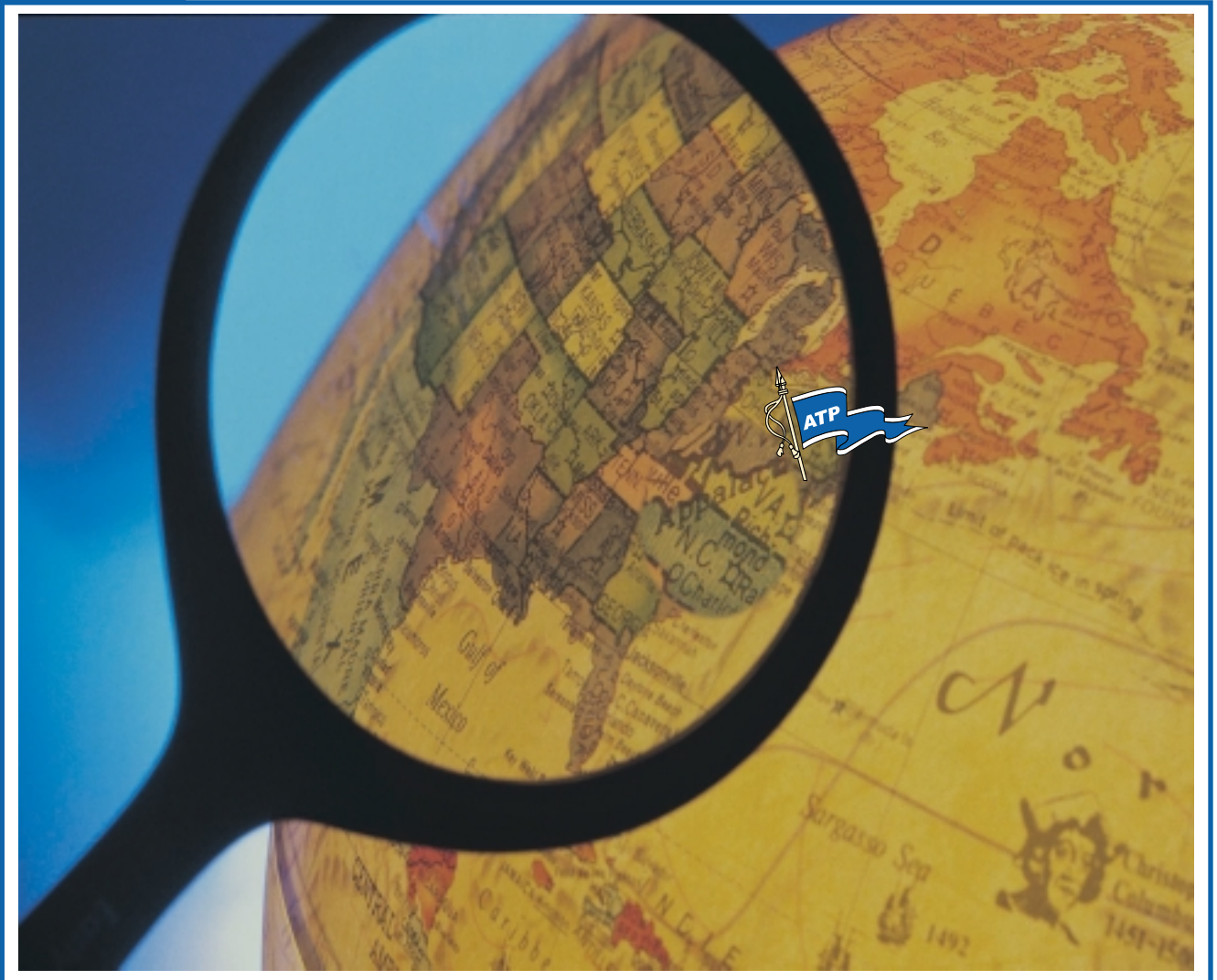




# *Reinforcing Interactions Between the Advanced Technology Program and State Technology Programs*

*Volume 1: A Guide to State Business  
Assistance Programs for New  
Technology Creation and Commercialization*



*April 2000*

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**Reinforcing Interactions Between the  
Advanced Technology Program and  
State Technology Programs**

***Volume I: A Guide to State Business Assistance Programs for  
New Technology Creation and Commercialization***

Prepared for  
*U.S. Department of Commerce  
Advanced Technology Program  
National Institute of Standards and Technology  
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**April 2000**



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Finally, we thank Laura Vernon-Russell at the Institute for Policy Studies, whose detective work enabled us to include specific pointers to telephone and electronic program contacts in **Appendix A**.

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## Introduction

From the initial inspiration, through research and development, to the first roll-out, to managing growth, the technology entrepreneur faces a series of hurdles in building a successful company. These are challenging hurdles, because the skills, insight, and know-how that make a technical innovator are not necessarily the skills, insight and know-how required to develop a business plan, site a plant, recruit a workforce, or negotiate financing.

Fortunately, they don't have to go it alone. State governments have long understood the importance of fostering start-up companies and small firms to promote economic growth and development. Since the 1930s they have offered a growing array of services and programs, including assistance with siting, business financing, and workforce development. The 1980s brought a new awareness of the importance of *technology* development and commercialization, and state governments began expanding their portfolio of small business programs, to offer assistance in the development, commercialization, and diffusion of new technologies, and in building manufacturing capabilities to advance their local economies.

The result has been a broad array of offerings for small business, including business and technology assistance services delivered by a diverse set of organizations in each state, specially created nonprofit corporations, universities, and public/private alliances, among others. From providing on-line technical information, to co-funding of proposals for federal technology development assistance, to financial assistance programs for international market development, state governments offer a wide range of services and assistance.

## Who should use this guide?

Different services often target different stages of company start-up and growth. The very breadth and diversity of these business assistance services can make it difficult to find the most appropriate one for a given situation. Many business people and consultants may be unaware of the sheer range of possibilities. This guide illustrates, through selected examples, the types of business and technology development services and programs that are offered by state governments. These services are available to start-up companies and small firms that are seeking assistance in business development or in the development and commercialization of new technologies.

This guide was prepared especially as a resource for **applicants to, and award recipients of, the Advanced Technology Program (ATP)**, a private-public partnership program managed by the Commerce Department's National Institute of Standards and Technology, that provides cost-shared financial assistance for technological development.

Many ATP applicants and award recipients are start-up firms and small companies. This guide can help these applicants — or indeed, **any technology oriented start-up or small company** — become familiar with the types of resources available in their own states to help grow their companies, develop their technologies, produce new products and services, and continuously improve their growing businesses.

Through this guide, **ATP project managers and other federal technology program staff** also can become more familiar with the range of services and assistance available to companies at the state level. ATP staff can direct prospective applicants to particular services that may help them prepare their proposals. Once awards have been made, ATP project managers can direct award recipients to the types of state resources available to help them carry out the commercialization plans outlined in their project proposal, grow their businesses, and eventually successfully diffuse the technologies developed with ATP's financial assistance.

## Introduction

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Finally, this guide can be useful to **state program officials and policymakers** who may wish to examine the range of initiatives profiled in the guide and compare the offerings with their own state's services and assistance for the purpose of making improvements. They may also discover opportunities for deploying "traditional" economic development programs to support the growth of technology-based firms. State program officials can take advantage of the guide to learn from each other their creative approaches to common problems or hardships that start-up firms and small companies face in growing their businesses and developing technological capabilities.

## How to use this guide

Small companies face multiple challenges — technical and business — at each stage of the process of developing and commercializing new technologies. To help focus the issues, this guide is organized according to a matrix (see *Table I*) that categorizes specific hurdles as *Technical*, *Market*, or *Business* challenges in each of three stages: *Concept*, *Development*, and *Commercialization*. **Although it does not fund commercialization work**, the ATP recognizes the multi-faceted aspects of technology development and commercialization, and urges potential applicants to begin planning for commercialization at the outset, and to involve marketing, product development, and production people from the beginning of their project.

Each column of Table I corresponds to a phase of new technology development (concept, development, commercialization), each row to either a technical, market, or business challenge, and each cell to the particular intersection of phase and challenge. Each of these cells is described in more detail in the guide.

Chapter 1 describes the technical, market, and business challenges associated with being in the conceptual stage of developing a new technology. Chapter 2 describes the technical, market, and business challenges associated with being in the development phase of bringing a technology to working prototype and moving forward toward commercialization. Chapter 3 describes the technical, market, and business challenges associated with being in the commercialization phase and working toward bringing a new technology to market and continuing to improve it.

Each of these chapters is divided into sections that describe the types of programs offered by states and their partner organizations to help companies meet these challenges. Each section includes comments about the relationship between meeting the particular challenge and successfully utilizing the financial assistance ATP offers for developing new technologies. Each section also includes selective examples of states that provide each type of assistance. The examples are illustrative, not exhaustive. **If a state is not mentioned, it does not mean that it does not offer the type of program profiled.**

More complete lists of state programs are found in Appendix A: *Contact Information for Selected State Programs*, which provides a state-by-state summary of the examples used in this guide. Each program is identified by its approximate place (or places) in the Table I matrix. Information contacts and sources of further information also are identified.

Business and technology assistance programs across the states are constantly changing and evolving. This guide can only provide a snapshot of the available resources at the time it was compiled in 1999. A good resource for updated information on these programs and services, as well as other important services for technology companies that are not listed in Appendix A, can be found on the State Science and Technology Institute's website at <http://www.ssti.org> (or by calling them at 614-421-SSTI (7784)).

**Table I. Technology Development and Commercialization:  
Technical, Market, and Business Challenges**

Phases Challenges	Concept Phase	Development Phase	Commercialization Phase
<b>Technical Challenges</b>	<ul style="list-style-type: none"> <li>• schematic or design of main features of technical concept;</li> <li>• patent search</li> </ul>	<ul style="list-style-type: none"> <li>• working model;</li> <li>• engineering prototype;</li> <li>• pre-production prototype</li> </ul>	<ul style="list-style-type: none"> <li>• market-ready manufactured product;</li> <li>• related technology spinoffs;</li> <li>• continuous production improvement</li> </ul>
<b>Market Challenges</b>	<ul style="list-style-type: none"> <li>• initial market assessment; pricing structure;</li> <li>• identification of market barriers and risks</li> </ul>	<ul style="list-style-type: none"> <li>• marketing section of the business plan;</li> <li>• initial sales;</li> <li>• review of customer response</li> </ul>	<ul style="list-style-type: none"> <li>• analysis of sales performance and customer response;</li> <li>• diversification to a portfolio of products</li> </ul>
<b>Business Challenges</b>	<ul style="list-style-type: none"> <li>• venture assessment to determine whether there is profit potential;</li> <li>• identification of sources of financial and human resources;</li> <li>• intellectual property protected</li> </ul>	<ul style="list-style-type: none"> <li>• conceptual plan with one or more financial scenarios;</li> <li>• final business plan;</li> <li>• acquisition of seed capital;</li> <li>• business launch</li> </ul>	<ul style="list-style-type: none"> <li>• acquisition of equipment and facilities;</li> <li>• hiring and training of personnel;</li> <li>• next stage financing;</li> <li>• continuous business improvement</li> </ul>

**Source:** Adapted from H. Randall Goldsmith, "A Model for Product Commercialization," Oklahoma Alliance for Manufacturing Excellence, Tulsa, OK, 1995.

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## 1. Concept Phase of New Technology Development

### 1.1 Technical Challenges of the Concept Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

#### A. Technical Challenges

The technical challenges of the concept phase address basic research and development activities. These include identification of similar research and development being done by others, definition and validation of the concept, characterization of the expected performance, identification of the advantages over incumbent technology, and assessment of technical risks. The result is a schematic or design of the main features of the technical concept. Research includes a patent search to assure uniqueness of the technical concept.

#### B. How They Relate to ATP Applicants and Award Recipients

The Advanced Technology Program can provide funding for technologies at this early stage as long as there is an established scientific basis for the research being proposed. Projects the ATP supports build on past public and private investments in scientific discovery and concept development. In particular, state investments in “centers of excellence” and other models of university-industry technology development are generating collaborations on core (shared) and proprietary (university faculty and graduate students involved in private firms) research projects that make strong candidates for ATP projects. Because the companies involved in the centers are already accustomed to working together and sharing results, it may be easier for them to form a joint venture for the purpose of applying to ATP.

#### C. Types of Assistance State Programs Offer

Highlighted below are different types of state technology assistance programs.

##### C.1 Guided access to technical information

States often provide online guides to sources of technical information. The NASA-funded Regional Technology Transfer Centers (RTTCs) and their state affiliates are also good sources of technical information. (See *Table IV: NASA’s U.S. Regional Technology Transfer Centers* for a list of RTTCs.) Examples of state programs that offer this assistance are:

- *The Bay Area Regional Technology Alliance (BARTA) funded through California’s Gold Strike partnership provides web links to sources of scientific information through its “Science Lists” and to specialized federal and university laboratories nationwide through its “Research Laboratories” list.*

## Concept Phase of New Technology Development: *Technical Challenges*

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- *The **Ohio** Department of Development's Edison Industrial Systems Center links companies to free technical information from Questline, a provider of material and machining data, literature searches, and information on hard-to-find materials, equipment, and experts, as well as regulatory, market, and patent information.*
- *The Ben Franklin Technology Center of Southeastern Pennsylvania funded by the **Pennsylvania** Department of Community and Economic Development provides comprehensive, customized business information delivered by professional online search specialists. PENNTAP, a federal-state-university partnership based at Penn State University, has been providing free access for small companies to scientific and technological information since 1965.*
- ***Virginia** Tech's Virginia Technical Information Center makes available on a cost-recovery basis government documents, research, and other technical information.*

### C.2 Access to technical libraries and facilities

Companies may gain access to university libraries and specialized laboratories and equipment by virtue of their tenancy in or affiliation with a university-based technology business incubator. The National Business Incubation Association's 1998 survey found that 27 percent of all North American incubator facilities were affiliated with universities or colleges.<sup>1</sup> State-funded research centers of excellence also routinely provide access to technical libraries and specialized facilities and are profiled in *Table II: Selected State-Funded, University-Industry Technology Centers*. Examples of state programs that offer this assistance are:

- *The Advanced Technology Development Center's main facility is on **Georgia** Tech's main campus in Atlanta. Tenants are given access to the university's facilities and services.*
- *The state supports operations of technology incubators at **Iowa** State University and the University of Iowa.*
- ***Maryland** has provided capital funding for incubators at University of Maryland; University of Maryland, Baltimore; University of Maryland, Baltimore County; and, through its economic development financing programs, at Johns Hopkins' Bayview Campus.*
- ***Missouri** provides annual support for the Center for Business Innovation on the campus of University of Missouri at Kansas City and the Missouri Enterprise Business Assistance Center at the University of Missouri at Rolla.*
- *All three of **New Jersey**'s incubators are university-affiliated: the New Jersey Institute of Technology Enterprise Development Center, Rutgers/CARR Business Innovation Center, and Stevens Technology Ventures Business Incubator.*
- ***New York** provided capital funding for the Long Island High Technology Incubator on the campus of the State University of New York at Stony Brook.*
- ***Ohio**'s state-supported incubators are affiliated with the Edison Technology Center program, and provide tenants with access to the Edison Technology Centers and local universities.*
- *Several of the **Pennsylvania** Department of Community and Economic Development-funded Ben Franklin Centers support university-based incubators.*
- ***Virginia** has funded incubators at Old Dominion University and George Mason University.*

### C.3 Patent search assistance

While online patent searching has eased the task of researching prior art, assistance with interpreting the results is provided. Most of NASA's Regional Technology Transfer Centers also offer help with assessing the current state of technology development and patent protection. (See *Table IV: NASA's U.S. Regional Technology Transfer Centers* for a list of RTTCs.) Examples of state programs that offer this assistance are:

- *The Information Research Corporation associated with **Kansas** Technology Enterprise Corp. performs preliminary patent searches within 48 hours for a small fee.*
- *The **Ohio** Department of Development's Edison Industrial Systems Center provides access to QuestLine, a private technical information service that includes literature and patent searches.*

### C.4 Help in winning Phase I SBIR and STTR awards

Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Phase I grants and contracts are an important source of support for technical concept development. A recent study<sup>2</sup> by the State Science and Technology Institute (SSTI) profiled state activities that encourage and assist companies to use the SBIR and STTR programs to maximum advantage to further their research and development goals. SSTI found that states engage in the following types of activities in order to increase awareness of the program: outreach conferences, information clearinghouses, Internet sites, helping companies find appropriate topics, general marketing and press releases, and SBIR newsletters. SSTI further found that in order to help companies compete successfully for Phase I awards, states were conducting proposal writing workshops, providing proposal preparation assistance (including grants to help cover the cost), critiquing proposals, helping companies locate team members, conducting literature searches, and assisting in marketing topics to agencies. Finally, SSTI described assistance provided by states to SBIR and STTR Phase I winners, including trouble shooting, mentoring, winner recognition, local focus groups, and, sometimes, Phase I matching funds.

In recognition of the important role the states can play in marketing, training, and proposal development for the SBIR and STTR programs, the U.S. Small Business Administration announced in March 1999, a program to help fund these functions in states which had not received more than \$5 million in SBIR and STTR awards in FY1995.<sup>3</sup> Up to \$100,000 in 1:1 matching funds is being made available through cooperative agreements to one applicant per state.

Examples of state programs that offer this assistance are:

- *The **Illinois** SBIR Resource Center of the Illinois Department of Commerce and Community Affairs provides help in identifying promising solicitations, preparing proposals, review of proposals for responsiveness, and linkages with useful resources.*
- *Through its FEDTech program, the **Massachusetts** Technology Collaborative provides up-to-date information electronically to potential SBIR applicants, including solicitation calendars, master solicitation lists, master agency contact lists, model proposals, links to technical information, and schedules of technical assistance conferences. FEDTech also provides technical assistance to help technology entrepreneurs improve the competitive position of proposals.*
- ***New Jersey** funds a Washington consultant who provides technical assistance to potential SBIR applicants.*



## Concept Phase of New Technology Development: *Technical Challenges*

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- **New York's** state-funded regional technology development organizations manage SBIR outreach programs to help companies and individuals apply.
- Created in 1988, **Ohio's** SBIR workshops and counseling program provides help with topic selection, proposal writing and cost proposal coaching, and administrative proposal review.
- The **Oklahoma** Center for the Advancement of Science and Technology (OCAST) helps small businesses defray a portion of the cost of developing competitive SBIR applications.

### C.5 Technical assistance from university and extension agents

Universities with state-funded university-industry research centers are generally required to provide technical assistance to interested industry. Also, in states in which the manufacturing extension partnership is university-based, the same outreach agents who provide help and referrals for companies with production issues also can help make linkages for companies to technology development resources with faculty. (See *Table II: Selected State-Funded University-Industry Technology Centers* for selected state-funded university-industry technology centers, arrayed by ongoing ATP focused program areas.) Examples of state programs that offer this assistance are:

- Centers of the **Colorado** Advanced Technology Institute.
- **Connecticut** Innovation Inc.'s Critical Technologies Research Program supporting high priority research at the University of Connecticut
- The **Georgia** Research Alliance's Georgia Center for Advanced Telecommunications Technology (GCATT), Georgia Biotechnology Center (GBC), and Georgia Environmental Technology Consortium (GETC).
- The **New Jersey** Commission on Science and Technology's Advanced Technology Centers (ATC).
- **New York** Empire State Development's Science and Technology Foundation's Centers for Advanced Technology (CAT) Program.
- The **Ohio** Department of Development's Edison Technology Center program, which creates collaborations among multiple universities in each center's specialized technology area.
- The **Oklahoma** Center for the Advancement of Science and Technology's Centers of Excellence.
- The **Utah** Department of Community and Economic Development's Centers of Excellence Program, which makes awards to principal investigators at the state's universities.
- **Virginia's** Center for Innovative Technology (CIT). CIT has also partnered with *Virginia Business* magazine and InterCom to produce a website called *Virginia's Brainpower for Business* that includes directories of academic departments in all the state's universities, research centers and institutes, unique research equipment and facilities, and a searchable database of faculty research interests.

### C.6 Funded research collaborations with university faculty

A number of states provide co-funding for research projects submitted jointly by an in-state company and a faculty member at a university or other research institution in the state. Often the state funds and the industry match are paid to the university researcher. Some programs recapture royalty

## Concept Phase of New Technology Development: *Technical Challenges*

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income from jointly developed intellectual property. Examples of state programs that offer this assistance are:

- *Centers in biotechnology, advanced materials, and information technology funded by the **Colorado** Advanced Technology Institute provide matching funding for industry-driven university research.*
- *The Yankee Ingenuity Initiative of **Connecticut** Innovations, Inc., funds technology development projects conducted jointly by Connecticut higher education institutions and small businesses in the state.*
- *The **Delaware** Research Partnership provides funding to University of Delaware researchers for projects co-funded by industry.*
- *The **Maryland** Industrial Partnerships Program (MIPS) provides co-funding (company match required depending on size) for collaborative research projects involving Maryland companies and researchers in all major public and private research universities and federal laboratories in the state.*
- *In **New Jersey**, the Innovation Partnership program provides 1:1 co-funding of university/NJ company collaborative research.*
- *In **New York**, the Center for Advanced Technology in Medical Biotechnology at SUNY Stony Brook provides 1:1 co-funding for collaborative medical biotechnology projects between faculty at any NYS research institution and a NYS company.*
- ***Oklahoma's** Applied Research Program provides matching funding for commercially-promising collaborative research projects.*
- *The **Pennsylvania** Department of Community and Economic Development-funded Ben Franklin Partnership's Centers of Excellence program provides funding to consortia of companies that jointly support university research.*
- *The **Rhode Island** Samuel Slater Technology Fund makes matching cost reimbursement grants for specific research or technical projects in which Rhode Island firms are accessing university or federal laboratory expertise. The program also funds industry-led efforts to establish research centers of excellence in Rhode Island in which industry is the primary beneficiary.*
- *The **Texas** Advanced Technology Program's Technology Development and Transfer provides grants to institutions of higher education for further development and transfer to the private sector of technologies developed under the state's Advanced Research Program or Advanced Technology Program. These grants require co-funding from industry. The program is administered by the Texas Higher Education Coordinating Board.*
- ***Virginia's** Center for Innovative Technology makes Challenge Awards to support research projects of Virginia companies and state research institutions.*

### **C.7 Help in identifying industry collaborators**

By bringing together groups of companies with common technology interests, state-funded, university-industry technology centers have fostered industry-industry collaboration as part of their mission in addition to fostering partnerships with university faculty and any federal laboratories located in the state. Some states also provide Internet sites where companies may make known their interest in technology development partnering. (See *Table II: Selected State-Funded*

## Concept Phase of New Technology Development: *Technical Challenges*

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*University-Industry Technology Centers.*) NASA's Regional Technology Transfer Centers also provide assistance in identifying potential strategic partners with complementary technology interests. (See *Table IV: NASA's U.S. Regional Technology Transfer Centers* for a list of RTTCs.) Examples of state programs offering this kind of assistance are:

- **Georgia** Tech's *Advanced Technology Center* incubator matches small companies with medium and large companies for mutual benefit; the *Georgia Center for Advanced Telecommunications Technology* supports networking for start-up companies in the field and develops research and commercialization partnerships with established firms.
- The **Maryland** Department of Business and Economic Development's *MDBusiness* website includes a business opportunities section in which companies can post notices of their interest in partnering; the state-funded *High Technology Council* maintains a similar website, mostly oriented to partnering for bids on federal contracts.
- The *FEDTech* program of the **Massachusetts** *Technology Collaborative* provides help to technology companies seeking federal funds in identifying strategic partners for bringing technology to market.
- The **Pennsylvania** Department of Community and Economic Development-funded *Ben Franklin Centers* provide financial incentives for industry collaboration through the *Centers of Excellence* program (See above, "Funded research collaborations with university faculty.")
- The **Texas** *Innovation Network (TINS)* databases and information services help companies discover potential joint venture partners with required expertise or business strengths.
- **Rhode Island**'s *Samuel Slater Technology Fund* provides funding specifically targeted at (non-training-related) industry cluster collaborations involving multiple firms, with preference given to proposals involving five or more Rhode Island companies.
- **Virginia**'s *Center for Innovative Technology's MatchMaker* is a comprehensive database of technology companies that can be used to identify potential strategic partners.

**Table II. Selected State-Funded University-Industry Technology Centers**

ATP Focused Program Areas	State	State-Funded University-Industry Technology Centers
Adaptive Learning Systems	GA	Learning, Performance and Support Laboratory (U.Ga., GCATT)
	NY	Multimedia Education and Research Laboratory (Clark Atlanta U, GCATT)
	UT	Center for Digital Multimedia Production, Publishing and Education (NYU) Center for Multimedia Education and Technology (U.Utah)
Catalysis and Biocatalysis Technologies	--	--
Component-Based Software	GA	Information Tech & Telecommunications Lab (Ga.Tech. Research Inst, GCATT)
	CO	Colorado Advanced Software Institute
	NY	Computer Applications and Software Engineering Center (Syracuse)
	VA	Center for Semicustom Integrated Systems (U.Va.)
Digital Data Storage	GA	Information Tech & Telecommunications Lab (Ga. Tech. Research Inst., GCATT)
	UT	Center for Intelligent Computer Tools (BYU)
Digital Video in Information Networks	GA	Interactive Media Technology Center (Ga. Tech, GCATT)
	NY	Center for Signal and Image Processing (Ga. Tech, GCATT) Center for Advanced Technology in Telecommunications (Polytechnic and Columbia U.'s Distributed Computing & Communications Laboratory and Parallel and Distributed Intelligent Systems Laboratory)
		Center for Electronic Imaging Systems (Rochester Institute of Technology and U. of Rochester)
Information Infrastructure for Healthcare	GA	Biomedical Interactive Technology Center (Ga.Tech, GCATT)
	NY	Center for Advanced Technology in Information Management and Medical Informatics (Columbia)
Manufacturing Composite Structures	UT	Center for Advanced Construction Materials (U.Utah) Center for Advanced Structural Composites (BYU) Composites in Construction (U.Utah)
	CO	Colorado Engineered Materials Processing Center
	OH	Center for Automation Technologies (RPI) Edison Materials Technology Center
Microelectronics Manufacturing Infrastructure	CO	Colorado High-Speed Electronic Materials Center
	GA	Packaging Research Center (Ga.Tech, GCATT)
	IN	Indiana Business Modernization & Technology Corp's Microelectronics Center
	NY	Center for Advanced Thin Film Technology (SUNY Albany) Integrated Electronics Engineering Center (SUNY Binghamton)
	NJ	Center for Ceramic Research (Rutgers)
	NC	MCNC
UT	Center for Harsh Environment Electronics (U. Utah)	
Motor Vehicle Manufacturing Technology	NY	Center for Automation Technologies (RPI)
	OH	Edison Welding Institute
Photonics Manufacturing	CO	Optoelectronic Computing Systems Center
	NY	Center for Advanced Technology for Ultrafast Photonic Materials and Applications (CUNY)
	NJ	Fiber Optic Materials Research Program (Rutgers)
		Princeton Center for Photonics and Optoelectronic Materials
	VA	Center for Plasma and Photon Processing (multiple institutions) Fiber & Electro-Optics Research Center (VaTech)

## Concept Phase of New Technology Development: *Technical Challenges*

ATP Focused Program Areas	State	State-Funded University-Industry Technology Centers
Premium Power	UT VA	Center for Solid Oxide Fuel Cell Technology (U.Utah) Virginia Power Electronics Center (Va Tech)
Selective-Membrane Platform	CO NY UT	Membrane Applied Science and Technology Center (U.Colorado & Colorado St. U.) Center for Advanced Materials Processing (Clarkson) Center for Raman Technology (U.Utah)
Technologies for the Integration of Manufacturing Applications	NY NJ  OH  VA	Center for Automation Technologies (RPI) Center for Computer Aids for Industrial Productivity (Rutgers) Center for Manufacturing Systems (NJIT) CAMP's affiliates at Center for Automated Intelligence Systems Research (Case Western Reserve) and Advanced Manufacturing Center (Cleveland State U.) Institute of Advanced Manufacturing Sciences 21 <sup>st</sup> Century Manufacturing Innovation Center (James Madison U and others)
Tissue Engineering	OH	Edison BioTechnology Center
Tools for DNA Diagnostics	CO KS MD NY NJ NC	Colorado Institute for Research in Biotechnology Higuchi Biosciences Center (UK) University of Maryland Biotechnology Institute Center for Medical Biotechnology (SUNY Stony Brook) Center for Advanced Biotechnology and Medicine (Rutgers and U. of Medicine & Dentistry of NJ) North Carolina Biotechnology Center
Vapor Compression Refrigeration Technology	--	--

### C.8 Help in acquiring technologies

State programs also offer help to companies in acquiring those technologies that may complement those already under development, enhancing their scope or filling an identified market niche. Many of the NASA-funded Regional Technology Transfer Centers provide assistance in identifying technologies that are available for license from federal laboratories or under development by SBIR or STTR winners. (See *Table IV: NASA's U.S. Regional Technology Transfer Centers.*) Examples of state programs that offer this assistance are:

- *The Great Lakes Industrial Technology Center helped an **Ohio** environmental consulting and engineering company desirous of moving into proprietary products identify and acquire ion exchange membrane technology from NASA Lewis to be used for soil and water purification applications. Another Ohio company working on sleep disorders was linked to two California companies, one a software company that had won several SBIRs in sleep-related fields and another with relevant expertise in circuit design and measurement electronics.*
- *The **Pennsylvania** Department of Community and Economic Development-funded Ben Franklin Technology Center of Southeastern Pennsylvania offers a TechScout® service to help companies find new technologies.*

## 1.2 Market Challenges of the Concept Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

One of the strengths of the Goldsmith conceptualization of the commercialization process as adapted and illustrated in *Table 1: Technology Development and Commercialization: Technical, Market, and Business Challenges* is its recognition of the importance of market considerations from the onset of the project.

### A. Market Challenges

There are several market challenges related to developing new technologies. First, a survey of trade journals, electronic databases, and interviews will determine what customers want in performance, quality, and reliability. It will also provide a preliminary estimate of how many potential customers there are, and what they are willing to pay. Most importantly, an initial assessment of the competition will reveal what incumbent technologies must be displaced if the new technology is to succeed, and identify the barriers to market entry. Examining the competition will also help identify the most promising distribution channels. The results of these market investigations may alter the direction of concept development if it appears that the product or process under consideration is not truly unique, or will not offer clear advantages in performance or quality. The results will also be fed into the business dimension (See below, “Business Challenges of the Concept Phase”) calculations in the form of revenue estimates.

### B. How They Relate to ATP Applicants and Award Recipients

On one level, a company’s ability to address market questions is essential to preparing a competitive ATP application. In the evaluation of ATP proposals, a demonstration of potential for broad-based economic benefits is given weight equal to that of scientific and technological merit. The first question posed when evaluating economic benefits is “what problem or opportunity does the project address?”<sup>4</sup> The applicant is then asked to present the national economic significance of the problem or opportunity, which is somewhat different than the market assessment usually required to undergird a business plan, but clearly requires similar market research and analysis.

Also assessed in ATP’s peer review of proposals, however, are the company’s plans for commercialization to carry the ATP-supported technology through to the market, leading to economic benefits for the nation.

### C. Types of Assistance State Programs Offer

With the exception of efforts to promote international sales, state economic development programs have come only lately to focus on the demand side of challenges facing their companies. Historically their activities have focused on reducing cost and enhancing access on the supply side: land, labor, and capital. Because of the healthy supply of private sector market consultants in most places, states were also loath to adopt programs that appeared to compete. With the advent of

## Concept Phase of New Technology Development: *Market Challenges*

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programs targeted on technology development and diversification of defense contractors, however, it soon became apparent that market issues were paramount and were not being adequately addressed by commercial providers.

A survey of defense contractors and subcontractors carried out in 1991 in Maryland found that their primary challenge was identifying and exploiting new markets. Six years later, a more comprehensive survey of all technology companies in the state produced the same result. Seventy-three percent of the technology firms with 10 or more employees said that “identifying new markets” was very important to their businesses, while 72 percent rated “diversifying customer base” very important. Among smaller firms, identifying new markets was judged very important by 62 percent of respondents, the highest ranking of any factor listed. Only about 15 percent of the companies, regardless of size, felt that they had been successful in meeting these challenges.<sup>5</sup> As they have sought to respond, states have frequently come to rely on nonprofit partners, many of which receive state funds to provide specialty services.

Highlighted below is one type of market-related assistance states provide.

### **C.1 Help in conducting initial market assessments**

States typically link companies to market research resources in Small Business Development Centers, university business schools, and private consultants. Examples of state programs that offer this assistance are:

- *The Information Research Corp. associated with **Kansas** Technology Enterprise Corporation provides for a low fee an “Industry Report I” with basic market profile and general industry information.*
- *The Ben Franklin Technology Center of Southeastern **Pennsylvania** of the Pennsylvania Department of Community and Economic Development’s professional online search specialists provide market and industry information to companies in the Philadelphia region.*

### 1.3 Business Challenges of the Concept Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

#### A. Business Challenges

Whether the commercialization of a new technology is being undertaken by an established company or a fresh start-up, the key business question from the outset is, “can it be produced for a profit?” The answer is comprised of the early estimates of potential revenues and cost of sales being developed by market assessment activities, a preliminary judgment about the necessary inputs that is being formed as the technology concept is refined, and finally an educated guess about how much physical, financial, and human capital will be required. The status of intellectual property is a key issue.

In the case of a start-up company, all of the challenges of starting a new enterprise are added to those of commercializing a new technology: creating a legal entity, finding space, finding talent, finding money, and evaluating other business opportunities.

#### B. How They Relate to ATP Applicants and Award Recipients

ATP is designed to support the development of new technology which is then “developed and introduced into the marketplace by the project awardees using their own funds...[T]he company must invest its own money to design specific products incorporating the technology and to pay any other costs associated with commercialization.”<sup>6</sup> As a result, the program evaluates carefully the proposer’s organizational structure, management experience and qualifications, and available resources, just as any other astute investor would.

#### C. Types of Assistance State Programs Offer

Both in partnership with the U.S. Small Business Administration (SBA) and on their own, state economic development programs have long included small business development, particularly of start-ups. Through the nationwide network of Small Business Development Centers (SBDCs), they provide guidance to companies about how to start a business, and numerous educational and counseling offerings on all aspects of management. Many SBDCs do not have experience with high technology entrepreneurs, however, so state technology programs and particularly their industry-based nonprofit partners have frequently taken supplementary approaches to providing management assistance.

Highlighted below are different types of state technology assistance programs.



## C.1 Guidance in establishing a business

Through their economic development, business licensing, or secretary of state's offices, many states provide online guides to help entrepreneurs identify the legal steps they must take to establish a business. Examples of state programs offering this assistance are:

- The **California** Trade and Commerce Agency's "Business 101" online resource for doing business in California includes a guide to business licenses and a Small Business Wizard interactive link to contacts and information.
- The **Illinois** Department of Commerce and Community Affairs offers an online First Stop Business Information Center that includes a step-by-step guide to establishing an Illinois business; industry-specific market data; permits, licenses, certifications, fees and other requirements; descriptions of assistance available; profiles of relevant public agencies; and access to proposed rules and legislation that might affect businesses' operations.
- **Ohio's** One-Stop Business Permit Center, part of the Small Business Development Center Network, helps entrepreneurs navigate the maze of necessary permits and refers them to technical, financial, and management assistance available from state, federal, and local agencies and universities.
- The **Pennsylvania** Department of Community and Economic Development provides one of the clearest online guides to starting a business, with links to a checklist. It also provides help in assessing the idea, writing a business plan, structuring the business, registering the business name, applying for employer identification numbers, other licenses and permits, sources of financial assistance, and state contracting information. Its Entrepreneurial Assistance office is an umbrella for SBDCs, minority and women's business advocates, and an environmental business advocate to help companies comply with environmental regulations.
- The **Texas** Department of Economic Development website also walks companies through the issues and resources related to business structure and name, business tax responsibilities, business licenses and permits, and employer requirements.
- **Virginia's** Center for Innovative Technology's website provides an excellent set of Frequently Asked Questions for entrepreneurs starting technology-based companies, each of which links to a tutorial and resources. Areas covered include technology/product, management and planning, marketing, funding, and legal.

## C.2 Protection of intellectual property

Often, states and their organizational partners provide referrals to sources of intellectual property advice. There is at least one example of direct provision of intellectual property legal services. Examples of state programs that offer this assistance:

- The University of **Maryland** Law and Entrepreneurship program teams law students with experienced intellectual property lawyers to provide legal assistance to technology-based companies.
- The **Minnesota** Department of Trade and Economic Development provides Web-based guides on intellectual property protection and legal issues for software developers.

### C.3 Management assistance

In addition to the services provided by SBDCs, states and their partners are increasingly creating opportunities for mentoring by experienced entrepreneurs, either as part of sector-based industry groups or through broad-based high technology organizations. Examples of state programs that offer this assistance are:

- *California's Bay Area Regional Technology Alliance (BARTA) has begun an Executive Mentoring program that uses a cadre of senior advisors from the financial, business, and technical communities to provide assistance and counseling to emerging technology-based businesses at minimal cost.*
- *The North Carolina Technological Development Authority's Entrepreneurial Education Network is a computer-based distance learning program providing interactive courses, seminars and training to entrepreneurs in rural business communities.*
- *The Netpreneur program of The Potomac Knowledgeway in Virginia seeks to create an online and face-to-face community of entrepreneurs who can support one another in developing new Internet-based products and services.*

### C.4 Incubator space

In spring, 1998, the National Business Incubation Association (NBIA) counted 587 business incubation programs in North America, 25 percent of which are focused on growing technology-based firms. Most of the respondents to NBIA's 1998 survey provide shared access to conference rooms; administrative services, including telephone answering; and Internet access, in addition to a wide variety of business development assistance.<sup>7</sup> See above, "Technical Challenges of the Concept Phase" for university-based incubators.

Examples of state programs that offer assistance with incubator space are:

- *California's state-funded Bay Area Regional Technology Alliance (BARTA) lists almost twenty public and private incubators in the Bay Area, some industry-focused (multimedia, environmental, NASA-related, advanced transportation) and others more general.*
- *The New Jersey Commission on Science and Technology sponsors incubators in Newark, Hoboken, New Brunswick, Dover, and Trenton.*
- *New York's Science and Technology Foundation programs include support for incubators associated with its Centers for Advanced Technology Program (See below, "Technical Challenges of the Development Phase.")*
- *The North Carolina Technological Development Authority has launched 26 incubators across the state by loaning money to communities to build or renovate incubator buildings, and owns the First Flight Venture Center in Research Triangle Park.*
- *The nine Edison Technology Incubators of the Ohio Department of Development offer not only below-market space, shared office services, and managerial assistance, but also access to the Edison Technology centers and local universities.*

### C.5 Access to graduate student research assistants

A non-incidental benefit of university-industry partnership programs is the opportunity for companies to involve graduate students in their research and development programs. With their work overseen by faculty members, the students represent a very highly skilled, very low cost R&D workforce, and also may be candidates for future full-time employment. (See below, “*Technical Challenges of the Development Phase*” for a sampling of university-industry technology centers, and above, “*Technical Challenges of the Concept Phase*” for “funded collaborative research with university faculty.”)

### C.6 Pre-seed financing

Several states and their intermediaries provide pre-seed financing. Well before venture capital is even an option, these programs make available royalty-based financing for the earliest commercialization and technology development activities. Examples of state programs offering this assistance are:

- **Georgia Tech’s Faculty Research Commercialization Program (FRCP)** provides up to \$100,000 to academic and research faculty at Georgia Research Alliance universities for transforming laboratory projects into commercially viable products, primarily through new business creation.
- The regional Innovation and Commercialization Corporations funded by the **Kansas Technology Enterprise Corporation** and local communities and/or state universities provide pre-seed funding.
- The **Maryland** Department of Business and Economic Development’s Challenge Investment Fund provides royalty-based funding of \$50,000 to companies, some freshly formed by university or federal laboratory researchers, for initial commercialization (not product development) activities.
- The **North Carolina** Technological Development Authority’s Centennial Venture Partners Fund makes investments in companies commercializing technologies developed at North Carolina State University.
- The **Pennsylvania** Department of Community and Economic Development-funded Ben Franklin Partnership’s Challenge Grant program provides grants of \$5,000 to \$100,000, usually with royalty payback provisions, for exploratory development at the prototype phase of research and development, technology transfer, and joint research and development. Technology-based companies in the state’s six focus areas (See Table III: Selected State Industry Cluster Targets, Partners, and Activities), including start-ups, are eligible. Consortia of companies that jointly support university research through a “center of excellence” are also eligible for Challenge Grant awards.

### C.7 Help in winning Phase I SBIR and STTR awards

A 1999 study<sup>8</sup> by the State Science and Technology Institute (SSTI) for the U.S. Innovation Partnership Task Force notes that “since 1982, the SBIR program has grown to become the single largest source of competitive early stage research and development funding in the country for small business.” In recognition of the role that SBIR can play in small companies’ R&D financing strategies, SSTI found that all but two of the states have structured initiatives that promote the SBIR/STTR program. For examples of state programs offering this assistance, see above “*Technical Challenges of the Concept Phase*.”

## 2. Development Phase of New Technology Development

### 2.1 Technical Challenges of the Development Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

#### A. Technical Challenges

During the development phase, companies usually develop a working model, an engineering prototype, and finally a production prototype of the final product. Safety, materials inputs, environmental, producibility, performance, and manufacturing reliability issues are all being evaluated during this phase.

#### B. How They Relate to ATP Applicants and Award Recipients

ATP should be considered a key development phase technology resource. The underlying science is known and yet technological hurdles remain high. ATP funding supports the enabling technologies that are essential to the development of new products, processes, and services, but does not support activities related to product development. In contrast, state technology programs generally can and do support activities that turn technologies into specific products. Complementary programs that support technology development directly, as well as closely related testing, manufacturability, and technical consulting services are found in every state.

#### C. Types of Assistance State Programs Offer

As technology development moves forward from the concept phase to the development phase, state programs become more numerous. Generalizations about where the relevant state programs can be found are impossible: they exist sometimes in university-industry centers of excellence, sometimes in manufacturing extension programs, sometimes in nonprofit technology development corporations, sometimes in state economic development agencies, and sometimes in the state affiliates of NASA's Regional Technology Transfer Centers.

Highlighted below are different types of state technology assistance programs.

##### C.1 Promotion of federal sources of funding

Many state technology programs feature print and/or electronic newsletters that describe federal programs that support technology development, including SBIR, ATP, and several Department of Defense and Department of Energy initiatives, and also profile the experiences of successful applicants from the state.

Examples of state programs that offer this assistance are:

## Development Phase of New Technology Development: *Technical Challenges*

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- **Colorado's** Advanced Technology Institute and cooperating technology commercialization organizations in universities, economic development organizations, and industry associations publish bimonthly in hard-copy form (front page and table of contents available electronically) Technology Community, which includes information about federal funding opportunities.
- The **Indiana** Business Modernization and Technology Corporation's website's "Hot Topics" page features a link to the most recent ATP competition announcement beside an animated burning fire and its print newsletter (BMT Advantage) highlights funding opportunities.
- The **Massachusetts** Technology Collaborative publishes the Collaborative several times a year, while its online Federal Information Clearinghouse provides a map and guide to federal research programs and a federal agency hot list.
- Many other states, including **New Jersey** (Science and Technology News), **Minnesota** (Minnesota Technology magazine), and **Kansas** (KTECnology), also publish hard copy newsletters which highlight federal funding opportunities.
- The **Ohio** Department of Development's SBIR program also promotes ATP.
- As part of its online tutorial on financing a new technology-based business, **Virginia's** Center for Innovative Technology provides a summary of ATP and a link to ATP's website.

### C.2 State co-funding of federal applications

Several states provide matching funds to companies that are competing for federal awards of technology development funding, particularly ATP and SBIR Phase II, which are directed at commercializable technologies. SSTI's 1999 study<sup>9</sup> on states and the SBIR program found that eight states provided bridge financing to support continued R&D between Phase I and Phase II, and that two states provided matching funds for Phase II winners. The state "bridge" programs were more common several years ago, before the Departments of Defense, Energy, and Health and Human Services adopted "Fast Track" programs that help avoid the funding gap between SBIR and STTR Phase I and Phase II for companies that can show a credible path to commercialization. As a consequence, more states are considering how they can use their existing financing programs to help their companies qualify for Fast Track consideration. Examples of state programs that offer this assistance are:

- The **California** Trade and Commerce Agency's Office of Strategic Technology's Technology Investment Partnership (formerly the Defense Conversion Matching Grant Program) provides up to \$250,000 to help successful applicants for federal technology awards meet their co-funding requirements, in targeted industry clusters. (See below Table III: Selected State Industry Cluster Targets, Partners, and Activities.) Grants are awarded through the state's regional technology alliances in the Los Angeles, San Diego and Bay Area regions.
- **Connecticut** Innovations provides up to \$500,000 in low interest loans to companies that win ATP awards. Connecticut has also begun to make Phase III SBIR funding commitments to help improve the competitiveness of Phase II applications.
- **Ohio** provided matching funds for the Edison Industrial Systems Center's successful ATP proposal, Die Casting Technician's Digital Assistant (1994).
- A number of states, including **Arizona, Hawaii, Indiana, Iowa, New Jersey**, some of the **New York** State Centers for Advanced Technology, and **Wisconsin** make grant or loan funding

*available to help SBIR Phase I award winners improve their Phase II applications or to bridge the gap between the two awards.*

### **C.3 State support for target industry clusters**

Increasingly, states target their technology development efforts on industry clusters that complement the states' technology assets. These efforts often include investments in specialized research centers, industry technical assistance centers, shared facilities for scale-up, and collaboration with industry associations or stimulation of industry groups where none exist. Selected state industry cluster targets (technology-related only), partners, and activities are listed in *Table III: Selected State Industry Cluster Targets, Partners, and Activities*.

**Table III. Selected State Industry Cluster Targets, Partners, and Activities**

	Target Industry Clusters	State's Partners	Activities
AZ	Information industries (emerging cluster)		NOTE: Since Arizona's pioneering work on clusters in the early 1990's, an additional focus on workforce development has been added; the school to work program is closely linked to the ten key industry clusters  Foster linkages between existing buyers and suppliers, encourage spin-off start-ups from existing large companies
	Aerospace industries (transforming cluster)		Diversification of markets, encourage start-ups from universities NOTE: The two clusters listed above are now treated as one, called high technology, with exceptions noted
	Software	Arizona Software Association	N/A
	Optics	Arizona Optics Industry Association	N/A
	Bioindustry (emerging cluster)	Arizona Bioindustry Cluster (ABC)	Foster growth & linkage of existing young firms, attract new facilities or divisions of established firms, support spin-offs from universities and entrepreneurial start-ups; ABC has been formed as an industry association to address workforce and legislative/regulatory issues, link companies to universities and financing, and promote networking opportunities
	Environmental technology		N/A
	Plastics & advanced composites		N/A

**Development Phase of New Technology Development: *Technical Challenges***

	<b>Target Industry Clusters</b>	<b>State's Partners</b>	<b>Activities</b>
CA	Telecommunications Information technology; Diversified manufacturing (food processing, medical instruments & electronics); Multimedia; Health care technologies; and Environmental		Strategy calls for regionally initiated collaborative policy-setting and action involving government-industry and industry-industry collaboration; important industry clusters centered in some regions and not others; priority on workforce development and education, taxation and regulation  Matching funds for federal R&D awards
CO	Bioscience technology  Information technology  Advanced materials	Colorado Software Association, infotech business allies	Incubators (of the Colorado Ventures Centers, Inc.); seed-research grants to stimulate interactions between academic and industrial scientists  CO Advanced Software Institute  Research and technology transfer in applications of thin films to separation processes; research and tech transfer in commercial applications of combustion in space
CT	BioScience  Photonics  Software  Manufacturing	Connecticut United for Research Excellence (CURE), which includes Pfizer, Bristol Meyer Squibb, Neurogen   CONN/STEP (CT. MEP)	\$150,000 seed funding from CT Dept. of Econ. & Comm. Devt.; \$30 million biofacilities fund for incubator and lab space  Under development  Under development  Lean manufacturing consulting support; precision machine training program



**Development Phase of New Technology Development: *Technical Challenges***

	<b>Target Industry Clusters</b>	<b>State's Partners</b>	<b>Activities</b>
GA	Biotechnology	Georgia Research Alliance	Eminent scholars, R&D laboratories, sponsored research/research partnerships
	Environmental technologies	Georgia Environmental Technology Consortium	Technology transfer of environmental state-of-the art practices and technology for industry use
	High-bandwidth communications	Universities, Georgia Dept of Industry & Trade, Georgia Research Alliance	Yamacraw Mission: creating and attracting new companies, targeting research, adding faculty and curricula at universities, attracting venture capital, establishing an electronic design center
IL	Telecommunications; Biomedical; Electronics; Computer software; Environmental technology; and Advanced materials	Illinois Coalition " " " " " " " " " "	Technology Challenge Grant Program, which can fund technology partnerships, consortia, or research centers and industry technology associations
IN	Plastics	Mid-America Plastics Partners, Inc. (spun off of BMT's task force activities); Plastics Research & Education Center, Ball St. U. (BMT task force);	Reducing costs, improved operating efficiencies, expand markets, expedite adoption of state-of-the-art technology.
	Machine tools	Central Indiana Machine Tool Trades Training Center, Vincennes U.	Alliance sharing innovative ideas, tackling workforce, quality, training, target marketing issues.
	Electronics	Indiana Electronics Manufacturers Assn.; electronically-focused university centers	Microelectronics expertise and technical assistance (see Indiana Microelectronics Center profiled in next section.)
	Medical devices	Indiana Health Industry Forum; Indiana Medical Device Manufacturers Council	Needs assessment underway
	Automotive industry		Quality certification now; evolving to include electronic data interchange and supplier chain issues.
	Aerospace		Studies underway
	Software		Studies underway

**Development Phase of New Technology Development: *Technical Challenges***

	<b>Target Industry Clusters</b>	<b>State's Partners</b>	<b>Activities</b>
MA	Research & development	Massachusetts Technology Collaborative (MTC)'s FEDTech	Broad initiative to address the needs of R&D community
	Biotechnology	Massachusetts Biotechnology Council	MOBD (MA Office of Business Development) indus. specialist
	Environmental technologies	Environmental Business Council of New England	MOBD industry specialist; Massachusetts Strategic Envirotechnology Partnership (STEP) provides technology assessments, business support, funding for applied R&D, opportunities for technology demonstrations, regulatory and expedited permitting, and access to market through interstate agreements with CA, NJ, IL, PA, and NY
	Software	Massachusetts Software Council	MOBD industry specialist
	Telecommunications	Massachusetts Telecommunications Council	MOBD industry specialist
	Renewable energy	Massachusetts Technology Collaborative	Renewable Energy Trust Fund – information and analysis, technical assistance and training, demonstration projects, financing
	Optics/Photonics	Massachusetts Technology Collaborative, Massachusetts Assn. for the Optical Industry (MAOI)	Survey, Michael Porter analysis of MA competitive advantage
	Medical devices	MassMEDIC	MTC stimulation of formation of MassMEDIC, which now provides advocacy on federal policy issues, workshops, surveys, fostering strategic alliances, research and clinical trials relationships with teaching hospitals
MN	Computers & electrical components		MN Dept. of Trade & Economic Development industry specialist
	Healthcare & medical products		"

**Development Phase of New Technology Development: *Technical Challenges***

	<b>Target Industry Clusters</b>	<b>State's Partners</b>	<b>Activities</b>
NC	Vehicle manufacturing  Communications (electronics and computers)  Chemicals & rubber  Environmental technologies  Biosciences  Software	North Carolina Electronics & Information Technology Association    North Carolina Environmental Technologies Consortium   North Carolina Biosciences Industry Association   North Carolina Electronics & Information Technology Association	N/A  Industry competitiveness roadmap, resulting in focus on workforce development initiatives; linkages with research institutions; regulatory policy; strategic opportunities studies in computer based graphics & design, end user software, wireless applications  N/A  Public/private partnership working to stimulate the development of the industry  Develop and implement industry competitiveness roadmap  "
OH	Clean coal		Ohio Coal Development Office co-funds the development and implementation of environmental technologies that can use high sulfur coal in environmentally sound ways.
PA	Advanced manufacturing; Advanced materials; Agribusiness; Biomedical/biotech; Environmental technology; and Information technology		Through the "Technology 21" strategy, targeting of Ben Franklin Technology Center programs, including pre-seed and seed funding; focusing of marketing and workforce development efforts
VA	Advanced manufacturing; Advanced materials & electronics; Aerospace & transportation technologies; Biotechnology & medical applications; and Information technology & telecommunications		Virginia's Center for Innovative Technology maintains an industry director in each of the targeted technologies, each having a mission to assist industry leaders in his/her sector in strategic planning and implementing programs and services to increase the vitality of the industry cluster.

### C.4 State-funded specialized facilities

In several states, funding has been provided for specialized facilities that resident companies can use to scale-up, scale-down, test, or otherwise refine their products. Examples of state programs that offer this assistance are:

- The **Colorado** Advanced Photonics Technology (CAPT) Center at Lowry's Higher Education Advanced Technology Center provides access to photonics facilities and equipment for pilot line processing, packaging, measuring and inspection; clean room facilities and support laboratories; design, processing, characterization, packaging and quality labs; and consulting assistance on product design, processing and packaging optoelectronic devices. (CAPT is a collaborative project of the state's photonics companies, Colorado Advanced Technology Institute, community colleges, and others.) The Colorado Bioprocessing Center provides access to state-of-the-art equipment for companies that are scaling up biotechnology products. The Colorado Advanced Photonics Technology Center (CAPT) provides access to equipment for pilot line processing, packaging, measuring, and inspection.
- The **Indiana** Microelectronics Center of the Indiana Business Modernization and Technology Corporation provides microelectronics product assessment and design, with an emphasis on product development (reducing product size and cost) and fast time-to-market prototyping.
- The **Maryland** Bioprocessing Center provides contract GMP manufacturing and financial assistance to resident biotechnology companies. Through the Maryland Industrial Partnerships Program (see above "Technical Challenges of the Concept Phase"), access to the University of Maryland's rapid prototyping capabilities are also provided.
- The **Mississippi** Polymer Institute provides rapid prototyping and physical testing services to plastics product designers.

### C.5 Funded collaborative research with faculty

Projects in the development phase and beyond submitted jointly by an in-state company and a faculty member at a research institution in the state are often eligible for state co-funded research and development programs. For examples of state programs offering this assistance, see "Technical Challenges of the Concept Phase" above.

### C.6 Technical assistance from extension agents

All the states are now part of the National Institute of Standards and Technology's Manufacturing Extension Partnership. This program features technology extension agents who can, at the entrepreneur's request, help with the challenges of rendering a concept into a product that can be produced at a cost the market will bear. (See below, "Technology Challenges of the Commercial Phase" for a list of MEP centers by state.) Examples of state programs offering this assistance are:

- One of the specialties of the **Arkansas** Manufacturing Extension Network is product design and development.
- The manufacturing specialists of **Minnesota** Technology, Inc., provide on-site technology assistance to companies developing new products.
- The **Montana** Manufacturing Extension center engineers provide help with feasibility assessment and process design.

## C.7 Technical assistance from federal laboratories

NASA sponsors the U.S. Regional Technology Transfer Centers (RTTCs) and their state affiliates to provide technology transfer from federal laboratories and technology commercialization services. Services generally include technology and patent research, technology search and partnership development, federal technology licensing, market assessment, industry assessment, market development, business planning, grantsmanship, access to venture capital and other financing sources, and technical assistance. They often identify technical expertise and facilities in federal laboratories that can be used to help companies with design and production problems. The RTTCs operate through state-based affiliates, many of them state-funded. Some states have even mounted their own federal laboratory outreach activities.

Examples of state programs offering technical assistance from federal laboratories are:

- ***Arizona** works one-on-one with companies to help them identify federal sources of technical assistance, and also organizes trade missions several times a year, taking groups of companies to visit national energy and defense laboratories in New Mexico and California.*
- *The Far West Regional Technology Transfer Center helped a **California** start-up medical instruments company obtain licenses for NASA-developed Search for Extraterrestrial Intelligence technology, which it plans to apply to breath analysis instruments for diagnosing internal body functions. The RTTC helped NASA and the company develop a solid-state alternative to cryogenic cooling of the equipment, which made it more commercially viable.*
- *The Mid-Atlantic Technology Transfer Center provided equipment and expertise from the Navy to a company with facilities in **Delaware** and **New Jersey** that enabled it to quantify the actual benefits of a “cool jacket” designed for wear in industrial environments where heat stress is a problem.*
- *FedTAP® is a regional consortium of the Penn State-based **Pennsylvania** Technical Assistance Program, the (MEP-Affiliated) Delaware Valley Industrial Resource Center, and the (NASA RTTC) Mid-Atlantic Technology Applications Center that provides identification of and facilitation of collaboration with key federal laboratories nationwide.*

**Table IV. NASA's U.S. Regional Technology Transfer Centers**  
 (see <http://www.nctn.hq.nasa.gov/directory/index.html> )

<b>RTTC</b>	<b>States</b>	<b>Affiliates</b>
Far West Regional Technology Transfer Center	AK	Alaska Technology Transfer Center, U.Alaska (MEP)
	AZ	Arizona Technology Incubator, U. Arizona
	CA	Center for Applied Competitive Technologies*-- Bay Area, De Anza C. Center for Applied Competitive Technologies*-- San Diego, S.D. City College
	HI	Office of Technology Transfer and Economic Development, U.Hawaii
	ID	Idaho Small Business Development Center, Boise St. U.
	NV	Nevada Small Business Development Center, U. Nevada Reno
	OR	Northwest Innovative Business and Technology Center
Great Lakes Industrial Technology Center	WA	The Campbell Group
	IL	Illinois Coalition
	IN	Indiana Business Modernization and Technology Corporation
	MI	Industrial Technology Institute
	MN	Minnesota Technology, Inc.
	OH	Edison Welding Institute
Mid-Atlantic Technology Applications Center	WI	Wisconsin Innovation Service Center/Technology Access Program
	DE	Delaware Manufacturing Extension Partnership (MEP)
	MD	University of Maryland Technology Extension Service (MEP)
	PA	Ben Franklin Technology Center of SE PA
	VA	Virginia Center for Innovative Technology
WV	Robert C. Byrd Institute for Advanced Flexible Manufacturing	

**Development Phase of New Technology Development: *Technical Challenges***

<b>RTTC</b>	<b>States</b>	<b>Affiliates</b>
Mid-Continent Technology Transfer Center	AR	Arkansas Science & Technology Authority Center for Economic Development, Arkansas St.U. Graduate Institute of Technology . U.Arkansas Little Rock Westark Community College
	CO	Colorado Innovation Foundation – Field Agent Joe Breddan & Associates – Field Agent College of Applied Science & Engineering Technology, U.of So. Co. Colorado Advanced Technology Institute Colorado University Business Advancement Center Technology Associates of Colorado
	IA	Center for Industrial Research & Service, Iowa St.U.
	KS	Engineering Extension Programs, KSU Kansas Technology Enterprise Corporation (KTEC) Mid-American Manufacturing Technology Center (MEP)
	MO	E.A. Glaser & Associates – Field Agent St. Louis Economic Development Council – Field Agent Center for Business Information (Kansas City) Missouri Small Business Development Centers Silicon Prairie Technology Association
	MT	Montana Manufacturing Extension Center (MEP) Montana Trade Port Authority
	ND	Center of Innovation & Business Development, U. N.Dakota Institute for Business & Industry Development, N.Dakota St. U.
	NE	Nebraska Industrial Competitiveness Service, U.Nebraska (MEP)
	NM	Technology Ventures Corp. – Field Agent
	OK	Center for Business & Economic Development, U. Ok, Field Agent Oklahoma Alliance for Manufacturing Excellence (MEP) Oklahoma Center for the Advancement of Science & Technology (OCAST) Rural Enterprises of Oklahoma
	SD	High Plains Center for Technology, SD Sch. Of Mines & Tech University/Industry Technology Service, SD St. U.
	TX	Automation & Robotics Research Institute – Field Agent Cameron Marketing, Inc. – Field Agent University of Houston Clear Lake – Field Agent Center for Manufacturing, U.Texas Pan American KPMG Peat Marwick, Houston Petroleum Industry Alliance, U.Texas Permian Basin Technology Center (SBDC S.TX Border Region), U.Texas San Antonio Texas Department of Commerce Texas Manufacturing Assistance Center (MEP) University of Texas El Paso
	UT	Ideas to Products, Inc. – Field Agent Community Partnership, Weber St. U. Pacifcorp Utah State University
	WY	Business Assistance Center, U. Wyoming Science, Technology and Energy Authority

**Development Phase of New Technology Development: *Technical Challenges***

<b>RTTC</b>	<b>States</b>	<b>Affiliates</b>
Northeast Regional Technology Transfer Center	CT	Center for Technology Commercialization
	NH/ME	Center for Technology Commercialization, U. NH
	MA	Center for Technology Commercialization
	NJ	CTC of New Jersey
	NY	Center for Technology Commercialization Upstate New York
	RI	Rhode Island Technology Transfer Center
	VT/ NoNH	Technology Strategies Group
Southern Technology Applications Center	AL	Alabama Technology Network
	FL	Southern Technology Applications Center, U. Florida
	GA	Georgia Institute of Technology
	KY	Kentucky Technology Service
	LA	Louisiana Business and Technology Center
	MS	University of Southern Mississippi
	NC	Industrial Extension Service, NC St. U.
	SC	Concurrent Technologies Corporation – Field Agent
	TN	Center for Industrial Services, U.Tennessee

\*One of 12 regional advanced technology centers designated by the State of California to assist in manufacturing modernization



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## 2.2. Market Challenges of the Development Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

### A. Market Challenges

At this stage, after initial technical concepts have been adjusted based on preliminary market assessments and while the technology is being further refined, a company typically conducts a more thorough market study that will be incorporated into the business plan. The study must describe industry trends, technology status and holders of key patents, and market size and market segments, then zero in on details of the relevant market segment. Particularly in cases in which the technology being developed has wide applicability, this early targeting of the market segment with the greatest immediate opportunity is critical. The size and growth trends within the segment must be fully characterized and target customers identified. The study must then assess the competition and the enterprise's capacity to gain market share given its products and resources. The latter will have been identified in analyzing the business challenges of the concept and development phases.

All the information developed in the market study will be used to prepare a strategic marketing plan, which must clearly define what gives the enterprise and its products a competitive advantage in the market. The marketing plan, also incorporated into the business plan, will reflect key decisions about target market niches, product features, prices and terms of payment, and distribution channels. The plan must spell out the market objectives in terms of market share and sales revenues, and then detail the marketing activities designed to achieve them. Assignment of responsibilities, scheduling of activities, and estimates of marketing costs must also be included in the plan. Initial sales must be undertaken, customer feedback evaluated, and strategies altered if the projected results are not achieved.

### B. How They Relate to ATP Applicants and Award Recipients

As described in "*Market Challenges of the Concept Phase*" above, ATP evaluators are as interested in potential for economic benefit to the country as they are in scientific and technological merit. Since the realization of economic benefits depends on successful market introduction of the ATP-funded technology, the proposal reviewers look very carefully at the commercialization plan and strategy. The reviewers ask that potential applications be identified, and, for at least one, a path to market be outlined, that existing or prospective strategic alliances be described, and that commercialization milestones be linked to technical decision points.

One of the ways that ATP evaluates broad-based economic benefits is to look for multi-use technologies, with many distinct applications, while at the same time seeking assurance that the company's commercialization plan is realistically focused on what is expected to be most promising near-term applications. Of course, it is also realized that unexpected applications may occur, and flexibility is provided by ATP to adopt to such change. Making knowledge available from the ATP project is another path through which the benefits spread.

## C. Types of Assistance State Programs Offer

Several states extend their market analysis help beyond providing access to market information. Highlighted below are different types of state technology assistance programs.

### C.1 Help in market analysis and plans

A number of the groups affiliated with and often funded by state technology programs provide market analysis services, or links to such services, usually for a fee. Most of the NASA-funded Regional Technology Transfer Centers offer (for a fee) research and marketing reports that include identification of target and secondary markets; data on market size, growth, and trends for specific industries and market segments; analysis of customer needs and purchasing behavior; distribution networks; competitive threats and competitive advantages; and critical success factors for each market, and will develop marketing plans and strategic plans for introducing new products or entering new markets. See “*Technical Challenges of the Development Phase*” above for a list of RTTCs. Examples of state programs offering this assistance are:

- *The Information Research Corp., of the **Kansas** Technology Enterprise Corp., provides for a fee an “Industry Report II” which serves as the basis for a marketing or commercialization plan. It includes information on research and development issues, trends, laws and regulations, and potential customers.*
- ***Maryland’s** MDBusiness website provides an online “Market Information Sources and Services Guide,” which includes a tutorial on market research and a matrix that allows aerospace/defense, manufacturing, telecommunications, environmental, bioscience, or information technology companies to quickly locate industry-specific and general sources of information about industry characteristics, market characteristics, customers, competition, and techniques for reaching the market.*

### C.2 Help in identifying international markets

Almost all fifty states have well-developed export development programs, and are including high technology products and, to some extent, services, in the industries they promote internationally. Their services typically include export counseling that can help a company get started in international markets, as well as provision of trade leads and opportunities to share the costs of participation in trade shows and trade missions. Examples of state programs offering this assistance are:

- ***California’s** state-funded Los Angeles Regional Technology Alliance’s Global Technology Partners initiative provides mentoring to help companies expand into international markets.*
- *The **Connecticut** Department of Economic and Community Development helps companies with foreign market analysis, international trade and market data, and export statistics. The Department also supports the involvement of Connecticut companies in at least two trade missions and shows each year.*
- *The **Massachusetts** Export Center, a partnership of the Massachusetts Small Business Development Center, Massport’s International Marketing Department, the Massachusetts Trade Office and the Massachusetts Office of Business Development of the Massachusetts Department of Economic Development, and MassDevelopment, provide export readiness assessments, one-on-one export counseling, overseas market research, statistics and trade leads.*

- *Four of **Texas**' Small Business Development Centers provide international market analysis and export counseling. The state maintains an office in Mexico City.*
- *The **Utah** International Business Development Office makes available country information and market research reports, as well as a trade leads resource center to its prospective exporters.*

### **C.3 Help in realizing initial sales**

A growing number of states are seeking to use the Internet to help companies within their states more easily locate customers and suppliers among in-state companies. Companies may request to be listed on these sites. Examples of state programs offering this assistance are:

- *Several of the **California** Regional Technology Alliances maintain online business directories to help match buyers and sellers of technology-based products and services.*
- ***Maryland**'s MDBusiness website includes a business opportunities section through which companies can find suppliers.*
- ***Pennsylvania**'s PA SourceNet is an online, interactive system designed to deliver new sales and purchasing opportunities to the state's companies.*
- *The **Texas** Department of Economic Development's online Texas Marketplace provides opportunities for companies to list themselves in a searchable business directory.*
- ***Virginia**'s Center for Innovative Technology directs companies to contests and recognition programs such as the Fast 50 that will help increase their visibility in the marketplace. The online Virginia Procurement Pipeline provides a state-supported online database to help match buyers and sellers.*

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### 2.3. Business Challenges of the Development Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

#### A. Business Challenges

During this phase, an initial financial analysis of several alternative scenarios must be undertaken that is detailed enough to allow two judgments to be made: 1) should the technology be licensed or is it worth developing, either by building a company around it or by adding it to the portfolio of an ongoing business; and 2) to proceed or not. If the decision is to go forward, a full-blown business plan must then be produced, which embodies decisions (based on inputs from technical and market considerations) about business structure, key personnel (including board members), intellectual property, product development milestones, and financial and human resource requirements. Most importantly, the business plan will include a financing plan that projects current and future financing needs and strategies for meeting them. Seed capital must be acquired.

#### B. How They Relate to ATP Applicants and Award Recipients

While a standard corporate business plan is different from the plan to generate economic benefits required of ATP applicants, ATP proposal reviewers nevertheless need to see a commercialization plan that is plausible, as well as good prospects for attracting the capital required. Not only are these critical to making ATP resource allocation decisions, but also the prospects for business success (and therefore the realization of projected economic benefits through the direct path) are slim without them.

#### C. Types of Assistance State Programs Offer

The most critical assistance that can be provided at this juncture is support for management. Most state programs support management indirectly, by underwriting peer-to-peer initiatives and providing opportunities for contact with a wide array of specialized technology business service providers. Highlighted below are different types of state technology assistance programs.

##### C.1 Management assistance

Many states and their partner organizations provide management assistance through counseling, forums, mentoring, and training. The regional technology organizations supported by state governments are more likely to link companies to private as well as public sources of management assistance. Examples of state programs that offer this assistance are:

- *The Office of Small Business of the **California** Trade and Commerce Agency administers the Small Business Development Center network, which provides one-on-one counseling and workshops, and also convenes Small Business Forums to allow small business owners to exchange ideas and conducts a 12-week “NxLevel Training for Entrepreneurs” for businesses that “have experienced success, but want to clarify goals and identify financing options for*

expansion.” California’s state-funded BARTA (Bay Area Regional Technology Alliance) is one of eight sites to offer the Kauffman Foundation-supported intensive FastTrac Entrepreneurial Training program for entrepreneurs beyond the start-up phase. The Internet sites of both BARTA and the San Diego Regional Technology Alliance (SDRTA) link companies to private and public sources of business assistance, including direct links to management consultants’ Internet sites.

- *Microenterprises of fewer than five employees are eligible for technical assistance, and in some cases, limited financial assistance funded by the **Minnesota** Department of Trade and Economic Development and delivered by a wide variety of community-based economic development organizations.*

### C.2 Help in writing business plans

States typically rely on their Small Business Development Center networks to help companies prepare business plans. However, as noted above, SBDCs often lack experience with technology-based businesses, so some states have developed specialized resources for them. Examples of state programs that offer this assistance are:

- *In coordination with the state Department of Economic and Community Development and the Connecticut Development Authority, **Connecticut** Innovations, Inc.’s Technology Assistance Center provides access to business planning materials, including information about industries and companies as well as sources of financing.*
- *The **New Jersey** Economic Development Authority runs an eight-week Entrepreneurial Training Institute to help aspiring entrepreneurs learn the basics of operating a business, develop a business plan, and qualify for financing upon graduation.*
- *The staff of the **Ohio** Department of Development’s Edison Technology Incubators provide assistance to prospective tenants in developing business plans at low or no cost.*

### C.3 Funding for market development

Several states have recently begun providing funding to help companies develop markets for new technology-based products and services. Examples of state programs that offer this assistance are:

- ***Connecticut** Innovations, Inc., makes investments of \$50,000 to \$1 million in high technology companies that need funding for marketing activities.*
- *The **Maryland** Department of Business and Economic Development’s Strategic Assistance Fund has shared the cost with technology companies of developing new markets, including help with business plan development, production of online catalogues, and analysis of diversification possibilities.*

### C.4 Permits and regulatory clearance assistance

As the business or technology development effort is launched, states help companies navigate the sometimes overlapping web of federal-state-local regulatory clearances that are required. Examples of state programs that offer this assistance are:

- *The **California** Trade and Commerce Agency provides an online guide to permits and offers help in expediting them. Joint Venture Silicon Valley, a public-private network collaborating to improve the economic vitality and quality of life in the Silicon Valley region, is working to*

*harmonize and put on the Web the permitting processes of at least ten cities in the region by 2000.*

- *The **Georgia** Environmental Protection Division provides one-stop environmental permitting.*
- *The **Maryland** Department of Business and Economic Development has recently introduced a new Internet-based system called BLIS (Business License Information System) that helps business owners determine which state permits and licenses are required to operate a business.*
- *The **Massachusetts** Department of Economic Development has implemented a One-Stop Permitting Program for all construction-related, state-issued permits.*

### **C.5 Help in locating financing**

All states provide pointers to state, federal, and private sources of financing on their economic development agency Internet sites. Specialized technology development program websites also contain links to sources of financing. Many states, regional affiliates, private technology councils, and/or regional venture capital associations sponsor venture fairs at which emerging technology companies exhibit their “wares” and sometimes make formal presentations to an invited audience of venture capitalists. Examples of state programs that offer this assistance are:

- *The **California** Trade and Commerce Agency website provides detailed information about reaching “angel” investors through the Small Corporate Offering Registration (SCOR) program which permits corporations to raise up to \$1 million in capital each year by issuing shares directly to investors through a public offering by registering the securities in the 43 states where the program is offered. California’s (state-funded) Bay Area Regional Technology Alliance provides Web-based links to over twenty sources of early stage financing for technology companies. The (state-funded) Los Angeles Regional Technology Alliance runs the Southern California Venture Capital Forum, a self-styled “venture capital boot camp,” through which selected companies are mentored by experienced venture capitalists and other professionals and exposed to audiences of potential investors.*
- ***Connecticut** Innovations, Inc., sponsors an annual Connecticut Venture Fair at which entrepreneurs make presentations to venture capitalists.*
- *The **Georgia** Research Alliance’s Georgia Center for Advanced Telecommunications Technology provides a series of networking opportunities called “Linking Investors to Georgia High Technology (LIGHT).”*
- *The **Maryland** Department of Business and Economic Development’s MDBusiness website points entrepreneurs to the Private Investors Network of potential angel investors. The department also co-sponsors an annual “technology showcase” reception with the Greater Baltimore Technology Council and the Mid-Atlantic Venture Association at which emerging technology companies exhibit their technologies and have an opportunity to speak informally to venture capitalists.*
- *The **New Jersey** Economic Development Authority’s (NJEDA) online Finance Finder is a questionnaire that enables NJEDA to direct potential borrowers to the appropriate sources of financing.*



## C.6 Direct provision of seed financing

Some state agencies and their sub-state affiliates provide seed financing. In some cases, states have invested in private venture funds in order to help them qualify for Small Business Investment Company licenses from the U.S. Small Business Administration and thus gain access to 2:1 matching funds. Examples of state programs that offer this assistance are:

- **Connecticut** Innovations, Inc., established the venture fund Access Connecticut, L.P., with an initial investment of \$4 million, to support the creation of new enterprises based on innovations arising out of academic research. Initially focused on medical and life sciences, it is expanding its portfolio into environmental and physical sciences and information technology. Connecticut Innovations also provides product development financing of \$50,000 to \$1,000,000 to companies in the state's target industries.
- The Technology Development Bridge program developed by the **Illinois** Coalition and funded by the Illinois Development Finance Authority provides seed-stage equity financing to technology firms, with a required private fund match of 1:1.
- The Product Development Fund of the **Indiana** Business Modernization and Technology Corporation (BMT) makes loans of up to \$400,000 for product and process R&D in situations where high risks and lack of collateral discourage traditional investments. BMT's Product Commercialization Fund will loan up to \$500,000 (maximum \$750,000 if both funds are used) to help fill the funding gap between developed prototype and market entry.
- **Kansas** Technology Enterprise Corporation (KTEC)'s Applied Research Matching Fund makes direct royalty-based investments of \$5,000 to \$100,000 in companies seeking to develop competitive commercial products. Companies must match KTEC's investment 150 percent.
- The **New Jersey** Economic Development Authority's Seed Capital Program provides seed capital loans of \$25,000 to \$200,000. The state has also helped Early Stage Enterprises qualify for an SBIC license.
- **New York's** Empire State Development's (the state development agency) Small Business Technology Investment Fund program provides early stage equity and debt financing.
- The **North Carolina** Technology Development Authority's Innovation Research Fund provides investments of \$50,000 to \$250,000 to technology-based firms.
- From an early focus on defense transition co-funded by the federal government, the **Ohio** and **Indiana** NCIC (National Center for Industrial Competitiveness) Capital Fund has evolved into a seed capital fund that makes debt and equity financing available to early stage, technology-based companies with an existing customer base or "on the verge of commercialization."
- Working through designated venture funds, the **Pennsylvania** Department of Community and Economic Development-funded Ben Franklin Partnership's Seed Venture Program makes equity investments in early stage venture companies, for product development and working capital. Amounts are negotiable.

### 3. Commercialization Phase of New Technology Development

#### 3.1 Technical Challenges of the Commercialization Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

#### A. Technical Challenges

During this phase the product is ready for commercial introduction. Full production costs must be calculated and make-or-buy decisions made. A manufacturing process, materials, components, and equipment must be selected and pilot production undertaken. Pilot product performance, reliability, and quality must be assessed. Next, full-scale production is launched, with its challenges of commercial-scale product designs, materials handling, quality control, production capacity (including residence time minimization), environmental compliance, distribution systems, and facilities acquisition. Finally, and extending through the product's life, continuous improvement in production, technical support, replacement parts, warranty services to customers; and the development of spin-offs or acquisition of related spin-ons are needed to realize maximum value from the product or process.

#### B. How They Relate to ATP Applicants and Award Recipients

In order to realize the program's economic impact goals, ATP applicants must demonstrate the commitment to take the technology forward into production, even though the program does not fund product development and commercial production. Many ATP projects focus on advances in manufacturing techniques and process technologies, across a wide array of industries, as well as information technologies for integrating manufacturing functions. States may also help diffuse the results of these ATP manufacturing and process technology projects.

ATP is interested in maximizing the potential for spillover benefits from its project investments. The manufacturing technology and cluster-based networks in the states provide vehicles for sharing ATP-related manufacturing technology enhancements vertically with the supplier base and horizontally with others in related industries.

#### C. Types of Assistance State Programs Offer

Several decades ago, states began focusing on the competitiveness of their resident industries in addition to their efforts to attract new companies. One of the key elements of their strategies has been assisting companies, particularly manufacturers, with their technical problems. Highlighted below are different types of state technology assistance programs.

##### C.1 Industrial extension programs

Industrial extension is based on the venerable agricultural extension programs of land grant universities that have been responsible for improving the productivity of farming. The oldest

## Commercialization Phase of New Technology Development: *Technical Challenges*

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industrial extension program was began in 1961 at Georgia Tech. The programs generally feature outreach agents who have industrial/engineering experience who provide technical assistance to manufacturers in product and process design and development, engineering, and other production issues. Usually, limited consulting engagements are provided free, with fees charged for more extensive assignments. Many of the industrial extension programs are university-based, while some have been established as free-standing nonprofit corporations. The National Institute of Standards and Technology has built on these state programs, filled in the gaps where no state program existed, and knit them together into a nationwide partnership, the Manufacturing Extension Partnership, which now has centers in every state. For examples of state programs, see *Table V: Manufacturing Extension Partnership Centers* below.

**Table V. Manufacturing Extension Partnership Centers**  
(See Appendix A for contact information)

<b>State</b>	<b>Partnership Center</b>
AL	Alabama Technology Network
AK	Alaska Manufacturing Extension Partnership
AZ	Industry Network Corporation
AR	Arkansas Manufacturing Extension Network
CA	California Manufacturing Technology Center The Corporation for Manufacturing Excellence (Manex)
CO	Mid-America Manufacturing Technology Center (MAMTC)
CT	Connecticut State Technology Extension Program (CONN/STEP)
DE	Delaware Manufacturing Extension Partnership
FL	Florida Manufacturing Technology Center
GA	Georgia Manufacturing Extension Partnership
HI	Hawaii Manufacturing Extension Center
ID	Idaho TechHelp
IL	Chicago Manufacturing Center Illinois Manufacturing Extension Center (IMEC)
IN	Indiana Business Modernization and Technology Corporation (Indiana BMT)
IO	Iowa Manufacturing Technology Center (Iowa MTC)
KS	Mid-America Manufacturing Technology Center (MAMTC)
KY	Kentucky Technology Service
LA	Louisiana Manufacturing Technical Extension Center (LAMTEC)
ME	Maine Manufacturing Extension Partnership
MD	Maryland Technology Extension Service (MTES)
MA	Massachusetts Manufacturing Partnership (MMP)
MI	Michigan Manufacturing Technology Center (MMTC)
MN	Minnesota Technology, Inc.
MS	Mississippi Polymer Institute (MPI) and Pilot Manufacturing Extension Center (PMEC) Mississippi Technology Extension Partnership
MO	Mid-America Manufacturing Technology Center (MAMTC)
MT	Montana Manufacturing Extension Center

## Commercialization Phase of New Technology Development: *Technical Challenges*

State	Partnership Center
NE	Nebraska Industrial Competitiveness Service (NICS)
NV	Nevada Manufacturing Extension Partnership
NH	Manufacturing Extension Partnership of New Hampshire
NJ	New Jersey Manufacturing Extension Partnership
NM	Industry Network Corporation
NY	New York Manufacturing Extension Partnership (New York MEP) Alliance for Manufacturing and Technology (AM&T)
NC	North Carolina Manufacturing Extension Partnership
ND	North Dakota Manufacturing Technology Partnership (NDMTP)
OH	Great Lakes Manufacturing Technology Center (GLMTC) Miami Valley Manufacturing Extension Center
OK	Oklahoma Alliance for Manufacturing Excellence
OR	Oregon Manufacturing Extension Partnership
PA	Northeast Pennsylvania Manufacturing Extension Partnership and Manufacturers Resource Center Southeastern Pennsylvania Manufacturing Extension Partnership, Delaware Valley Industrial
RI	Rhode Island Manufacturing Extension Services
SC	South Carolina Manufacturing Extension Partnership (SCMEP)
SD	South Dakota Manufacturing Extension Partnership Center
TN	Tennessee Manufacturing Extension Partnership
TX	Texas Manufacturing Assistance Center
UT	Utah Manufacturing Extension Partnership
VT	Vermont Manufacturing Extension Center
VA	Virginia's A.L. Philpott Manufacturing Extension Partnership
WA	Washington Manufacturing Services
WV	West Virginia Manufacturing Extension Partnership (WVMEP)
WI	Northwest Wisconsin Manufacturing Outreach Center (NWMOC) Wisconsin Manufacturing Extension Partnership
WY	Mid-America Manufacturing Technology Center (MAMTC)

**Source:** National Institute of Standards and Technology, Manufacturing Extension Partnership

### C.2 Help in meeting environmental standards

Several states have adopted programs outside their MEP-partner institutions that help companies comply with environmental standards or achieve higher energy efficiency. States are beginning to promote the Department of Energy's NICE<sup>3</sup> (National Industrial Competitiveness through Energy, Environment and Economics) program, which provides matching funding for industries that demonstrate innovative, energy-efficient, waste-reducing technologies. Since 1991, the NICE<sup>3</sup> program has provided \$26.3 million for 91 projects involving more than 200 partners. The 1999 awards were to six partnerships between companies and state programs, including the California Energy Commission, the Illinois Department of Commerce and Community Affairs, the Indiana Department of Commerce's Energy Policy Division, the North Carolina Department of Environment and Natural Resources, the Ohio Department of Development's Office of Energy Efficiency, and the West Virginia Energy Efficiency Program.<sup>10</sup>

Examples of state programs that offer this assistance are:

- *Through its Revolving Energy Loans for Arizona program, the **Arizona** Department of Commerce provides low-interest loans to manufacturers of energy-conserving products.*
- ***Georgia's** Environmental Protection Division offers one-stop environmental permitting. Also, the Georgia Environmental Technology Consortium of six universities, the Georgia Research Alliance, and the state promotes technology transfer of environmental state-of-the-art practices and technology for industry use.*
- *The **Illinois** Department of Commerce and Community Affairs' Bureau of Energy and Recycling supports workshops and seminars, technical assistance, and technology demonstrations of energy-efficiency.*
- *The **Massachusetts** non-regulatory environmental agency's Office of Technical Assistance helps companies replace or reduce the use of toxic substances in production, while the Division of Energy Resources' Energy Advisor Service uses private sector engineers to help companies cut energy costs.*
- *The **New Jersey** Commerce Department provides technical assistance to help manufacturers make their products and production more environmentally sound.*
- *The **Ohio** Department of Development's Institute of Advanced Manufacturing Sciences, an Edison Technology Center, provides technical help in pollution prevention.*

### C.3 Support for advanced manufacturing techniques and diffusion

Many states that have funded targeted industry-university technology centers include at least one center focused on advanced manufacturing. Most are aimed at developing flexible manufacturing using concurrent engineering to produce custom-designed solutions for disparate markets. Examples of state programs that offer this assistance are:

- *In **Illinois**, three University of Illinois at Urbana-Champaign research centers are pursuing advanced manufacturing: the Manufacturing Research Center, the Machine Tool Agile Manufacturing Research Institute, and the Institute for Competitive Manufacturing.*
- *The Advanced Manufacturing Institute at **Kansas** State University funded by the Kansas Technology Enterprise Corporation develops, prototypes, and diffuses new advanced manufacturing technologies in collaboration with industry.*

## Commercialization Phase of New Technology Development: *Technical Challenges*

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- *CAMP, Inc., an **Ohio** Department of Development's Edison Technology Center, is affiliated with the Advanced Manufacturing Center at Cleveland State University, where industry and academic researchers are focused on automation machinery design and development, process improvement in simulation, engineering design and analysis and other advanced manufacturing fields. The Ohio Department of Development's Institute of Advanced Manufacturing Sciences, also an Edison Technology Center, works on manufacturing process improvement and machining optimization.*
- *The Ben Franklin Technology Center Northeast Tier of the **Pennsylvania** Department of Community and Economic Development provides assistance in manufacturing process re-engineering.*

### 3.2 Market Challenges of the Commercialization Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

#### A. Market Challenges

There are several market-related challenges for companies in the commercialization phase. A sales and distribution structure must be put into place, monitored and revised. Sales information, particularly the characteristics of buyers, must be continually collected and analyzed, and strategies adjusted accordingly. Customer surveys that provide feedback on price, design, function, packaging, and delivery must be conducted and the results communicated to production and business teams. Business intelligence about competitors must be gathered to assess how others are responding to market conditions and to the entrepreneur's entry into the market.

#### B. How They Relate to ATP Applicants and Award Recipients

Established companies frequently decide to pursue high-risk technologies in areas related to their core business in an effort to extend products lines or to reach new markets. These companies may make excellent ATP candidates because they usually have stronger business capabilities and experience taking new technologies to market.

#### C. Types of Assistance State Programs Offer

States support companies' domestic and international marketing efforts in a variety of ways, some geared to specific industries, some to particular classes of business owners, and others to companies that have experienced market dislocations. The states and their partners also aid firms' efforts to develop a family of related technology-based products. Highlighted below are different types of state technology assistance programs.

##### C.1 Help in finding customers in-state

Statewide and regional private technology councils have as one of their primary missions bringing together potential buyers and sellers in a variety of networking venues. (See "*Market Challenges of the Development Phase*" above for examples.) Examples of state programs that offer this assistance are:

- *The **Connecticut** Technology Council is a private, nonprofit partnership of Connecticut-based providers and users of technology that encourages strategic partnering and collaboration.*
- ***Connecticut** Innovations also hosts an annual Technology Exhibition and Dinner to showcase technology companies and link them to potential customers and sources of support.*
- *The **Maryland** Department of Business and Economic Development-funded Greater Baltimore Technology Council and High Technology Council of Maryland both offer a wide range of industry-specific and technology community-wide meetings that provide opportunities for networking.*



### C.2 International sales assistance

States and their partners in economic development are increasingly using the Internet to help companies extend their marketing reach. They continue to offer traditional services, including trade missions and trade shows, and the use of high level elected officials to open doors in nonmarket economies. Examples of state programs that offer this assistance are:

- **California's** state-funded *Los Angeles Regional Technology Alliance (LARTA)* has established *Global California*, a Web-based "mentor and virtual assistant" for industry clusters of small and medium technology companies looking for strategic partners, suppliers, and customers; support services; financing; and new market entry.
- The **Connecticut** Department of Economic and Community Development's *Access International* service provides a single point of contact through which any business can be directed to expert consultants, export management companies, and other public and private resources to support international trade. The state has foreign trade representatives in China, Mexico, Argentina, Brazil, Israel, and Africa.
- The **Illinois** Department of Commerce and Community Affairs' *International Business Division* takes companies on trade missions and to trade shows, provides trade leads, and has formed the *Illinois Export Alliance* of service providers throughout the state.
- The **Massachusetts** Export Center provides international marketing activities and hosts visiting international business delegations. (See above, "Market Challenges of the Development Phase.") The state has foreign offices in Germany, China, Israel, the United Kingdom, Mexico, Brazil, and Singapore.
- The **New Jersey** Department of Commerce includes "strategic advocacy" on behalf of its resident firms as one of the export services offered.
- Ten of **Ohio's** 38 *Small Business Development Centers* include export counseling in their services.
- *PA SourceNet*, a service of the **Pennsylvania** Department of Community and Economic Development, has recently added an international pre-qualified trade lead matching service to its online capabilities. The state's *Pennsylvania Export Network* coordinates the trade development, trouble-shooting, mentoring, matchmaking, financing and market intelligence services of public and private export service providers and makes them centrally accessible through regionally-based economic development organizations and consortia.
- *Rhode Island's Samuel Slater Technology Fund* provides financing for industry marketing collaborations aimed at sharing the cost of bringing the complementary products of groups of participating companies to market.
- The **Texas** Department of Economic Development's trade lead coordinator gathers trade leads, identifies potential Texas suppliers, and relays the information to the potential buyers. Other international opportunities are available through the online *Texas Marketplace*.

### C.3 Government procurement assistance

State economic development agencies typically support at least some informational links to state procurement opportunities, and in some cases take a more active role in helping companies compete for state contracts. In most states, the Department of Defense funds the Procurement Technical Assistance Centers, usually based at community colleges, universities, chambers of

## Commercialization Phase of New Technology Development: *Market Challenges*

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commerce, and business and regional development organizations. These provide one-on-one counseling, technical information, marketing assistance and training to businesses that are interested in selling their products or services to state or federal government agencies. In some cases, computerized bid-matching systems are used to alert client companies to contract opportunities tailored to their specifications. Examples of state programs that offer this assistance are:

- *The **California** Trade and Commerce Agency provides an online guide to doing business with the state.*
- ***Georgia** Tech's Economic Development Institute provides government procurement assistance.*
- *The Commonwealth of **Massachusetts**' Procurement Access & Solicitation System (Comm-PASS) allows businesses online access to all the information necessary to bid on many state contracts, including open solicitations searchable by category and purchasing entity, closed solicitations and contract award documents by category or purchasing entity, business registry, and forms.*
- *The **New Jersey** Selective Vendor Information Data Base, SA VI-II, matches buyers and vendors for both public and private contracting opportunities.*
- *The **New York** Empire State Development staff evaluate companies' capacity to perform government contracts, then help develop and execute strategies for marketing products and services to government agencies at all levels.*
- *The online **Texas** Marketplace provides access to local, state and federal government procurement opportunities.*

### **C.4 Marketing assistance for minority and women-owned businesses**

Many state and federal contracts require teaming with minority and or women-owned businesses. States and localities have used online directories of businesses to help minority and women-owned businesses make themselves known to prime contractors and to help the latter find certified minority and women-owned subcontractors. Examples of state programs that offer this assistance are:

- ***Maryland**'s MDBusiness website includes a directory of Maryland businesses that is searchable by ownership characteristics.*
- *The **Massachusetts** Comm-PASS (see above) system links users to the website of the Office of Minority and Women Business Assistance within the state Department of Economic Development for a listing of certified businesses.*
- *Empire State Development's Division of Minority and Women's Business Development facilitates access to **New York** State procurement opportunities.*
- *Information about resources, network references and private and public linkages can be accessed through **Ohio**'s Women's Business Resource Program.*
- *The online **Texas** Marketplace website maintained by the Texas Department of Economic Development includes a special Texas Historically Underutilized Business (HUB) Directory that is produced and refreshed nightly using information on certification of HUB businesses by the state's General Services Commission.*

## C.5 Defense diversification assistance

Many states found that the challenges facing companies adversely affected by significant reductions in military procurement were very similar to those experienced by developers of new technology. Consequently, they shared and refined solutions to similar problems they encountered. Often the programs they developed were funded by the U.S. Economic Development Administration (EDA). Examples of state programs that offer this assistance are:

- *In **California**, the entire Goldstrike Partnership technology program began as a defense conversion initiative, with many of its industry clusters chosen to capitalize on capabilities built by military spending.*
- ***Indiana** Business Modernization and Technology Corporation's Business Transition and Defense Conversion Services program uses EDA funding to help defense contractors improve the efficiency of their operations, diversify into new markets, access appropriate new and advanced technologies to adapt existing products to new markets or develop new complementary products, and meet commercial standards.*
- *The Trust, a program of the **Massachusetts** Department of Economic Development, provides financial consulting, working capital, and equipment loans and guarantees to small and medium manufacturing and other high-value-added firms impacted by economic change, including defense downsizing. Funding comes from the Commonwealth, EDA, and Massachusetts Electric.*
- *The **Ohio** Department of Development's Defense Conversion Assistance Program helps companies, communities, and individuals adjust to the effects of defense budget reductions. Companies may obtain funds for expanding their product and customer base.*
- *Using EDA and state funding, the University of **Rhode Island** Ocean Technology Center (an NSF IUCRC awardee) created a Marine Enterprise Development Revolving Loan Program to encourage the growth of marine technology-related industry in response to military spending cutbacks.*
- *The **Virginia** Small Business Financing Authority's Defense Conversion Revolving Loan Fund provides loans of up to \$700,000 for fixed assets and working capital to help defense-dependent companies diversify their customer base.*

## C.6 Trade adjustment assistance

Both in partnership with federally-funded trade adjustment assistance offices and independently, states are offering assistance for companies that have been harmed by foreign competition. An example of a state program that offers this assistance is:

- *The **New Jersey** Economic Development Authority provides professional consulting assistance for federally certified trade-impacted manufacturers.*

## C.7 Help broadening product mix

Technology companies rarely thrive based on one product. Typical strategies involve development or acquisition of complementary products and the addition of value-added services. For examples of state programs offering this assistance, see above "*Technical Challenges of the Concept Phase*" on acquiring technologies.

## C.8 Electronic commerce assistance

States are increasingly involved in helping companies understand and evaluate the opportunities and risks posed by electronic commerce. Examples of state programs that offer this assistance are:

- *Several of the regional **New York** State Technology Development Organizations are providing tutorials to client companies on electronic data interchange and electronic commerce as part of their procurement assistance.*
- *CAMP, Inc., one of the **Ohio** Department of Development's Edison Centers, provides limited no-cost consultation and training to small-to-medium size manufacturers to help them take advantage of electronic commerce opportunities, and through fee-based projects, helps companies plan, design, and implement eCommerce technologies.*
- ***Virginia's** Center for Innovative Technology (CIT) is involved in a number of alliances with nonprofit organizations devoted to promoting electronic commerce and providing support for its users, including the Virginia Electronic Commerce Technology Center (VECTEC), InterCom, the Internet Multimedia Center, Southeastern Virginia Regional Network (SEVAnet), the newly CIT-funded Internet Software Laboratory at the University of Virginia, and the Netpreneur Program of The Potomac Knowledgeway. CIT also sponsors a Chief Knowledge Officers Roundtable and eCommerce seminars.*

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### 3.3 Business Challenges of the Commercialization Phase

	Concept	Development	Commercialization
Technical			
Market			
Business			

#### A. Business Challenges

A company which is moving from scale-up to full production needs to address resource acquisition and management issues. It needs to start obtaining facilities and equipment; hiring and training personnel, then continuously upgrading personnel skills; recalibrating design, production, and marketing based on regular soundings of the current and prospective customer base; managing both supplier chain and distribution systems for maximum profit; establishing and reviewing administrative policies and systems; and arranging for successive rounds of financing. Management teams should also be engaged in strategic planning to effect continuous improvement.

#### B. How They Relate to ATP Applicants and Award Recipients

ATP award recipients may want to take advantage of state assistance programs that can help them move forward into full production. ATP looks forward to the eventual commercialization of ATP-funded technologies—either by the innovators and their partners or licensees, or by other companies who obtain the knowledge indirectly through publications or other means. “True economic impacts occur when ATP-fostered technologies enter the market,”<sup>11</sup> even though ATP funds may not be used for product development or market introduction.

#### C. Types of Assistance State Programs Offer

State programs to support the operations of technology companies run the gamut from helping companies find building sites to achieving ISO-14000 certification. Highlighted below are different types of state technology assistance programs.

##### C.1 Site selection services

Site selection services have been the meat and potatoes service of state economic development for the last fifty years. Every state maintains business development representatives ready to help companies find appropriate sites or buildings for new locations or expansions. On most state economic development websites, their marketing messages are paramount. As state strategic planning has focused more on technology-based businesses, these agents, often specialized by industry, have become an important part of the network of support for technology company growth. Their work is frequently tied closely to the offering of financial incentives for new capital investment. (See “*Technical Challenges of the Development Phase*” above for state industry cluster targets.) First issued by Mississippi in the 1930s, most states use both tax-exempt and taxable industrial revenue bonds, often originating through local industrial development authorities, to help companies finance capital improvements. States have also developed a wide array of additional financing programs. Examples of state programs that offer this assistance are:

## Commercialization Phase of New Technology Development: *Business Challenges*

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- The **Arizona** Department of Commerce's Commerce and Economic Development Commission provides low-interest loans funded by the proceeds of the state lottery. Fixed asset loans are provided for business expansion generally and for high technology businesses in particular.
- The **California** Capital Access Program (CalCAP), operated by California Pollution Control Financing Authority chaired by the State Treasurer, provides insurance for fixed asset and working capital loans of up to \$2.5 million to small businesses that the banks might not otherwise make.
- Many other states, including **Illinois, Massachusetts, Minnesota, Pennsylvania, Texas, and Virginia** have similar capital access programs.
- The **California** Trade and Commerce Agency's Office of Small Business administers the California Loan Guarantee program, which provides guarantees to lenders that give term loans or lines of credit to small businesses that cannot otherwise qualify for a loan.
- The **Connecticut** Department of Economic and Community Development provides loans and loan guarantees to businesses for job retention or expansion, including funding and tax credits for new machinery or equipment, acquisition of real property, infrastructure improvements, and renovation or expansion of facilities.
- The **Illinois** Development Finance Authority (IDFA) participates in bank loans, offering an interest rate 1.5 percent below the rate charged by the bank on its portion of the loan.
- The **Massachusetts** Department of Economic Development's Emerging Technology Fund provides loan guarantees for fixed asset loans to companies in the state's targeted technology industries. Its tax-exempt Equipment Lease/Purchase Program gives manufacturers a low-cost alternative for financing \$300,000 or more of new equipment.
- Through the **Minnesota** Investment Fund, grants are made by the state Department of Trade and Economic Development to local governments, which then use the funds to make loans to expanding businesses.
- The **New Jersey** Economic Development Authority (NJEDA) makes loans of up to \$500,000 for fixed assets and working capital in cooperation with area banks, and also provides loan guarantees, grants to expanding or relocating companies, and term loans (with participating banks) of \$100,000 to \$3 million to second stage technology enterprises. Through the SBA 504 program, NJEDA can arrange long-term financing of up to \$750,000 for fixed assets.
- The **Ohio** Department of Development provides direct loans for up to 30 percent of a project's fixed assets, or \$1 million, primarily for manufacturers. Its Statewide Development Corporation provides SBA 504 program financing. The Regional 166 program offers financial assistance to industrial companies for smaller projects, working through 11 regional agencies, most of which are SBA 504 Certified Development Companies.
- **Pennsylvania** has adopted a single customer service center and application for all its financing programs. The Pennsylvania Department of Community and Economic Development's Opportunity Grant program makes grants (4:1 private match required) to firms, industrial development corporations, and municipalities for projects that will create or preserve a significant number of jobs. The agency's machinery and equipment loan fund provides low-interest loans to companies for acquiring and installing new or used machinery and equipment, or for upgrading existing machinery and equipment. The Pennsylvania Industrial Development Authority makes low-interest loans through local Industrial Development Corporations for job-creating or job-preserving land and building acquisition, construction, and renovation. Pennsylvania's Small Business First program provides fixed asset and working capital loans to

## Commercialization Phase of New Technology Development: *Business Challenges*

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*businesses with 100 or fewer employees at 5 percent interest. Eligible uses include financing needed to comply with environmental regulations or to adjust to defense downsizing.*

- *The **Utah** Department of Community and Economic Development manages the Industrial Assistance Fund, which offers a corporate loan program for large corporate expansions that will add higher paying jobs and utilize smaller Utah suppliers of goods and services.*
- *The **Virginia** Economic Development Revolving Loan Fund provides fixed asset financing for manufacturers and companies that realize more than 50 percent of their sales outside of Virginia; private debt financing and owner equity are required.*

### **C.2 Special incentives for locating in distressed areas**

Sometimes in partnership with the federal government, but often independently (for example, states pioneered the concept of enterprise zones), states have provided special incentives to companies to locate in areas with lagging economic performance. Most of the states operate enterprise zone programs similar to that described below for Arizona. Examples of state programs that offer this assistance are:

- *The **Arizona** Department of Commerce's Enterprise Zone program provides income tax credits and property tax reclassification for eligible companies creating net new jobs in designated enterprise zones throughout the state.*
- *The **California** Trade and Commerce Agency's Sudden and Severe Economic Dislocation Revolving Loan Fund, co-funded by the U.S. Economic Development Administration (EDA), provides subordinated loans for fixed assets and working capital to companies that will help create or retain jobs in areas of the state adversely affected by defense industry and military base closures and downsizing, presidentially declared disasters, and other economic dislocations. A similar program, California's Old Growth Diversification Revolving Loan Fund, uses U.S. Forest Service funds to provide loans for equipment and machinery or working capital to established businesses and start-ups in the nine counties of Northern California affected by timber harvest reductions and sawmill and related plant closings.*
- *In **Georgia**, tax credits administered by various agencies are available to companies creating jobs, making investments, and retraining employees. The amounts vary depending on the county's unemployment, per capita income, percentage of residents with incomes below the poverty level, and average weekly manufacturing wages. The Georgia Department of Community Affairs sponsors Incentive Loans for Industry, a program that provides low-interest, medium-term loans of up to \$300,000 to manufacturers and other "value-added" businesses for building acquisition or expansion, land, leasehold improvements, and equipment purchases in EDA-eligible counties. The department also administers a revolving loan fund for businesses located in the 35 north Georgia counties, funded with the support of the Appalachian Regional Commission, and a loan program for companies expanding into rural areas of the state.*
- *The **Maryland** Defense Adjustment Loan Fund provides working capital loans to technology-based companies in defense-impacted areas of the state.*
- *The **Massachusetts** Economic Development Incentive Program administered by the state's Department of Economic Development provides investment tax credits for projects in Economic Target Areas and Economic Opportunity Areas within them.*
- *Companies locating in rural **Minnesota** are eligible to apply for the Department's Rural Challenge Grant Program, through which grants to regional organizations are used to make low-interest loans to companies with potential to create or retain jobs for low-income individuals.*



## Commercialization Phase of New Technology Development: *Business Challenges*

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- *The **New Jersey** Economic Development Authority provides loans and loan guarantees to small businesses located in or whose customers are located in Atlantic City.*
- *The **North Carolina** Technological Development Authority provides loans to emerging companies in rural areas for working capital and fixed asset needs associated with expansion. North Carolina's William S. Lee Act job tax credits are increased in counties rated Tier One (most distressed) and scaled sharply downward to Tier Five. The North Carolina Department of Commerce has an additional Industrial Development Fund that provides fixed asset loans through grants to distressed localities.*

### C.3 Equity and other venture financing

An increasing number of states have established venture capital funds, often to lure private venture capital funds into their states by co-investing in promising technology-based firms. Examples of state programs that offer this assistance are:

- *The **Illinois** Department of Commerce and Community Affairs' Technology Venture Investment Program provides up to 50 percent of the equity financing for commercializing advanced technologies, including activities for research and development, acquisition of assets, or working capital.*
- *The Ad Astra Funds I and II of the **Kansas** Technology Enterprise Corporation were capitalized by state and private funds and are privately managed.*
- *The **Maryland** Department of Business and Economic Development's Enterprise Fund invests one dollar for every three invested by "sophisticated" investors, typically in first round venture funding for Maryland technology companies. The state also used state general funds and state employee pension funds to create the Maryland Venture Capital Trust, which invested in eight limited partnerships that committed to making best efforts to invest in emerging technology companies in Maryland.*
- *The **Massachusetts** Technology Development Corporation (MTDC), one of the oldest state venture capital programs, provides up to \$500,000 in direct equity investments in technology-based Massachusetts companies developing products or services with the potential to be commercially competitive. MTDC's new Commonwealth Fund, capitalized using MTDC investment returns and investments from two Boston venture capital funds, provides follow-on financing for early-stage technology companies.*
- ***New York's** Empire State Development's (the state development agency) Small Business Technology Investment Fund program provides early stage equity and debt financing.*
- *The **Utah** Technology Finance Corporation (UTFC) makes non-asset-based loans to technology-based firms in urban areas and traditional industries as well as emerging technology-based firms in rural areas, generally structured as term debt with variable interest rates higher than commercial banks. UTFC funds are available for proof of concept and product development (seed stage), initial production and marketing (first-stage), early growth, expansion, development of new markets (second-stage), and growth by established companies involving new market expansion, new product lines, expanded manufacturing capacity, or adoption of new technology (third-stage.)*

### C.4 Other R&D financing

Several states have developed special financing programs to support research and development. A 1997 survey<sup>12</sup> by the State Science and Technology Institute found that 35 states provided some sort of tax incentive for research and development. Examples of state programs that offer this assistance are:<sup>13</sup>

- **Arkansas** companies that conduct R&D within the state are eligible for an income tax credit of 33 percent of qualified research expenditures.
- Since the SSTI survey, **Georgia** has adopted a 10 percent tax credit for increases in research and development expenditures.
- **Hawaii** companies' contracts for scientific work for the federal government are exempt from use taxes.
- **Missouri** companies are eligible for state income tax credits of 6.5 percent of increases in R&D expenses over a three-year average.
- With the Division of Taxation, the **New Jersey** Economic Development Authority administers the Technology Business Tax Certificate Transfer Program, which enables qualified businesses to transfer their unused net operating loss and R&D tax credits to a private corporate taxpayer, which in return provides financial assistance to help the credit donor establish a new or expand an existing technology company in the state.
- **Ohio** offers tax incentives to taxpayers who invest in qualified Ohio small research and development and technology-oriented firms. The credits may be applied to personal income taxes, corporate franchise taxes, public utility excise taxes, or taxes on dealers in intangibles.
- The program in **Rhode Island** closely tracks the federal R&D tax credit, offering an income tax credit of 5 percent of the increase in qualified R&D expenditures over the federally defined base period.

### C.5 Other tax incentives

States are increasingly offering tax credits tied to employment growth, usually scaled to create additional incentives for expansion in distressed areas. Examples of state programs that offer this assistance are:

- **Georgia** provides a special tax credit for fast growing (greater than 20 percent per year over three years) small businesses.
- The **New Jersey** Business Employment Incentive Program provides grants of up to 80 percent of the income taxes withheld annually (for up to 10 years) from the paychecks of new employees, for companies creating at least 25 new jobs in designated urban areas or 75 jobs elsewhere.
- **New York's** 5 percent tax credit is tied to new capital investment, which can be carried forward for 15 years. In Economic Development Zones, the investment tax credit can be as high as 19 percent. A job creation grant, paid in proportion to new jobs created, also acts as a rebate of state and local taxes.
- **Ohio's** Job Creation Tax Credit provides a corporate/franchise tax credit to companies adding at least 25 new jobs in the state, and also tax credits for investment by manufacturers in machinery and equipment.

- ***Pennsylvania's** Job Creation Tax Credits of \$1000 per job go to approved businesses that agree to create new jobs in the Commonwealth within three years. In a departure from practices common in other states to limit the credits to companies that create a minimum of 25 or more jobs, Pennsylvania reserves 25 percent of the tax credits allocated each year for businesses with fewer than 26 employees.*

### **C.6 Financial assistance for international market development**

States have been engaged in partnerships with The Export-Import Bank of the United States (ExImBank) for many years to provide access to export financing for their companies engaged in international trade. Examples of state programs that offer this assistance are:

- *The **Massachusetts** Department of Economic Development's Export Finance Guarantee Fund provides loan guarantees and mortgage insurance to private lenders that make loans to qualified exporters, particularly small and medium-sized companies that have experienced difficulties obtaining export financing.*
- *The **New Jersey** Economic Development Authority provides one-year revolving lines of credit of up to \$1 million to businesses that are currently exporting or planning to export, to be used to buy materials and meet production costs for confirmed orders.*
- *The **Pennsylvania** Department of Community and Economic Development's Small Business First Export Loan Program provides short-term loans to companies with 250 or fewer employees to help them meet their pre-export and post-export financing needs.*
- *The **Virginia** Small Business Financing Authority (VSBFA) provides guarantees of bank loans for export working capital. The VSBFA is the Virginia partner in ExImBank's state program.*

### **C.7 Personnel recruitment assistance**

Every state that has undertaken a strategic economic development planning effort in the past five years and faithfully heeded the input of technology businesses has concluded that its number one priority must be the development of a skilled workforce. The result has been a burgeoning set of K-12, K-16, school-to-work, and university-focused initiatives tied more or less strongly in various states to their technology programs. Examples of state programs that offer this assistance are:

- *Using its 33 community-based technical institutes, the **Georgia** Department of Industry Trade and Tourism offers QuickStart service to newly locating and expanding companies, which includes recruiting, screening, and training of new employees.*
- *In **Maryland**, the major research universities have launched the Maryland Applied Information Technology Initiative (MAITI), through which they promised to double the number of students enrolled in information technology degree programs in five years and also to double the number of enrollees in short-courses and certificate programs in five years.*
- *The **New Jersey** Department of Labor offers a free service allowing employers to list job openings and access resumes of job seekers via the Internet.*

## C.8 Support for workforce development and labor/management relations

States have historically trained workers to company specifications as part of their business recruitment programs, and most still retain the capability. Increasingly, these programs are being altered or supplanted by programs that provide assistance to resident companies in skills upgrade training for incumbent workers. Examples of state programs that offer this assistance are:

- The **Arizona** Department of Commerce provides job training assistance to companies creating net new jobs in Arizona.
- The **Georgia** Department of Industry, Trade, and Tourism's Intellectual Capital Partnership Program provides customized training to employers.
- The **Maryland** Department of Business and Economic Development's Partnership for Workforce Quality shares the cost with companies of acquiring skills upgrade training for their incumbent workers; training can be provided by the companies themselves, universities or community colleges, or private vendors.
- The **Massachusetts** Corporation for Business, Work and Learning sponsors an Employed Worker Initiative that offers companies both technical and financial assistance in meeting their training needs. The state's Department of Economic Development also provides training grants to companies expanding in the state and industry-responsive training in targeted industries.
- The **New Jersey** Department of Labor provides matching funding for upgrading the skills of incumbent workers.
- **New York** provides worker training grants for newly hired or incumbent worker training, including that associated with productivity or quality improvements.
- The **Ohio** Department of Development's Industrial Training Program offers grants of up to 50 percent of a company's allowable training costs. In Ohio, a network of five Centers for the Advancement of Labor-Management Cooperation and 15 Area Labor-Management Committees provides forums in which issues of mutual interest can be addressed.
- **Pennsylvania's** Department of Community and Economic Development provides grants to businesses for training of new hires as well as retraining and skills upgrading of incumbent workers.
- The **Texas** Department of Economic Development's Smart Jobs Fund provides grants on a reimbursement basis to companies for a portion of their pre-approved incumbent worker training costs.

## C.9 Help in meeting environmental standards

Often through their manufacturing extension programs, states provide technical assistance to businesses to help them achieve environmental and other regulatory standards. Examples of state programs that offer this assistance are:

- The **Indiana** Business Modernization and Technology Corporation (BMT) provides assistance through its 14 Regional Manufacturing Extension Centers that includes help in compliance with environmental, health, and safety regulations. Through an award from the National Institute of Standards and Technology and in partnership with the Indiana Pollution Prevention and Safe Materials Institute (IPPSMI) and Technical Assistance Program at Purdue University and the Indiana Economic Development Council, BMT has recently launched the Indiana Environmental Extension Network aimed at integrating environmental services and manufacturing extension.

## Commercialization Phase of New Technology Development: *Business Challenges*

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- *Manufacturers sought help with regulatory compliance issues more often than any other type of assistance from the University of **Maryland** Technology Extension Service (an MEP affiliate).*
- *The **Massachusetts** Executive Office of Environmental Affairs' Office of Technical Assistance for Toxics Use Reduction provides assistance to companies in developing and implementing toxic use reduction strategies.*
- ***New Jersey** offers low-interest loans and technical assistance to companies seeking to make their products, production, or operations more environmentally sound, and helps match producers and users of environmentally friendly goods and services.*
- *The **Ohio** Pollution Prevention Loan Program of the state's Department of Development and its Environmental Protection Agency provides low-interest capital improvement loans for construction and/or purchase of equipment to complete pollution prevention initiatives at companies with 500 or fewer employees.*
- *The **Pennsylvania** Department of Community and Economic Development's Entrepreneurial Assistance Office includes an Environmental Business Advocate who assists companies in complying with federal and state environmental regulations.*

### **C.10 Special assistance for minority- and women-owned businesses**

Many states operate special loan funds for minority- and women-owned businesses. Examples of state programs that offer this assistance are:

- *The **Illinois** Department of Commerce and Community Affairs operates a Minority, Women and Disabled Participation Loan Program similar to its regular participation loan program, but allowing the program to finance up to 50 percent of a project instead of 25 percent in the case of the basic program. The program helps companies obtain funding from Illinois banks, development corporations and other lending institutions for business start-up, expansion, modernization, and competitiveness improvement.*
- *The Urban Initiative Fund of the **Massachusetts** Department of Economic Development provides technical assistance and loans for working capital, equipment purchases, leasehold improvements, and new product development to strengthen minority-owned businesses with less than \$500,000 in annual sales.*
- *The **Minnesota** Department of Trade and Economic Development's Urban Initiative Loan Program makes funds available to local nonprofit organizations that provide loans and technical assistance to minority-owned and -operated businesses and others that will create jobs in low-income areas of the Twin Cities.*
- *The **Ohio** Department of Development's Office of Minority Financial Incentives makes loans of \$45,000 to \$400,000 to certified minority business enterprises. Its Mini-Loan Guarantee Program provides partial guarantees for projects of \$100,000 or less.*
- *The **Pennsylvania** Department of Community and Economic Development's Entrepreneurial Assistance Office includes Minority and Women's Business Advocates who help minority- and women-owned businesses resolve issues with state agencies, explore market options, and develop financing strategies. The Pennsylvania Minority Business Development Authority provides low-interest loans to minority-owned businesses for working capital, machinery and equipment, or land and buildings.*

- **Texas** provides loans of \$10,000 to \$250,000 to “historically underutilized businesses” (minority- or women-owned) through a linked deposit program whereby the state’s deposits in commercial banks receive a two percent lower return, a benefit to the lender which is passed on through low-rate loans to eligible borrowers.

### C.11 Support for continuous improvement

Primarily as an outgrowth of their work with manufacturers on productivity and competitiveness issues, states have begun to support companies’ broad-gauge efforts to achieve “world class” standards for entire management systems, including ISO 9000 quality and ISO 14000 environmental standards. Examples of state programs that offer this assistance are:

- **Georgia** Tech’s Economic Development Institute provides assistance to companies in meeting international standards, including ISO 9000, ISO 14000, QS 9000, and European Union directives.
- The Regional Manufacturing Extension Centers (RMECs) of **Indiana**’s Business Modernization and Technology Corporation (BMT) conduct a comprehensive business evaluation called the High-Impact Assessment<sup>SM</sup> that benchmarks a business’s performance, evaluates all business operations from product design and engineering to management information systems, reviews results and helps develop a plan for improvement, links companies to resources that can help, and provides a system for tracking progress. BMT has stimulated and now coordinates ten quality networks that help companies achieve ISO 9000 or QS 9000 registration cost effectively through its structured, highly disciplined Fast PayBack program.
- In **Maryland**, Partnership for Workforce Quality funds have also been used to support consortia of manufacturers in their collaborative quest for ISO 9000 certification, as well as an industry-driven “world class manufacturing” consortium.
- In **Massachusetts**, a partnership with the New England Suppliers Institute supports work with prime contractors and their suppliers to strengthen and improve supplier practices.
- The **New York** State Industrial Effectiveness Program shares the cost with manufacturers of performing productivity assessments and implementing improvements.
- Several of the **Ohio** Department of Development’s Edison Technology Centers provide assistance in improvement of quality systems.
- The eight **Pennsylvania** Department of Community and Economic Development-funded Industrial Resource Centers help small- and medium-sized businesses become aware of and implement best manufacturing processes, including improvements in quality systems, manufacturing process, and information technology.

### C.12 Access to business intelligence

Some states have expanded their business information services to provide links that monitor federal, state and private sources of up-to-date competitive information for strategic planning. Examples of state programs that offer this assistance are:

- The Information Research Corp., associated with the **Kansas** Technology Enterprise Corporation provides low cost competitive intelligence on companies that can be regarded as competitors and/or customers of a client company.

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- The **Pennsylvania** Department of Community and Economic Development-funded Ben Franklin Technology Center of Southeastern Pennsylvania's professional online search specialists provide fee-based confidential market, industry and competitive information that is often too difficult or costly for a company to acquire on its own.

**Appendix A: Contact Information for Selected State Programs**

**Appendix A** provides a list of state business assistance programs as of September 1999. Information on select business assistance programs listed alphabetically by state is organized by type of assistance (e.g., COM-T means “Technical Challenges of the Commercialization Phase”) according to the 3x3 matrix introduced in the beginning of the guide, and shown below. You can find a description of the type of assistance on the page listed below in the 3x3 matrix (e.g., COM-T can be found on page 41 in the guide).

Challenge	Concept Phase	Development Phase	Commercialization Phase
<b>TECHNICAL</b>	CON-T (p. 5)	DEV-T (p. 19)	COM-T (p. 41)
<b>MARKET</b>	CON-M (p. 13)	DEV-M (p. 33)	COM-M (p. 47)
<b>BUSINESS</b>	CON-B (p. 15)	DEV-B (p. 37)	COM-B (p. 53)

\*Type of program refers to the 3x3 matrix above.

**Alabama**

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	AL Technology Network	COM-T	(205) 969-2228

**Alaska**

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	Alaska Manufacturing Extension Partnership	COM-T	(800) 716-6462

**Arizona**

Program name	Agency	Type*	Telephone # or website address
Grants/loans to improve SBIR Phase II applications	AZ Dept. of Commerce	DEV-T	<a href="http://www.commerce.state.az.us/high-tech/sbirsttr.shtml">www.commerce.state.az.us/high-tech/sbirsttr.shtml</a>
Support for industry clusters	AZ Dept. of Commerce	DEV-T	<a href="http://www.commerce.state.az.us/stratplan/clusters.shtml">www.commerce.state.az.us/stratplan/clusters.shtml</a>
Trade missions to federal labs	AZ Dept. of Commerce	DEV-T	(602) 280-1402
Manufacturing extension program	Industry Network Corporation	COM-T	(800) 716-6462



**Appendix A: Contact Information for Selected State Programs**

Low-interest loans to manufacturers of energy-conserving products	AZ Dept. of Commerce	COM-T	<a href="http://www.commerce.state.az.us">www.commerce.state.az.us</a>
Low-interest fixed asset loans	Commerce & Economic Development Commission (AZ Dept. of Commerce)	COM-B	<a href="http://www.commerce.state.az.us">www.commerce.state.az.us</a>
Training for workers of expanding employers	AZ Dept. of Commerce	COM-B	<a href="http://www.comerce.state.az.us/wfd/wfd.htm">www.comerce.state.az.us/wfd/wfd.htm</a>

**Arkansas**

Program name	Agency	Type*	Telephone # or website address
Product design & development assistance; manufacturing extension program	AR Manufacturing Extension Network	DEV-T; COM-T	(501) 324-9006
R&D tax credits	AR Science & Technology Authority	COM-B	(501) 324-9006

**California**

Program name	Agency	Type*	Telephone # or website address
Online Science lists; Research Laboratories lists	Bay Area Regional Technology Alliance (BARTA)	CON-T	<a href="http://www.barta.org">www.barta.org</a>
Business 101	CA Trade & Commerce Agency	CON-B	<a href="http://www.commerce.ca.gov/business">www.commerce.ca.gov/business</a>
Small Business Wizard	CA Trade & Commerce Agency	CON-B	<a href="http://www.commerce.ca.gov/business/small">www.commerce.ca.gov/business/small</a>
Executive Mentoring program	Bay Area Regional Technology Alliance	CON-B	<a href="http://www.barta.org/programs/emp">www.barta.org/programs/emp</a>
Online incubators lists	Bay Area Regional Technology Alliance	CON-B	<a href="http://www.barta.org/connections/ba_incub">www.barta.org/connections/ba_incub</a>
Technology Investment Partnership (matching grants for federal awards)	CA Trade & Commerce Agency	DEV-T	<a href="http://www.larta.org">www.larta.org</a> (510) 354-3901
Support for industry clusters	CA Trade & Commerce Agency	DEV-T	<a href="http://www.commerce.ca.gov/california/economy/neweconomy">www.commerce.ca.gov/california/economy/neweconomy</a>
Global Technology Partners	Los Angeles Regional Technology Alliance	DEV-M	<a href="http://www.larta.org">www.larta.org</a>
Online business directories to match buyers & sellers	Several CA regional technology alliances	DEV-M	<a href="http://www.larta.org">www.larta.org</a> <a href="http://www.barta.org">www.barta.org</a> <a href="http://www.sdrta.org">www.sdrta.org</a>
Management counseling & workshops; NxLevel Training for Entrepreneurs	CA Trade & Commerce Agency's Small Business Development Center Network	DEV-B	<a href="http://www.commerce.gov/business/small">www.commerce.gov/business/small</a>
FastTrac Entrepreneurial Training program (Kauffman Foundation)	Bay Area Regional Technology Alliance	DEV-B	<a href="http://www.barta.org/programs/eep">www.barta.org/programs/eep</a>

**Appendix A: Contact Information for Selected State Programs**

Online links to private and public management consultants	Bay Area Regional Technology Alliance San Diego Regional Technology Alliance	DEV-B	<a href="http://www.barta.org/connections">www.barta.org/connections</a>
Online guide to permits; help in expediting	CA Trade & Commerce Agency	DEV-B	<a href="http://www.commerce.ca.gov/business">www.commerce.ca.gov/business</a>
Online information about Small Corporate Offering Registration	CA Trade & Commerce Agency	DEV-B	(213) 736-2731 or (415) 557-3787
Online links to sources of early stage financing	Bay Area Regional Technology Alliance	DEV-B	<a href="http://www.barta.org/connections">www.barta.org/connections</a>
Southern California Venture Capital Forum (venture capital "boot camp")	Los Angeles Regional Technology Alliance	DEV-B	<a href="http://www.larta.org">www.larta.org</a>
Manufacturing extension program	California Manufacturing Technology Center The Corporation for Manufacturing Excellence (Manex) San Diego Manufacturing Extension Center	COM-T " "	(800) 300-2682 <a href="http://www.manex.org">www.manex.org</a> (619) 530-4890
Global California	Los Angeles Regional Technology Alliance (LARTA)	COM-M	<a href="http://www.larta.org/gcamp">www.larta.org/gcamp</a>
Online guide to state procurement	CA Trade & Commerce Agency	COM-M	<a href="http://www.commerce.ca.gov">www.commerce.ca.gov</a>
Defense conversion	CA Goldstrike Partnership	COM-M	<a href="http://www.goldstrike.net/investment">www.goldstrike.net/investment</a>
Capital Access Program	CA Pollution Control Financing Authority	COM-B	(916) 654-5610
CA Loan Guarantee Program	CA Trade & Commerce Agency's Office of Small Business	COM-B	<a href="http://www.commerce.ca.gov/business/small/financial/loanguarantee">www.commerce.ca.gov/business/small/financial/loanguarantee</a>
Financial incentives to locate in targeted areas	CA Trade & Commerce Agency's Sudden & Severe Economic Dislocation Revolving Loan Fund; Old Growth Diversification Revolving Loan Fund	COM-B	(916) 322-8311

**Colorado**

<b>Program name</b>	<b>Agency</b>	<b>Type*</b>	<b>Telephone # or website address</b>
Matching funding for industry-driven research	CO Advanced Technology Institute	CON-T	(303) 460-9503
Incubators	CO Ventures Centers, Inc.	CON-B	(303) 237-3998
Support for industry clusters	CO Advanced Technology Institute	DEV-T	<a href="http://www.cati.org">www.cati.org</a>
CO Advanced Photonics Technology Center (access to facilities)	Lowry's Higher Education Advanced Technology Center	DEV-T	(303) 365-8410
Scale-up facilities	CO Bioprocessing Center	DEV-T	(970) 491-1049
Manufacturing extension program	Mid-America Manufacturing Technology Center (MAMTC)	COM-T	(800) 653-4333

## Appendix A: Contact Information for Selected State Programs

### Connecticut

Program name	Agency	Type*	Telephone # or website address
Critical Technologies Research Program	CT Innovations, Inc.	CON-T	(860) 563-5851
Yankee Ingenuity Initiative	CT Innovations, Inc.	CON-T	(860) 563-5851
Loans to ATP winners	CT Innovations, Inc.	DEV-T	(860) 563-5851
Support for industry clusters	CT Innovations, Inc.	DEV-T	<a href="http://www.connstep.org">www.connstep.org</a>
Foreign marketing assistance	CT Dept. of Economic & Community Development	DEV-M	<a href="http://www.state.ct.us">www.state.ct.us</a>
Technology Assistance Center (business planning help)	CT Innovations (with CT Dept. of Economic & Community Development and Connecticut Development Authority)	DEV-B	<a href="http://www.state.ct.us/prog_tac">www.state.ct.us/prog_tac</a>
Funding for market development	CT Innovations	DEV-B	(860) 563-5851
Annual venture fair	CT Innovations	DEV-B	(860) 563-5851
Access Connecticut L.P. (seed financing)	CT Innovations	DEV-B	(203) 227-0670
Product development financing	CT Innovations	DEV-B	(860) 563-5851
Manufacturing extension program	CT State Technology Extension Program (CONN/STEP)	COM-T	<a href="http://www.connstep.org">www.connstep.org</a>
Strategic partnering & collaboration	CT Technology Council	COM-M	<a href="http://www.ctcweb.org">www.ctcweb.org</a>
Annual Technology Exhibition & Dinner	CT Innovations	COM-M	(860) 563-5851
Access International	CT Dept. of Economic & Community Development	COM-M	<a href="http://www.state.ct.us/ecd/international/initiatives">www.state.ct.us/ecd/international/initiatives</a>
Loans & loan guarantees	CT Dept. of Economic & Community Development	COM-B	(860) 270-8165

### Delaware

Program name	Agency	Type*	Telephone # or website address
DE Research Partnership	University of Delaware	CON-T	<a href="http://www.udel.com">www.udel.com</a>
Manufacturing extension program	Delaware Manufacturing Extension Partnership	COM-T	(302) 283-3131

### Florida

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	FL Manufacturing Technology Center	COM-T	<a href="http://www.fmtc.org">www.fmtc.org</a>

### Georgia

Program name	Agency	Type*	Telephone # or website address
Advanced Technology Development Center (incubator)	GA Tech University	CON-T	<a href="http://www.ceds.gatech.edu">www.ceds.gatech.edu</a>
GA Center for Advanced Telecommunications Technology	GA Research Alliance	CON-T	(404) 894-9211
GA Biotechnology Center	GA Research Alliance	CON-T	(706) 542-1310
GA Environmental Technology Consortium	GA Research Alliance	CON-T	(706) 542-8382

## Appendix A: Contact Information for Selected State Programs

Faculty Research Commercialization Program	GA Tech University	CON-B	<a href="http://www.atdc.gatech.edu/2new/98instructions">www.atdc.gatech.edu/2new/98instructions</a>
Support for industry clusters	GA Research Alliance GA Environmental Technology Consortium	DEV-T	(706) 542-8382
One-stop environmental permitting	GA Environmental Protection Division	DEV-B	(404) 656-4713
LIGHT (Linking Investors to Georgia High Technology) networking opportunities	GA Research Alliance	DEV-B	<a href="http://www.gacatt.gatech.edu/website/outreach">www.gacatt.gatech.edu/website/outreach</a>
Manufacturing extension program	GA Manufacturing Extension Partnership	COM-T	(404) 894-8989
Tech transfer, environmental technology and practices	GA Environmental Technology Consortium, Georgia Research Alliance, State of Georgia	COM-T	(706) 542-8382
Government procurement assistance	GA Tech' Economic Development Institute	COM-M	<a href="http://www.new.edi.gatech.edu/edinew/specialsrv">www.new.edi.gatech.edu/edinew/specialsrv</a>
Financial incentives to locate in targeted areas	GA Dept. of Community Affairs' Incentive Loans for Industry; revolving loan fund for Appalachian counties	COM-B	(404) 679-1585
R&D tax credits	GA Dept. of Community Affairs	COM-B	(404) 679-1585
Tax credits for employment growth	GA Dept. of Community Affairs	COM-B	(404) 679-0593 or (404) 679-1585
QuickStart: recruiting, screening, training new employees	GA Dept. of Industry, Trade and Tourism	COM-B	(404) 656-3584
Intellectual Capital Partnership Program (customized training)	GA Dept. of Industry, Trade and Tourism	COM-B	(404) 656-3584
Help in meeting international standards (ISO 9000, etc.)	GA Tech's Economic Development Institute	COM-B	<a href="http://www.new.edi.gatech.edu/edinew/specialsrv">www.new.edi.gatech.edu/edinew/specialsrv</a>

### Hawaii

Program name	Agency	Type*	Telephone # or website address
Loans/grants to improve SBIR Phase II applications	HI High Technology Dev. Corp.	DEV-T	(808) 625-5293
Manufacturing extension program	HI Manufacturing Extension Center	COM-T	(505) 843-4250
R&D tax credits	HI High Technology Dev. Corp.	COM-B	(808) 625-5293

### Idaho

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	Idaho TechHelp	COM-T	(800) MEP-5MFG

**Appendix A: Contact Information for Selected State Programs**

**Illinois**

<b>Program name</b>	<b>Agency</b>	<b>Type*</b>	<b>Telephone # or website address</b>
SBIR Resource Center	IL Dept. of Commerce & Community Affairs	CON-T	(312) 838-0319
First Stop Business Information Center	IL Dept. of Commerce & Community Affairs	CON-B	<a href="http://www.commerce.state.il.us/services/smallbusiness/expansion">www.commerce.state.il.us/services/smallbusiness/expansion</a>
Support for industry clusters	Illinois Coalition	DEV-T	<a href="http://www.ilcoalition.org">www.ilcoalition.org</a>
Technology Development Bridge program (seed financing)	IL Development Finance Authority	DEV-B	<a href="http://www.idfa.com">www.idfa.com</a>
Manufacturing extension program	Chicago Manufacturing Center IL Manufacturing Extension Center (IMEC)	COM-T	(773) 265-2020
Education, technical assistance, technology demonstrations of energy efficiency	IL Dept. of Commerce & Community Affairs	COM-T	<a href="http://www.commerce.state.il.us/services/EnergyRecycling/commIndHome">www.commerce.state.il.us/services/EnergyRecycling/commIndHome</a>
Advanced manufacturing technologies	University of IL at Urbana-Champaign: Manufacturing Research Center  Machine Tool Agile  Manufacturing Research Institute  Institute for Competitive Manufacturing	COM-T " " " "	<a href="http://www/ece.uiuc.edu/brochure/inter">www/ece.uiuc.edu/brochure/inter</a> <a href="http://www.mtamri.me.uiuc.edu/mtamri/affiliated">www.mtamri.me.uiuc.edu/mtamri/affiliated</a>
International trade missions, trade shows, trade leads	IL Dept. of Commerce & Community Affairs	COM-M	<a href="http://www.commerce.state.il.us/services/international/international">www.commerce.state.il.us/services/international/international</a>
IL Export Alliance	IL Dept. of Commerce & Community Affairs	COM-M	<a href="http://www.commerce.state.il.us/services/international/international">www.commerce.state.il.us/services/international/international</a>
Capital access program	IL Dept. of Commerce & Community Affairs	COM-B	<a href="http://www.commerce.state.il.us/services/SmallBusiness/financial">www.commerce.state.il.us/services/SmallBusiness/financial</a>
Bank participation loans	IL Development Finance Authority	COM-B	<a href="http://www.idfa.com">www.idfa.com</a>
Technology Venture Investment Program (equity)	IL Dept. of Commerce & Community Affairs	COM-B	<a href="http://www.commerce.state.il.us/services/SmallBusiness/financial">www.commerce.state.il.us/services/SmallBusiness/financial</a>
Minority, Women & Disabled Participation Loan Fund	IL Dept. of Commerce & Community Affairs	COM-B	<a href="http://www.commerce.state.il.us/services/SmallBusiness/financial">www.commerce.state.il.us/services/SmallBusiness/financial</a>

**Indiana**

<b>Program name</b>	<b>Agency</b>	<b>Type*</b>	<b>Telephone # or website address</b>
Microelectronics Center	IN Business Modernization & Technology Corp. (BMT)	CON-T, DEV-T	(219) 482-8200
Grants/loans to improve SBIR Phase II applications	IN BMT	DEV-T	<a href="http://www.bmtadvantage.org/ci/cifunds">www.bmtadvantage.org/ci/cifunds</a>
Support for industry clusters	IN BMT	DEV-T	<a href="http://www.bmtadvantage.org/master">www.bmtadvantage.org/master</a>
Product Development Fund	IN BMT	DEV-B	(317) 635-3058
Product Commercialization Fund	IN BMT	DEV-B	(317) 635-3058
Capital Fund	National Center for Industrial Competitiveness (w/Ohio)	DEV-B	(513) 253-1777

## Appendix A: Contact Information for Selected State Programs

Manufacturing extension program	IN BMT	COM-T	(800) 877-5182
Business Transition & Defense Conversion Services	IN BMT	COM-M	(800) 877-5152
Help in meeting environmental standards	IN BMT	COM-B	<a href="http://www.bmtadvantage.org/add/serv">www.bmtadvantage.org/add/serv</a>
High-Impact Assessment <sup>SM</sup> benchmarking of business operations	IN BMT's Regional Manufacturing Extension Centers	COM-B	(800) 877-5152
Stimulation of quality networks to achieve ISO 9000 or QS 9000 registration	IN BMT	COM-B	(800) 877-5152 <a href="http://www.bmtadvantage.org/iqi/networks">www.bmtadvantage.org/iqi/networks</a> <a href="http://www.bmtadvantage.org/iqi/fastpay">www.bmtadvantage.org/iqi/fastpay</a>

### Iowa

Program name	Agency	Type*	Telephone # or website address
Technology incubators	IA State University University of IA	CON-T	<a href="http://www.catd.iastate.edu/public/default">www.catd.iastate.edu/public/default</a>
Grants/loans to improve SBIR Phase II applications	IA Dept. of Economic Development	DEV-T	(800) 245-IOWA
Manufacturing extension program	IA Manufacturing Technology Center	COM-T	(515) 965-7125

### Kansas

Program name	Agency	Type*	Telephone # or website address
Patent search assistance	KS Technology Enterprise Corp. (KTEC)	CON-T	<a href="http://www.ktec.com/busassist/irc">www.ktec.com/busassist/irc</a>
Industry Report I	Information Research Corp. (KTEC)	CON-M	<a href="http://www.ktec.com/busassist/irc">www.ktec.com/busassist/irc</a>
Pre-seed funding	Innovation & Commercialization Corps. (KTEC)	CON-B	<a href="http://www.ktec.com/busassist/iccs">www.ktec.com/busassist/iccs</a>
Industry Report II	Information Research Corp. (KTEC)	DEV-M	<a href="http://www.ktec.com/busassist/irc">www.ktec.com/busassist/irc</a>
Applied Research Matching Fund	KTEC	DEV-B	<a href="http://www.ktec.com/armf/armf">www.ktec.com/armf/armf</a>
Manufacturing extension program	Mid-America Manufacturing Technology Center (MAMTC)	COM-T	(913) 649-4333
Prototype development, diffusion of new advanced manufacturing technologies	KS State University: Advanced Manufacturing Institute	COM-T	(800) 929-4186
Ad Astra Funds I & II (equity)	KTEC	COM-B	<a href="http://www.ktec.com/investment/adastrea">www.ktec.com/investment/adastrea</a>
Access to business intelligence	Information Research Corp. (KTEC)	COM-B	<a href="http://www.ktec.com/busassist/irc">www.ktec.com/busassist/irc</a>

### Kentucky

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	KY Technology Service	COM-T	(606) 252-7801

**Appendix A: Contact Information for Selected State Programs**

**Louisiana**

<b>Program name</b>	<b>Agency</b>	<b>Type*</b>	<b>Telephone # or website address</b>
Manufacturing extension program	LA Manufacturing Technical Extension Center (LAMTEC)	COM-T	(318) 482-6767

**Maine**

<b>Program name</b>	<b>Agency</b>	<b>Type*</b>	<b>Telephone # or website address</b>
Manufacturing extension program	ME Manufacturing Extension Partnership	COM-T	(207) 623-0680

**Maryland**

<b>Program name</b>	<b>Agency</b>	<b>Type*</b>	<b>Telephone # or website address</b>
Technology Advancement Program (incubator)	University of MD	CON-T,B	(301) 314-7803
Medical Biotechnology Center (incubator, state-funded university-industry tech center)	University of MD Baltimore, University of MD Biotechnology Institute	CON-T,B	(410) 706-8181
Incubator and emerging technology companies	University of MD Baltimore County UMBC Technology Center	CON-T,B	(410) 455-5900
Alpha Center (incubator)	Johns Hopkins Bayview Campus	CON-T,B	(410) 550-2280
MD Industrial Partnerships Program	University of MD	CON-T	(301) 405-3892
MDBusiness website business opportunities section	MD Dept. of Business & Economic Development	CON-T,B; DEV-M	<a href="http://www.mdbusiness.state.md.us">www.mdbusiness.state.md.us</a>
Online bid board	High Technology Council of MD	CON-T	<a href="http://www.mdhitech.org">www.mdhitech.org</a>
Law & Entrepreneurship program	University of MD Law School	CON-B	(410) 706-2041
Challenge Investment Fund (pre-seed funding)	MD Dept. of Business & Economic Development	CON-B	(410) 767-6361
Contract GMP manufacturing	MD Bioprocessing Center	DEV-T	(410) 558-9065
Access to rapid prototyping capabilities	University of MD MIPS program	DEV-T	(301) 405-3892
MDBusiness website's Market Information Sources & Services Guide	MD Dept. of Business & Economic Development	DEV-M	<a href="http://www.mdbusiness.state.md.us">www.mdbusiness.state.md.us</a>
Strategic Assistance Fund (co-funding of market positioning activities)	MD Dept. of Business & Economic Development	DEV-B	(410) 767-0869
BLIS (online Business License Information System)	MD Dept. of Business & Economic Development	DEV-B	<a href="http://www.mdbusiness.state.md.us">www.mdbusiness.state.md.us</a>
MDBusiness website guide to venture capitalists and angel investors	MD Dept. of Business & Economic Development	DEV-B	<a href="http://www.mdbusiness.state.md.us">www.mdbusiness.state.md.us</a>

**Appendix A: Contact Information for Selected State Programs**

Annual showcase of young technology firms for venture capitalists	MD Dept. of Business & Economic Development, regional technology councils  Mid-Atlantic Venture Association (MAVA)	DEV-B  "	<a href="http://www.mdbusiness.state.md.us">www.mdbusiness.state.md.us</a> (410) 560-5855
Manufacturing extension program	MD Technology Extension Service (TES)	COM-T	(410) 405-3884
Networking opportunities	Greater Baltimore Technology Council  High Technology Council of MD	COM-M  "	(410) 727-2820  (240) 453-6200
MDBusiness website's directory of MD businesses, searchable for minority/women-owned	MD Dept. of Business & Economic Development	COM-M	<a href="http://www.mdbusiness.state.md.us">www.mdbusiness.state.md.us</a>
Financial incentives to locate in targeted areas	MD Dept. of Business & Economic Development's Defense Adjustment Loan Fund	COM-B	(410) 767-6390
Enterprise Fund (equity)	MD Dept. of Business & Economic Development	COM-B	(410) 767-6361
MD Venture Capital Trust (equity)	MD Dept. of Business & Economic Development	COM-B	(410) 767-6361
Doubling the number of enrollees in IT degree, short-course and certificate programs	Maryland Applied Information Technology Initiative	COM-B	(301) 405-1000
Partnership for Workforce Quality (skills upgrade training)	MD Dept. of Business & Economic Development	COM-B	(410) 767-0869
Help in meeting environmental standards	UMD Technology Extension Service	COM-B	(301) 405-3884
Stimulation of quality networks to achieve ISO 9000 registration; "world class manufacturing" consortium	MD Dept. of Business & Economic Development, using Partnership for Workforce Quality funding	COM-B	(410) 767-6517

**Massachusetts**

<b>Program name</b>	<b>Agency</b>	<b>Type*</b>	<b>Telephone # or website address</b>
FEDTech assistance to potential SBIR applicants	MA Technology Collaborative	CON-T	<a href="http://www.mtpc.org">www.mtpc.org</a>
FEDTech assistance identifying strategic partners	MA Technology Collaborative	CON-T	<a href="http://www.mtpc.org">www.mtpc.org</a>
FEDTech Federal Information Clearinghouse	MA Technology Collaborative	CON-T	<a href="http://www.mtpc.org">www.mtpc.org</a>
Support for industry clusters	MA Technology Collaborative	DEV-T	<a href="http://www.mtpc.org">www.mtpc.org</a>
Foreign marketing assistance	MA Export Center	DEV-M	<a href="http://www.searchboston.com/profiles/M/MassachusettsExportCenter">www.searchboston.com/profiles/M/MassachusettsExportCenter</a>
One-Stop Permitting Program	MA Dept. of Economic Development	DEV-B	<a href="http://www.magnet.state.ma.us/mobd/where2">www.magnet.state.ma.us/mobd/where2</a>
Manufacturing extension program	MA Manufacturing Partnership (MMP)	COM-T	(800) 667-6347
Replacing or reducing toxic substances in production	MA Office of Technical Assistance, environmental agency	COM-T	<a href="http://www.magnet.state.ma.us/dep/bwp/dhm/tura/turaover">www.magnet.state.ma.us/dep/bwp/dhm/tura/turaover</a>
Energy Advisor Service (help in cutting energy costs)	MA Division of Energy Resources	COM-T	<a href="http://www.magnet.state.ma.us/mobd/energy">www.magnet.state.ma.us/mobd/energy</a>
Foreign offices	MA Dept. of Economic Development	COM-M	<a href="http://www.magnet.state.ma.us/mobd/global2">www.magnet.state.ma.us/mobd/global2</a>



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Online access to state bids	MA Procurement Access & Solicitation System (Comm-PASS)	COM-M	<a href="http://www.comm-pass.com">www.comm-pass.com</a>
Office of Minority & Women Business Assistance	MA Dept. of Economic Development	COM-M	<a href="http://www.comm-pass.com">www.comm-pass.com</a>
The Trust (transition & defense diversification assistance)	MA Dept. of Economic Development	COM-M	<a href="http://www.magnet.state.ma.us/mobd/est">www.magnet.state.ma.us/mobd/est</a>
Capital access program	MA	COM-B	<a href="http://www.magnet.state.ma.us/mobd/cap">www.magnet.state.ma.us/mobd/cap</a>
Emerging Technology Fund (loan guarantees)	MA Dept. of Economic Development	COM-B	(800) –S-CAPITOL
Tax-exempt Equipment Lease/Purchase program	MA Dept. of Economic Development	COM-B	<a href="http://www.magnet.state.ma.us/mobd/elpp">www.magnet.state.ma.us/mobd/elpp</a>
Financial incentives to locate in targeted areas	MA Dept of Economic Development's Economic Development Incentive Program	COM-B	<a href="http://www.magnet.state.ma.us/mobd/uif">www.magnet.state.ma.us/mobd/uif</a>
Equity investments; Commonwealth Fund (follow-on financing)	MA Technology Development Corporation (MTDC)	COM-B	<a href="http://www2.mtdc.com/mtdc/role">www2.mtdc.com/mtdc/role</a>
Export Finance Loan Guarantee Fund	MA Dept. of Economic Development	COM-B	<a href="http://www.magnet.state.ma.us/mobd/efgf">www.magnet.state.ma.us/mobd/efgf</a>
Employed Worker Initiative	MA Corporation for Business, Work and Learning	COM-B	<a href="http://www.magnet.state.ma.us/mobd/work2">www.magnet.state.ma.us/mobd/work2</a>
Training grants to expanding companies and industry-responsive training in targeted areas	MA Dept. of Economic Development	COM-B	<a href="http://www.magnet.state.ma.us/mobd/ti">www.magnet.state.ma.us/mobd/ti</a>
Help in reducing toxic waste	MA Executive Office of Environmental Affairs, Office of Technical Assistance for Toxics Use Reduction	COM-B	<a href="http://www.magnet.state.ma.us/ota/ota/blurb">www.magnet.state.ma.us/ota/ota/blurb</a>
Urban Initiative Fund (minority-owned businesses)	MA Dept. of Economic Development	COM-B	<a href="http://www.magnet.state.ma.us/mobd/uif">www.magnet.state.ma.us/mobd/uif</a>
Improvement of supplier practices	MA Dept. of Economic Development with New England Suppliers Institute	COM-B	<a href="http://www.magnet.state.ma.us/mobd/tech2">www.magnet.state.ma.us/mobd/tech2</a>

**Michigan**

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	MI Manufacturing Technology Center (MMTC)	COM-T	<a href="http://www.mmtc.org">www.mmtc.org</a>

**Minnesota**

Program name	Agency	Type*	Telephone # or website address
Online guides on intellectual property protection & legal issues for software developers	MN Dept. of Trade & Economic Development	CON-B	<a href="http://www.dted.state.mn.us/busasst/smbus/smbus">www.dted.state.mn.us/busasst/smbus/smbus</a>
Support for industry clusters	MN Dept. of Trade & Economic Development	DEV-T	<a href="http://www.dted.state.mn.us/busasst/indus/indus">www.dted.state.mn.us/busasst/indus/indus</a>
On-site product development assistance	MN Technology, Inc.	DEV-T	<a href="http://www.minnesotatechnology.org/on-site.asp">www.minnesotatechnology.org/on-site.asp</a>

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Technical assistance to microenterprises	MN Dept. of Trade & Economic Development	DEV-B	<a href="http://www.dted.state.mn.us/busasst/finasst/microent">www.dted.state.mn.us/busasst/finasst/microent</a>
Manufacturing extension program	MN Technology, Inc.	COM-T	<a href="http://www.minnesotatechnology.org">www.minnesotatechnology.org</a>
Capital access program	MN Dept. of Trade & Economic Development	COM-B	<a href="http://www.dted.state.mn.us/commasst.cap">www.dted.state.mn.us/commasst.cap</a>
MN Investment Fund	MN Dept. of Trade & Economic Development	COM-B	<a href="http://www.dted.state.mn.us/commasst/mninv">www.dted.state.mn.us/commasst/mninv</a>
Rural Challenge Grant Program	MN Dept. of Trade & Economic Development	COM-B	<a href="http://www.dted.state.mn.us/busasst/finasst/rurgrant">www.dted.state.mn.us/busasst/finasst/rurgrant</a>
Urban Initiative Loan Program (funding for nonprofits that finance minority businesses in low income areas of Twin Cities)	MN Dept. of Trade & Economic Development	COM-B	<a href="http://www.dted.state.mn.us/busasst/finasst/urbgrant">www.dted.state.mn.us/busasst/finasst/urbgrant</a>

### Mississippi

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	MS Polymer Institute (MPI) and Manufacturing Extension Center (PMEC) MS Technology Extension Program	COM-T	<a href="http://www.psrc.usm.edu/MPI">www.psrc.usm.edu/MPI</a>
Rapid prototyping & physical testing services	MS Polymer Institute	DEV-T	<a href="http://www.psrc.usm.edu/MPI">www.psrc.usm.edu/MPI</a>

### Missouri

Program name	Agency	Type*	Telephone # or website address
Center for Business Innovation (incubator)	University of MO at Kansas City	CON-T,B	<a href="http://www.umkc.edu">www.umkc.edu</a>
MO Enterprise Business Assistance Center (incubator)	University of MO at Rolla	CON-T,B	<a href="http://www.umar.edu">www.umar.edu</a>
Manufacturing extension program	Mid-America Manufacturing Technology Center (MAMTC)	COM-T	<a href="http://www.mamtc.com">www.mamtc.com</a>
R&D tax credits	MO Dept. of Revenue	COM-B	<a href="http://www.dor.state.mo.us/tax">www.dor.state.mo.us/tax</a>

### Montana

Program name	Agency	Type*	Telephone # or website address
Feasibility assessment & process design; manufacturing extension program	MT Manufacturing Extension Center	DEV-T; COM-T	<a href="http://www.coe.montana.edu/mmec">www.coe.montana.edu/mmec</a>

### Nebraska

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	NE Industrial Competitiveness Service (NICS)	COM-T	<a href="http://www.ahvaz.umomaha.edu/cmit/nics2">www.ahvaz.umomaha.edu/cmit/nics2</a>

## Appendix A: Contact Information for Selected State Programs

### Nevada

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	NV Manufacturing Extension Partnership	COM-T	<a href="http://www.mfg-inc.com">www.mfg-inc.com</a>

### New Hampshire

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	Manufacturing Extension Partnership of NH	COM-T	<a href="http://www.nhmep.org">www.nhmep.org</a>

### New Jersey

Program name	Agency	Type*	Telephone # or website address
Enterprise Development Center (incubator)	New Jersey Institute of Technology	CON-T,B	<a href="http://www.njit.edu/Overview/Partners/bizinc">www.njit.edu/Overview/Partners/bizinc</a>
Rutgers/CARR Business Innovation Center (incubator)	Rutgers, The State University	CON-T,B	<a href="http://www.rutgers.edu">www.rutgers.edu</a>
Stevens Technology Ventures Business Incubator	Stevens Institute of Technology	CON-T,B	<a href="http://www.stevens-tech.edu">www.stevens-tech.edu</a>
SBIR technical assistance	NJ Commission on Science & Technology	CON-T	(609) 984-1671
Advanced Technology Centers	NJ Commission on Science & Technology	CON-T	(609) 984-1671
Innovation Partnership Program	NJ Commission on Science & Technology	CON-T	(609) 984-1671
Incubators in Newark, Hoboken, New Brunswick, Dover, and Trenton	NJ Commission on Science & Technology	CON-B	(609) 984-1671
Grants/loans to improve Phase II SBIR applications	NJ Commission on Science & Technology	DEV-T	(609) 984-1671
Entrepreneurial Training Institute	NJ Economic Development Authority	DEV-B	<a href="http://www.njeda.com">www.njeda.com</a>
Online Finance Finder	NJ Economic Development Authority	DEV-B	<a href="http://www.njeda.com/227ffind">www.njeda.com/227ffind</a>
Seed Capital Program	NJ Economic Development Authority	DEV-B	(609) 292-0187
Manufacturing extension program	NJ Manufacturing Extension Partnership	COM-T	<a href="http://www.njmep.org">www.njmep.org</a>
Technical assistance for making products and production more environmentally sound	NJ Dept. of Commerce	COM-T	<a href="http://www.state.nj.us/commerce/finance">www.state.nj.us/commerce/finance</a>
Strategic advocacy for exporters	NJ Dept. of Commerce	COM-M	<a href="http://www.state.nj.us/commerce">www.state.nj.us/commerce</a>
Matching buyers/vendors for public & private contracting	NJ Selective Vendor Information Data Base, SA VI-II	COM-M	<a href="http://www.state.nj.us/commerce/sbsrvice">www.state.nj.us/commerce/sbsrvice</a>
Trade adjustment assistance	NJ Economic Development Authority	COM-M	<a href="http://www.njeda.com/progs">www.njeda.com/progs</a>
Loans, loan guarantees, grants	NJ Economic Development Authority	COM-B	(609) 292-0187
Financial incentives to locate in targeted areas: Atlantic City	NJ Economic Development Authority	COM-B	<a href="http://www.njeda.com">www.njeda.com</a>
R&D tax credits; Technology Business Tax Certificate Transfer Program	NJ Economic Development Authority & NJ Division of Taxation	COM-B	(609) 292-0187

## Appendix A: Contact Information for Selected State Programs

Business Employment Incentive Program: grants to growing companies; higher in targeted areas	NJ Dept. of Commerce	COM-B	<a href="http://www.state.nj.us/commerce/finance">www.state.nj.us/commerce/finance</a>
Revolving lines of credit for exporters	NJ Economic Development Authority	COM-B	(609) 292-0187
Online posting of job openings and access to resumes for employers	NJ Dept. of Labor	COM-B	<a href="http://www.state.nj.us/labor/service">www.state.nj.us/labor/service</a>
Upgrade skills training	NJ Dept. of Labor	COM-B	<a href="http://www.state.nj.us/labor/service">www.state.nj.us/labor/service</a>
Low interest loans & technical assistance to companies improving environmental soundness; matching producers and users of environment-friendly goods & services	NJ Dept. of Commerce	COM-B	<a href="http://www.state.nj.us/commerce">www.state.nj.us/commerce</a>

### New Mexico

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	Industry Network Corporation	COM-T	<a href="http://www.mfg-inc.com">www.mfg-inc.com</a>

### New York

Program name	Agency	Type*	Telephone # or website address
Long Island High Technology Incubator	State University of NY at Stony Brook	CON-T,B	<a href="http://www.sunysb.edu">www.sunysb.edu</a>
SBIR outreach programs	NY Science & Technology Foundation	CON-T	(518) 473-5622
Centers for Advanced Technology	NY Science & Technology Foundation	CON-T	(518) 473-5622
Center for Advanced Technology in Medical Biotechnology	SUNY Stony Brook	CON-T	<a href="http://www.sunysb.edu">www.sunysb.edu</a>
Grants/loans to improve SBIR Phase II applications	Some Centers for Advanced Technology of the NY Science & Technology Foundation	DEV-T	<a href="http://www.sbaonline.sba.gov/SBIR">www.sbaonline.sba.gov/SBIR</a>
Small Business Technology Investment Fund	Empire State Development	DEV-B	<a href="http://www.empire.state.ny.us">www.empire.state.ny.us</a>

**Appendix A: Contact Information for Selected State Programs**

Manufacturing extension program	NY Manufacturing Extension Partnership	COM-T	(518) 486-7384
	Alliance for Manufacturing & Technology (AM&T)	"	(800) 637-4634 XT. 303
	Center for Economic Growth	"	(315)425-5144
	Central NY Technology Development Organization	"	<a href="http://www.monroe.edu/rochproj/htr">www.monroe.edu/rochproj/htr</a> (914) 896-6934
	CI-TEC	"	<a href="http://www.itac.org/tech">www.itac.org/tech</a>
	High Technology of Rochester	"	(516) 755-3321
	Hudson Valley Technology Development Center	"	(315) 793-8050
	Industrial Technology Assistance Corporation (ITAC)	"	(716) 636-3626
	Long Island Forum for Technology (LIFT)	"	
Mohawk Valley Applied Technology Commission	"		
Western NY Technology Development Center	"		
Government procurement assistance	Empire State Development	COM-M	<a href="http://www.empire.state.ny.us/stf/tdo">www.empire.state.ny.us/stf/tdo</a>
Government procurement assistance for minority & women-owned businesses	Empire State Development	COM-M	<a href="http://www.empire.state.ny.us/busser/dmwbd">www.empire.state.ny.us/busser/dmwbd</a>
E-commerce assistance	State Technology Development Organizations	COM-M	(518) 474-4349
Small Business Technology Investment Fund (equity)	Empire State Development	COM-B	<a href="http://www.empire.state.ny.us">www.empire.state.ny.us</a>
Tax credit tied to new capital investment; higher in targeted areas. Also job creation tax credit	Empire State Development	COM-B	<a href="http://www.empire.state.ny.us">www.empire.state.ny.us</a>
Worker training grants for new hires and incumbent worker training	Empire State Development	COM-B	<a href="http://www.empire.state.ny.us">www.empire.state.ny.us</a>
Industrial Effectiveness Program	Empire State Development	COM-B	<a href="http://www.empire.state.ny.us">www.empire.state.ny.us</a>

**North Carolina**

Program name	Agency	Type*	Telephone # or website address
Technology assistance	MCNC	CON-T	
Technology assistance	North Carolina Biotechnology Center	CON-T	(919) 541-9366
Entrepreneurial Education Network	NC Technological Development Authority	CON-B	(919) 990-8558

## Appendix A: Contact Information for Selected State Programs

26 incubators across the state First Flight Venture Center (incubator)	NC Technological Development Authority	CON-B	<a href="http://www.nctda.org/incubators">www.nctda.org/incubators</a> (FLVC) (919) 990-8558
Centennial Venture Partners fund (pre-seed funding)	NC Technological Development Authority	CON-B	(919) 485-8844
Support for industry clusters		DEV-T	
Innovation Research Fund	NC Technological Development Authority	DEV-B	(919) 990-8558
Manufacturing extension program	NC Manufacturing Extension Partnership	COM-T	(919) 515-4659
Financial incentives to locate in targeted areas	NC Technological Development Authority	COM-B	<a href="http://www.nctda.org/rural_loan">www.nctda.org/rural_loan</a>
William S. Lee tax credits	NC Department of Revenue	COM-B	<a href="http://www.dor.state.nc.us/DOR/taxes/corporate/index">www.dor.state.nc.us/DOR/taxes/corporate/index</a>

### North Dakota

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	ND Manufacturing Technology Partnership (NDMTP)	COM-T	(701) 231-1001

### Ohio

Program name	Agency	Type*	Telephone # or website address
Edison Industrial Systems Center links to Questline	OH Department of Development	CON-T	(800) 824-0488
Edison Technology Incubators	Edison Technology Centers program	CON-T,B	<a href="http://www.odod.ohio.gov/tech/edison/tiedincu">www.odod.ohio.gov/tech/edison/tiedincu</a>
Patent search assistance through Questline	Edison Industrial Systems Center	CON-T	<a href="http://www.questline.com">www.questline.com</a>
SBIR workshops & counseling	OH Department of Development	CON-T	(800) 848-1300 XT. 6-3887
Edison Technology Program	OH Department of Development	CON-T	<a href="http://www.odod.ohio.gov/tech/edison/default">www.odod.ohio.gov/tech/edison/default</a>
One-Stop Business Permit Center	Small Business Development Center Network	CON-B	<a href="http://www.odod.ohio.gov/factbook/ed2">www.odod.ohio.gov/factbook/ed2</a>
Business plan help	Edison Technology Incubators	DEV-B	<a href="http://www.odod.ohio.gov/tech/edison/tiedincu">www.odod.ohio.gov/tech/edison/tiedincu</a>
Capital Fund	National Center for Industrial Competitiveness (w/Indiana)	DEV-B	(937) 253-1777

**Appendix A: Contact Information for Selected State Programs**

Manufacturing extension program	Great Lakes Manufacturing Technology Center (GLMTC)	COM-T	(216) 432-5300
	Miami Valley Manufacturing Extension Center	"	(800) 345-4482
	Lake Erie Manufacturing Extension Partnership Plastics Technology Deployment Center	"	(419) 534-3705
Technical assistance for pollution prevention	Institute of Advanced Manufacturing (an Edison Technology Center)	COM-T	(800) 345-4482
Automation machinery design & development, process improvement in simulation, engineering design & analysis, other advanced manufacturing	Advanced Manufacturing Center, Cleveland State University	COM-T	(800) 345-4482
Manufacturing process improvement, machining optimization	Institute of Advanced Manufacturing Sciences (an Edison Technology Center)	COM-T	(800) 345-4482
Export counseling	Small Business Development Centers	COM-M	<a href="http://www.odod.ohio.gov/factbook/ed4">www.odod.ohio.gov/factbook/ed4</a>
Information about resources & linkages	OH Dept. of Development, Women's Business Resource Program	COM-M	<a href="http://www.odod.ohio.gov/factbook/ed3">www.odod.ohio.gov/factbook/ed3</a>
Defense Conversion Assistance Program	OH Dept. of Development	COM-M	<a href="http://www.odod.ohio.gov/tech/odaod/cap">www.odod.ohio.gov/tech/odaod/cap</a>
E-commerce assistance	CAMP (an Edison Technology Center)	COM-M	<a href="http://www.ecamp.org.ecrc">www.ecamp.org.ecrc</a>
Loans	OH Dept. of Development	COM-B	<a href="http://www.odod.ohio.gov/factbook/ed4">www.odod.ohio.gov/factbook/ed4</a>
Tax incentives to investors	OH Dept. of Development	COM-B	(800) 848-1300
Job Creation Tax Credit	OH Dept. of Development	COM-B	<a href="http://www.odod.ohio.gov/factbook/ed2">www.odod.ohio.gov/factbook/ed2</a>
Industrial Training Program	OH Dept. of Development	COM-B	<a href="http://www.odod.ohio.gov/factbook/ed3">www.odod.ohio.gov/factbook/ed3</a>
Labor-management cooperation	Centers for the Advancement of Labor-Management Cooperation	COM-B	<a href="http://www.odod.ohio.gov/factbook/ed2">www.odod.ohio.gov/factbook/ed2</a>
Pollution Prevention Loan Program	OH Dept. of Development	COM-B	<a href="http://www.odod.ohio.gov/factbook/ed2">www.odod.ohio.gov/factbook/ed2</a>
Loans and mini-loans to certified minority business enterprises	OH Dept. of Development's Office of Minority Financial Incentives	COM-B	<a href="http://www.odod.ohio.gov/factbook/ed4">www.odod.ohio.gov/factbook/ed4</a>
Improvement of quality systems	Edison Technology Centers	COM-B	<a href="http://www.emtec.org">www.emtec.org</a>

**Oklahoma**

Program name	Agency	Type*	Telephone # or website address
Help with cost of developing SBIR proposals	OK Center for the Advancement of Science & Technology	CON-T	(405) 524-1357
Centers of Excellence	OK Center for the Advancement of Science & Technology	CON-T	(405) 524-1357

**Appendix A: Contact Information for Selected State Programs**

Applied Research Program	OK Center for the Advancement of Science & Technology	CON-T	(405) 524-1357
Manufacturing extension program	OK Alliance for Manufacturing Excellence	COM-T	(918) 592-0722

**Oregon**

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	OR Manufacturing Extension Partnership	COM-T	(503) 657-6958

**Pennsylvania**

Program name	Agency	Type*	Telephone # or website address
Online search specialists	Ben Franklin Technology Center of Southeastern Pennsylvania	CON-T,M; COM-B	<a href="http://www.cnp.benfranklin.org">www.cnp.benfranklin.org</a>
PENNTAP access to scientific & technological information	Penn State University	CON-T	(814) 865-0427
Incubators	Ben Franklin Technology Centers	CON-T,B	<a href="http://www.enp.benfranklin.org">www.enp.benfranklin.org</a>
Centers of Excellence program	Ben Franklin Technology Centers	CON-T	<a href="http://www.enp.benfranklin.org">www.enp.benfranklin.org</a>
Tech Scout® program	Ben Franklin Technology Center of Southeastern Pennsylvania	CON-T	<a href="http://www.enp.benfranklin.org">www.enp.benfranklin.org</a>
Online guide to starting a business	PA Dept. of Community & Economic Development	CON-B	<a href="http://www.state.pa.us/PA_Exec/business/starting">www.state.pa.us/PA_Exec/business/starting</a>
Entrepreneurial Assistance Office	PA Dept. of Community & Economic Development	CON-B	(800) 280-3801
Challenge Grant program (pre-seed funding)	Ben Franklin Technology Centers	CON-B	<a href="http://www.enp.benfranklin.org">www.enp.benfranklin.org</a>
Support for industry clusters through implementation of Technology 21 strategy	PA Dept. of Community & Economic Development	DEV-T	<a href="http://www.state.pa.us/PA_Exec/commerce/Tech21/info">www.state.pa.us/PA_Exec/commerce/Tech21/info</a>
SourceNet online business opportunities	PA Dept. of Community & Economic Development	DEV-M	<a href="http://www.state.pa.us/PA_Exec/expanding">www.state.pa.us/PA_Exec/expanding</a>
Seed Venture Program	Ben Franklin Technology Centers	DEV-B	<a href="http://www.cnp.benfranklin.org">www.cnp.benfranklin.org</a>



**Appendix A: Contact Information for Selected State Programs**

Manufacturing extension program	Northeastern PA Manufacturing Extension Partnership and Manufacturers Resource Center	COM-T	(717) 843-5054      (814) 456-6299   (412) 687-2700
	Southeastern PA Manufacturing Extension Partnership	“	
	Delaware Valley Industrial Resource Center (DVIRC)	“	
	MANTEC, Inc. The Manufacturers' Technology Center	“	
	Industrial Modernization Center (IMC)	“	
	Northwestern PA Industrial Resource Center	“	
	Southwestern PA Industrial Resource Center	“	
Manufacturing process re-engineering	Ben Franklin Technology Center Northeast Tier	COM-T	<a href="http://www.cnp.benfranklin.org">www.cnp.benfranklin.org</a>
Pre-qualified international trade lead matching service	PA Dept. of Community and Economic Development	COM-M	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business">www.dced.state.pa.us/PA_Exec/DCED/business</a>
Coordinated trade development, trouble-shooting, mentoring, matchmaking, financing, market intelligence services	PA Export Network	COM-M	<a href="http://www.pema.state.pa.us/PA_Exec/DCED/international/Exportlist">www.pema.state.pa.us/PA_Exec/DCED/international/Exportlist</a>
Capital access program	PA Dept. of Community and Economic Development	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/f.pcap">www.dced.state.pa.us/PA_Exec/DCED/business/f.pcap</a>
Grants, loans	PA Dept. of Community & Economic Development	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/f.opportunity">www.dced.state.pa.us/PA_Exec/DCED/business/f.opportunity</a>
Loans	PA Industrial Development Authority	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/f.pida">www.dced.state.pa.us/PA_Exec/DCED/business/f.pida</a>
Job Creation Tax Credits	PA Dept. of Community & Economic Development	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/f.jobcre">www.dced.state.pa.us/PA_Exec/DCED/business/f.jobcre</a>
Small Business First Export Loan Program	PA Dept. of Community & Economic Development	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/f.sb1st">www.dced.state.pa.us/PA_Exec/DCED/business/f.sb1st</a>
Grants for training new hires, skills upgrading for incumbent workers	PA Dept. of Community & Economic Development	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/f.cjt">www.dced.state.pa.us/PA_Exec/DCED/business/f.cjt</a>
Environmental Business Advocate (help in environmental compliance)	PA Dept. of Community & Economic Development's Entrepreneurial Assistance Office	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/guide/frames1">www.dced.state.pa.us/PA_Exec/DCED/business/guide/frames1</a>

## Appendix A: Contact Information for Selected State Programs

Minority & Women's Business Advocates	PA Dept. of Community & Economic Development's Entrepreneurial Assistance Office	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/guide/frames1">www.dced.state.pa.us/PA_Exec/DCED/business/guide/frames1</a>
Low interest loans to minority-owned businesses	PA Minority Business Development Authority	COM-B	<a href="http://www.dced.state.pa.us/PA_Exec/DCED/business/f.pmbda">www.dced.state.pa.us/PA_Exec/DCED/business/f.pmbda</a>
Industrial Resource Centers	PA Dept. of Community & Economic Development	COM-B	(717) 787-4147

### Rhode Island

Program name	Agency	Type*	Telephone # or website address
Samuel Slater Technology Fund (industry cluster technology collaborations)	RI Dept. of Economic Development	CON-T	(401) 222-2890
Manufacturing extension program	RI Manufacturing Extension Services	COM-T	(401) 621-5710
Samuel Slater Technology Fund (industry cluster marketing collaborations)	RI Dept. of Economic Development	COM-M	(401) 222-2890
Marine Enterprise Development Revolving Loan Fund	University of RI Ocean Technology Center	COM-M	<a href="http://www.gso.uri.edu/otc/medloan">www.gso.uri.edu/otc/medloan</a>
R&D tax credits	RI Dept. of Economic Development	COM-B	<a href="http://www.tax.state.ri.us/info/synopsiss.75.htm">www.tax.state.ri.us/info/synopsiss.75.htm</a>

### South Carolina

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	SC Manufacturing Extension Partnership (SCMEP)	COM-T	(803) 252-6976

### South Dakota

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	SD Manufacturing Extension Partnership Center	COM-T	(605) 773-5653

### Tennessee

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	TN Manufacturing Extension Partnership	COM-T	(615) 532-8657

### Texas

Program name	Agency	Type*	Telephone # or website address
Technology Development & Transfer grants	TX Higher Education Coordinating Board's Advanced Technology program	CON-T	<a href="http://www.thecb.state.tx.us/divisions/research/arpatp/announce">www.thecb.state.tx.us/divisions/research/arpatp/announce</a>
TX Innovation Network	TX Dept. of Economic Development	CON-T	<a href="http://www.tded.state.tx.us">www.tded.state.tx.us</a>
Guide to starting a business	TX Dept. of Economic Development	CON-B	<a href="http://www.tded.state.tx.us/guide/AGUIDETOTEXASBUSIN">www.tded.state.tx.us/guide/AGUIDETOTEXASBUSIN</a>

## Appendix A: Contact Information for Selected State Programs

Foreign marketing assistance	TX Small Business Development Centers	DEV-M	<a href="http://www.tded.state.tx.us/trade">www.tded.state.tx.us/trade</a>
Manufacturing extension program	TX Manufacturing Assistance Center	COM-T	(800) 488-8622
International trade leads matching	TX Dept. of Economic Development	COM-M	<a href="http://www.thecb.state.tx.us">www.thecb.state.tx.us</a>
International opportunities	TX Marketplace (TX Dept. of Economic Development)	COM-M	<a href="http://www.tded.state.tx.us/trade">www.tded.state.tx.us/trade</a>
Directory of Historically Underutilized Businesses, updated daily	TX Marketplace (TX Dept. of Economic Development)	COM-M	<a href="http://www.texas-one.org/market/compdirs">www.texas-one.org/market/compdirs</a>
Capital access program	TX Marketplace (TX Dept. of Economic Development)	COM-B	<a href="http://www.tded.state.tx.us/TexasCapitalAccess">www.tded.state.tx.us/TexasCapitalAccess</a>
Smart Jobs Fund (grants for incumbent worker training)	TX Dept. of Economic Development	COM-B	<a href="http://www.tded.state.tx.us/smartjobs">www.tded.state.tx.us/smartjobs</a>
Loans to historically underutilized businesses	Linked deposit program	COM-B	<a href="http://www.tded.state.tx.us/TexasLinkedDeposit">www.tded.state.tx.us/TexasLinkedDeposit</a>

### Utah

Program name	Agency	Type*	Telephone # or website address
Centers of Excellence	UT Dept. of Community & Economic Development	CON-T	<a href="http://www.dced.state.ut.us/techdev/welcome">www.dced.state.ut.us/techdev/welcome</a>
Foreign marketing assistance	UT International Business Development Office	DEV-M	<a href="http://www.dced.state.ut.us/international">www.dced.state.ut.us/international</a>
Manufacturing extension program	UT Manufacturing Extension Partnership	COM-T	(801) 764-7221
Loans for large businesses	UT Dept. of Community & Economic Development	COM-B	(801) 538-8716
Venture financing (debt)	UT Technology Finance Corporation	COM-B	(801) 524-8939

### Vermont

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	VT Manufacturing Extension Center	COM-T	(802) 728-1432

### Virginia

Program name	Agency	Type*	Telephone # or website address
Virginia Technical Information Center	Virginia Tech	CON-T	<a href="http://www.vtic.vt.edu">www.vtic.vt.edu</a>
Incubators	Old Dominion University George Mason University	CON-T, B	<a href="http://www.web.odu.edu">www.web.odu.edu</a> <a href="http://www.gmu.edu/mlcorp/index">www.gmu.edu/mlcorp/index</a>
University centers of excellence	VA Center for Innovative Technology	CON-T	<a href="http://www.cit.org/submenus/html/virginiatechindust">www.cit.org/submenus/html/virginiatechindust</a>
Challenge Awards	VA Center for Innovative Technology	CON-T	<a href="http://www.cit.org/assistance/awards/challenge">www.cit.org/assistance/awards/challenge</a>
MatchMaker	VA Center for Innovative Technology	CON-T	<a href="http://www.intercom.virginia.edu/matchmaker/aboutMM">www.intercom.virginia.edu/matchmaker/aboutMM</a>
Online FAQs about starting a technology business	VA Center for Innovative Technology	CON-B	<a href="http://www.cit.org/submenus/html/businessmanufact">www.cit.org/submenus/html/businessmanufact</a>
Netpreneur program	Potomac Knowledgeway	CON-B	<a href="http://www.netpreneur.org/about">www.netpreneur.org/about</a>
Support for industry clusters	VA Center for Innovative Technology	DEV-T	<a href="http://www.cit.org/submenus">www.cit.org/submenus</a>

## Appendix A: Selected State Program Contact Information

VA Procurement Pipeline (online database for matching buyers & sellers)	VA Center for Innovative Technology	DEV-M	<a href="http://www.virginiabusiness.org/welcome">www.virginiabusiness.org/welcome</a>
Manufacturing extension program	VA's A.L. Philpott Manufacturing Extension Partnership	COM-T	(540) 666-8890
Defense Conversion Revolving Loan Fund	VA Small Business Financing Authority	COM-M	(804) 371-8254
E-commerce assistance	VA Center for Innovative Technology and allies	COM-M	<a href="http://www.cit.org/submenus/html/businessmanufact">www.cit.org/submenus/html/businessmanufact</a>
Capital access program	VA Small Business Financing Authority	COM-B	<a href="http://www.dba.state.va.us/FSDMain">www.dba.state.va.us/FSDMain</a>
Guarantees of bank loans for export working capital	VA Small Business Financing Authority	COM-B	<a href="http://www.oit.doe.gov/financing/stateva">www.oit.doe.gov/financing/stateva</a>

### Washington

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	WA Manufacturing Services	COM-T	(425) 276-0173

### West Virginia

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	WV Manufacturing Extension Partnership (WVMEP)	COM-T	(304) 293-3800 XT. 810

### Wisconsin

Program name	Agency	Type*	Telephone # or website address
Grants/loans to improve SBIR Phase II applications	WI Dept. of Development	DEV-T	(608) 267-9382
Manufacturing extension program	Northwest WI Manufacturing Outreach Center (NWMOC) Wisconsin Manufacturing Extension Partnership	COM-T	(715) 232-2397

### Wyoming

Program name	Agency	Type*	Telephone # or website address
Manufacturing extension program	Mid-America Manufacturing Extension Center (MAMTC)	COM-T	(913) 649-4333

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**Endnotes**

- <sup>1</sup> National Business Incubation Association, *1998 State of the Business Incubation Industry*.
- <sup>2</sup> State Science and Technology Institute, *State and Federal Perspectives on the SBIR Program*, Westerville, OH, 1999.
- <sup>3</sup> Alaska, Arkansas, Delaware, District of Columbia, Hawaii, Idaho, Indiana, Iowa, Kentucky, Louisiana, Maine, Mississippi, Missouri, Montana, Nebraska, Nevada, North Dakota, Oklahoma, Puerto Rico, Rhode Island, South Dakota, Vermont, West Virginia, and Wyoming.
- <sup>4</sup> ATP Proposers' Conference Slide #37.
- <sup>5</sup> The Jacob France Center, "The Magnitude and Impact of the Technology Industry in Maryland," Maryland Department of Business and Economic Development, the Greater Baltimore Committee Technology Council and the High Technology Council, Baltimore, MD, 1998.
- <sup>6</sup> "About the ATP: Economic Benefits," ATP website.
- <sup>7</sup> National Business Incubation Association, *op.cit.*
- <sup>8</sup> State Science and Technology Institute, *op.cit.*
- <sup>9</sup> State Science and Technology Institute, *op.cit.*
- <sup>10</sup> *SSTI Weekly Digest*, March 19, 1999.
- <sup>11</sup> "About the ATP: Economic Benefits," ATP website.
- <sup>12</sup> State Science and Technology Institute, "State Research and Development Tax Incentives," May, 1997.
- <sup>13</sup> *Ibid.* except where noted.

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## About the Advanced Technology Program

The Advanced Technology Program (ATP) is a partnership between government and private industry to conduct high-risk research to develop enabling technologies that promise significant commercial payoffs and widespread benefits for the economy. ATP provides a mechanism for industry to extend its technological reach and push the envelope beyond what it otherwise would attempt. Promising future technologies are the domain of ATP:

- Enabling technologies that are essential to the development of future new and substantially improved projects, processes, and services across diverse application areas;
- Technologies for which there are challenging technical issues standing in the way of success;
- Technologies whose development often involves complex "systems" problems requiring a collaborative effort by multiple organizations;
- Technologies which will go undeveloped and/or proceed too slowly to be competitive in global markets without ATP.

ATP funds technical research, but it does not fund product development. That is the domain of the company partners. ATP is industry driven, and that keeps it grounded in real-world needs. For-profit companies conceive, propose, co-fund, and execute all of the projects cost-shared by ATP. Smaller companies working on single-firm projects pay a minimum of all the indirect costs associated with the project. Large, "Fortune-500" companies participating as a single firm pay at least 60 percent of total project costs. Joint ventures pay at least half of total project costs. Single-firm projects can last up to three years; joint ventures can last as long as five years. Companies of all sizes participate in ATP-funded projects. To date, more than half of ATP awards have gone to individual small businesses or to joint ventures led by a small business. Each project has specific goals, funding allocations, and completion dates established at the outset. Projects are monitored and can be terminated for cause before completion. All projects are selected in rigorous competitions which use peer-review to identify those that score highest against technical and economic criteria.

Contact ATP for more information:

- On the World Wide Web: <http://www.atp.nist.gov>;
- By e-mail: [atp@nist.gov](mailto:atp@nist.gov);
- By phone: 1-800-ATP-FUND (1-800-287-3863);
- By writing: Advanced Technology Program, National Institute of Standards and Technology, 100 Bureau Drive, Stop 4701, Gaithersburg, MD 20899-4701.

## About the Authors

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