not have a state office of science and technology. Assistance to small businesses is provided by the Commission on Economic Development.

CONTACT: Andrew Grose
Executive Director
Commission on Economic Development
Capitol Complex
Carson City, NV 89710
(702) 885-4325

NEW HAMPSHIRE

New Hampshire does not have a state science and technology office. Small business assistance services are provided by the Division of Economic Development.

CONTACT: John Burns
Director
Division of Economic Development
P.O. Box 956
Concord, NH 03301
(603) 271-2341

NEW JERSEY

The New Jersey Commission on Science and Technology became a permanent state agency in 1985. Since that time, the Commission has developed a comprehensive set of programs to promote the growth and development of technology-based businesses.

The major programs of the Commission include:
Advanced Technology Centers - the Commission has established eight university-based research centers focusing on different areas of technology.

Technology Extension Centers - provide assistance to small and medium-sized businesses to adapt new technological innovations to the requirements of individual businesses. Four centers have been established focusing on the fields of polymer processing, information services, fisheries and agriculture, and investigational cancer therapy.

Innovation Partnership Grant Program - grants of at least $10,000, but not more than $250,000, made to academic researchers conducting research in specified science and technology fields. Each grant requires a private sector match.

SBIR Bridge Grant Program - provides grants of up to $40,000 to firms that have completed Phase I research and submitted their Phase II application.

Managerial/Technical Assistance Programs - supports a Venture Match Network, which brings together entrepreneurs and venture capital investors, and the New Jersey Entrepreneur's Forum. The Forum provides managerial assistance for the evaluation of business plans and assesses the technical feasibility of a firm's products or innovations.

Business Incubation Facilities - provides funding for feasibility studies on establishing incubator development by the private sector in co-sponsorship with a college or university, an ATC or a Technology Extension Center.

CONTACT:  
SBIR Assistance  
Hugh Fenwick  
New Jersey Commission on Science and Technology  
122 West State Street, CN 832  
Trenton, NJ 08625  
(609) 633-2739

General Information  
Edward Cohen  
Executive Director  
New Jersey Commission on Science and Technology  
122 West State Street, CN 832  
Trenton, NJ 08625  
(609) 633-2740

NEW MEXICO

New Mexico's programs to promote science and technology are overseen by the Science and Technology Commission which is housed in the Economic Development and Tourism Department. The Commission oversees three programs:
Centers of Technical Excellence — five centers have been established at three universities. Each center conducts research on a specific technological area.

Technological Innovation Centers — provide educational and training opportunities for entrepreneurs, assist inventors and technology development companies in planning, financial packaging, resource acquisition, and cooperative ventures. Two centers have been established, one at the University of New Mexico and one at New Mexico State University. Both centers provide advice to New Mexico companies on the SBIR program.

New Mexico Research and Development Institute — provides R&D seed capital to start-up or small companies to commercialize advanced, technology-based products, processes or services in New Mexico.

CONTACT: SBIR Assistance
Marci Talnack
Technological Innovation Program
University of New Mexico
1920 Lomas Blvd., NE
Albuquerque, NM 87131
(505) 277-3541

General Information
Patrick Rodriguez
Senior Program Officer
Economic Development and Tourism Department
Joseph M. Montoya Building
1100 St. Francis Drive
Santa Fe, NM 87503
(505) 827-0288

NEW YORK

The New York State Science and Technology Foundation was originally established in 1963. It was reconstituted as a state-based public corporation in 1980. The Foundation administers the following programs.

Centers for Advanced Technology Program — Under this program, nine university-based research centers have been established. Each Center is a cooperative research and development facility focusing on a particular technological area.

Corporation for Innovation Development Program — provides early stage financing to qualified businesses. Investments include both debt and equity financing and normally range from $50,000 — $150,000.

Research and Development Grants Program — funds research at colleges, universities and not-for-profit labs.
Regional Technology Development Organization Program - a network of ten regional technology development organizations (TDOs). Each TDO is responsible for supporting existing technological industries, promoting entrepreneurial development, fostering technology transfer and attracting venture capital.

Productivity Development Program - funds feasibility studies and testing of technology applications by small to medium-sized firms.

Small Business Innovation Research Promotion Program - fosters increased participation by New York State businesses in the federal SBIR program through publicity, technical assistance, and matching grants.

Industrial Innovation Extension Service - uses regional field representatives to help firms research, evaluate and implement opportunities for technology and productivity-related improvements.

New York State Education and Research Network - links the supercomputer at Cornell University with research laboratories and computers at New York's major industrial firms and major universities around the state.

CONTACT:

SBIR Assistance
Tab Wilkins
New York State Science and Technology Foundation
Suite 1730
99 Washington Avenue
Albany, NY 12210
(518) 473-9746

General Information
Brian U. Stratton
Public Information Officer
New York State Science and Technology Foundation
99 Washington Avenue
Albany, NY 12210
(518) 474-4349

NORTH CAROLINA

The North Carolina Board of Science and Technology was established in 1963. Housed within the Department of Administration, the Executive Director of the Board serves as science advisor to the Governor. The Board makes recommendations concerning policies, procedures, organizational structures and financial requirements that will promote effective use of scientific and technological resources in fulfilling research needs identified in the state and allocates funds to support research projects. The Board currently administers a Small Research Grants Program which provides grants to state scientists in all fields for basic research relevant to North Carolina.

Assistance to new technology-based businesses is provided by the North Carolina Technological Development Authority (NCTDA). The NCTDA operates an Incubator Facilities program and an Innovation Research Program. The former
provides one-time grants to localities of up to $200,000 for establishment of facilities that provide low-rent space, shared support services, and basic equipment to resident small businesses. The Innovation Research Fund provides royalty financing of up to $50,000 for research and development activities of small businesses. THE NCTDA serves as a clearinghouse for information on the SBIR program and holds workshops which provide information on both the SBIR program and the state's Innovation Research Fund program.

CONTACT: 

Innovation Research Fund
Ms. Juliann Tenney
Executive Director
North Carolina Technological Development Authority
430 N. Salisbury Street
Raleigh, NC 27611
(919) 733-7022

General Information
Dr. Earl MacCormac
Executive Director
North Carolina Board of Science and Technology
116 West Jones Street
Raleigh, NC 27611
(919) 733-6500

NORTH DAKOTA

North Dakota does not have a state agency to deal specifically with science and technology programs. The Economic Development Commission is responsible for promoting the development and growth of businesses, including technology-based firms.

CONTACT: 

William A. Patrie
Economic Development Commission
Liberty Memorial Building
Bismarck, ND 58505
(701) 224-2810

OHIO

Ohio's Thomas Edison Program, initiated in 1983, is administered by Ohio's Department of Development. The program is designed to stimulate working partnerships between business and academia in an effort to generate new technological ideas, new products and processes, and new companies. The three major components of the program are:

- **Edison Technology Centers** - the goal of each Edison Technology Center is to research, develop and apply new technologies in areas where the state holds a leadership position such as polymer engineering, advanced manufacturing, welding, animal biotechnology, medical technology, materials science, sensors and information technologies. Each center provides an array of services including basic research conducted to satisfy the needs of a group of sponsoring companies,
applied research contractually available to individual organizations, technology transfer mechanisms, scientific education and technological training and retraining programs.

Edison Seed Development Fund - provides funding on a matching basis for research and development projects carried on jointly by industry and an Ohio college or university. Includes funding for early-stage feasibility research (up to $50,000) and advanced applied research (up to $250,000).

Edison Incubators - designed to move technology-driven businesses out of the facility so that they generate jobs in the local community. Each incubator provides low-cost space and a wide variety of administrative, managerial, technical and professional services that new businesses may otherwise be unable to afford.

Two other programs administered by the Ohio Department of Development's Division of Technological Innovation include:

Ohio Technology Transfer Organization (OTTO) - provides Ohio businesses with direct access to new technology and research through a statewide network of thirty-four transfer agents based at 28 state-supported technical and community colleges and universities located throughout the state. Serves as a link to technical and management experts for Ohio businesses on such issues as marketing, production techniques, training, business management and technical questions.

Technology Information Exchange - Innovation Network (TIE-IN) - is a comprehensive inventory of research and development activity in Ohio. Currently, TIE-IN consists of seven different resource files: venture opportunities, Ohio patents, corporate R & D capabilities, faculty research interests, data on sponsored university grants, technical publications by Ohio authors and business assistance resources.

CONTACT:

General Information
Mr. Christopher M. Coburn
Executive Director
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The Oklahoma Center for the Advancement of Science and Technology (OCAST) was established by legislation in 1987 to administer Oklahoma's state science and technology initiatives. The mission of OCAST is to foster innovation in existing and developing businesses by supporting basic and applied research, by facilitating technology transfer, and by providing seed capital for innovative start-up enterprises. The following five programs have been authorized although they are not currently operational:

- **Applied Research Program** - provides competitive applied research funds on a 50/50 matching basis to Oklahoma institutions of higher education, nonprofit research foundations, and private enterprises. This program includes funding for an SBIR planning grant competition.

- **Centers of Excellence** - will establish two types of centers of excellence: centers of excellence for basic research and centers of excellence for applied research, development and technology transfer. Each center must involve more than one higher education institution and the centers must be funded in part by nonstate sources.

- **Health Research Program** - will provide funding, on a competitive basis, for biomedical research projects to researchers at Oklahoma's public and private universities and nonprofit research organizations.

- **MOST Eminent Scholars** - provides funding to institutions of higher education, nonprofit research foundations and private enterprises to help these organizations raise funds in research areas where they have achieved recognition. This program will provide funding on a matching basis for endowed chairs and research equipment.

- **Oklahoma Technical Resources Network** - a statewide computerized information service profiling the research expertise of the faculties of Oklahoma's colleges and universities, as well as that of private companies who wish to participate.

**CONTACT:**
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Oklahoma Center for the Advancement of Science and Technology
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Oklahoma City, Oklahoma 73116
(405) 843-9770

**OREGON**

The Oregon Resource and Technology Development Corporation is an independent public corporation created in 1985 to encourage innovation in existing industries and to promote the development of new, technology-based businesses in Oregon. The Corporation provides applied research grants to both private businesses and educational institutions and operates a seed capital fund.
Pennsylvania's Ben Franklin Partnership Program is housed in the Office of Technology Development within the Pennsylvania Department of Commerce. The Office of Technology Development administers five technology development programs, acts as staff for the Board of the Ben Franklin Partnership Fund, Science and Technology and Technology Transfer Task Forces; handles related technological initiatives and issues and coordinates science and technology issues with other state and private organizations.

The five programs administered by the Office of Technology Development include:

- **Ben Franklin Partnership Challenge Grants for Technological Innovation** - Under this program, four advanced technology development centers have been established. Each ATC, which represent business/educational consortia, provide assistance in three areas: joint research and development with the private sector, education and training, and entrepreneurial development.

- **Small Business Research Seed Grants** - direct grants to small businesses doing research in selected topic areas.

- **Seed Capital Program** - Challenge grants to establish independently managed seed capital funds. Five funds have been established to make seed investments in new technology companies.

- **Small Business Incubator Program** - provides grants and loans to start small business incubator facilities. Applicants must provide at least 50 percent of the funding.

- **Engineering School Equipment Grant Program** - grants to colleges and universities with engineering curriculum to upgrade engineering equipment. Program requires at least 2:1 match.

**CONTACT:**

Steve Andrade
Advanced Technology Center - Southeastern Pennsylvania
University City Science Center
3624 Market Street
Philadelphia, PA 19104
(215) 387-2255
RHODE ISLAND

The Rhode Island Partnership for Science and Technology was established in 1985 to foster greater cooperation among businesses, Rhode Island's research and educational institutions and state government. The Partnership provides funding for businesses that do applied research in conjunction with Rhode Island universities, colleges and hospitals of at least $200,000.

CONTACT: Bruce Lang
Rhode Island Partnership for Science and Technology
7 Jackson Walkway
Providence, Rhode Island 02903
(401) 277-2601

SOUTH CAROLINA

The South Carolina Research Authority was created in 1983 as an independent nonprofit organization to enhance the research capabilities of the state's universities and to promote the development of high technology industries and research facilities in South Carolina. To reach these goals the Authority has undertaken three initiatives.

- The South Carolina Research Park System - the authority is responsible for planning, developing and maintaining a system of research parks in conjunction with South Carolina's universities. Four research parks are currently under development.

- Technology Management - involves the formation and management of business-oriented consortia aimed at implementation of selected technology. The first such consortium formed, called the American Manufacturing Research Consortium, is made up of five companies and research institutions with strong capabilities in the field of computer-integrated manufacturing.

- Technology Evaluation - program designed to provide entrepreneurs with help in identifying their needs and to recommend organizational, financial and technical initiatives for their organizations.

CONTACT: Dr. Robert E. Henderson
Director
South Carolina Research Authority
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Columbia, South Carolina 29211
(803) 799-4070
SOUTH DAKOTA

In 1987, South Dakota established the division of Enterprise Initiation within the Governor's Office of Economic Development. The office is charged with bringing the Governor's economic development program into closer coordination with higher education in South Dakota and with helping to spawn new technology-based enterprises.

CONTACT: Roland Dolly
Director of Enterprise Initiation
Governor's Office of Economic Development
Capitol Lake Plaza
711 Wells Avenue
Pierre, South Dakota 57501
(605) 773-5032

TENNESSEE

Tennessee's Division of High Technology Development is located within the Department of Economic and Community Development. The office was founded by executive order to serve as the state's lead liaison with the Tennessee Technology Foundation, a 1982 executive and legislatively created not-for-profit corporation, to lead in a state-wide effort to produce economic growth through commercialization of technology. This office supports approximately six locally initiated technology development programs. The Tennessee Technology Foundation and the state jointly sponsor annual workshops on the SBIR program.

CONTACT: John M. Crothers
Director
High Technology Development
Department of Economic and Community Development
6th Floor Rachel Jackson Building
Nashville, Tennessee 37219
(615) 741-5070

TEXAS

There is no single agency in Texas responsible for administering technology development programs. The Technology Business Development Division of The Texas Engineering Experiment Station does provide management and technical assistance services to the state's small, technology-based businesses. Programs administered by the division include:

- Communications/Outreach - provide information to small businesses through a variety of mechanisms including newsletters, workshops, and seminars.

- University Research Commercialization - The Technology Business Development Division serves as a statewide mechanism to monitor, identify, evaluate, and broker research ideas within Texas universities, medical schools and health science centers.
Technical Assistance Program - provides technical advice to small and minority-owned (including women-owned) businesses in the areas of intellectual property, assessment of a product or process, and commercialization to both existing and start-up businesses. Assistance is provided to potential SBIR applicants through this program.

Texas Innovation Network System - an information data base containing current research and development, engineering, technology, management and education information describing capabilities and needs of Texas scientists, engineers, entrepreneurs, advanced technology companies, professional services, and continuing and professional education programs.

CONTACT: Mary Lee
Research Associate
Texas Engineering Experiment Station
Texas A & M University
310 WERC Building
College Station, Texas 77843
(409) 845-0538

UTAH

Utah has established two primary programs to promote the growth of technology-based businesses in the state. Under the Centers of Excellence Program, the state provides one-time only matching grants for the creation of university-based, industry-supported centers for interdisciplinary applied research and development.

The Utah Technology Finance Corporation is an independent corporation, created in 1983. The Corporation's Small Business Innovation Program provides seed capital to firms for activities similar to those funded under Phase I of the federal SBIR program. Funding, which is awarded on a competitive basis is for a maximum of $50,000 and is subject to a royalty-based payback. The corporation also provides information and assistance to potential SBIR applicants and is authorized to provide SBIR bridge grants.

CONTACT: Small Business Innovation Program
Bob Brewer
Utah Technology Finance Corporation
419 Wakara Way
Suite 215
Salt Lake City, Utah 84108
801/583-8832

General Information
Randy Moon
State Science Advisor
116 State Capitol Building
Salt Lake City, UT 84114
(801) 533-4987
VERMONT

Vermont has no state science and technology office. Assistance to small businesses is provided by the Agency of Development and Community Affairs.

CONTACT: James Guest
Secretary
Agency of Development and Community Affairs
109 State Street
Montpelier, Vermont 05602
(802) 828-3211

VIRGINIA

Virginia's programs to promote the development and growth of technology-based businesses are administered by the Corporation for Innovative Technology (CIT). CIT is a private, non-profit corporation created by the Virginia legislature in 1984 and works closely with the state's Department of Economic Development. The corporation administers the following programs:

- **Innovation Centers** - CIT has provided funding to seven universities to create a network of five entrepreneurship centers and five incubators. An entrepreneurship center provides outreach services in the form of management, financial, and technical advice to entrepreneurs. An incubator offers similar assistance, but also provides shared physical space and shared support services for new businesses.

- **Technology Transfer Agents** - a pilot program in partnership with the Virginia Community College System consisting of field directors located at nine community colleges across the state. The program is designed to assist established, small- and medium-sized businesses in becoming more competitive, productive and profitable.

- **Research Institutes** - four university-based institutes which initiate university/industry cooperative research projects in strategic technology areas. Each institute is responsible for the statewide management of research projects within its technical area -- biotechnology, computer-aided engineering, information technology, and materials science and engineering.

- **Technology Development Centers** - CIT has funded five centers located at university laboratories, conducting research in conjunction with industry in specific technology areas deemed to have significant economic potential for Virginia.

- **Commonwealth Technology Information Service (CTIS)** - a data base is being developed to improve the access of business to the state's technology services. It will include information on faculty interests and qualifications, government and industry research personnel, research facilities, and equipment available in Virginia.
**Intellectual Property** - CIT develops, markets and licenses intellectual property on behalf of state agencies and institutions.

**CONTACT:** Barry Holt  
Director, Technology Commercialization  
Corporation for Innovative Technology  
13873 Park Center Road, Suite 201  
Herndon, Virginia 22071  
703/689-3020

**WASHINGTON**

Washington does not have a state science and technology office. Efforts to encourage the growth and development of technology-based businesses are housed in the Washington Technology Center (WTC). WTC funds research in eight key technology areas and operates a technology assistance program which provides technological expertise, scientific information and consultation on existing and emerging technologies to small and medium-sized companies.

**CONTACT:** Dr. Edwin Stear  
Executive Director  
Washington Technology Center  
376 Loew Hall, FH-10  
University of Washington  
Seattle, WA  98195  
(206) 545-1920

**WEST VIRGINIA**

West Virginia does not have a state office of science and technology. General assistance to small businesses is provided by the West Virginia Office of Community and Industrial Development.

**CONTACT:** Lysander Dudley, Director  
Office of Community and Industrial Development  
State Capitol  
Room 151  
Charleston, WV  25305  
(304) 348-0190

**WISCONSIN**

Wisconsin does not have a state science and technology office. The Department of Development is responsible for providing general business assistance services. The Department also administers the state's Technology Development Fund. The Technology Development Fund makes grants to consortia of businesses and institutions of higher education in support of research and development of new products and processes. Businesses are required to contribute 20 to 90 percent of the cost of any research and development proposal.
WYOMING

The Wyoming Science, Technology and Energy Authority was established in 1987 to spur economic development within the State of Wyoming. As the legislation creating the Authority became effective July 1, 1987, no programs are yet operational.

CONTACT: Wyoming Science, Technology, and Energy Authority
c/o John Goodler
Economic Development and Stabilization Board
Herschler Building
Cheyenne, Wyoming 82002
(307) 777-7284