

**SMALL BUSINESS
TECHNOLOGY
TRANSFER PROGRAM
(STTR)**

ANNUAL REPORT • FY 1994

Office of the Administrator

The Honorable Christopher S. Bond
Chairman, Committee on Small Business
United States Senate

The Honorable Jan Meyers
Chairwoman, Committee on Small Business
House of Representatives

This report, prepared pursuant to Public Law 102-564, provides the first year results of the Small Business Technology Transfer (STTR) Pilot Program.

The accomplishments and progress of the participating federal agencies under the program are presented in this report. During fiscal year 1994 the five federal participating agencies awarded 198 STTR funding agreements totaling nearly \$19 million.

Copies of this report have been provided to the Office of Federal Procurement Policy and the General Accounting Office. The review and analysis were made by the Office of Technology of this agency.

Sincerely,

A handwritten signature in cursive script that reads "Philip Lader".

Philip Lader
Administrator

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Introduction

This initial annual report of the Small Business Technology Transfer Pilot (STTR) Program covers the implementation and operation of the program for fiscal year 1994. The report discusses the activities leading to the start-up of the program and provides data on the first year's operations, including initial solicitations, proposals, and awarding activity.

Background on the Program

Public Law 102-564

Public Law 102-564, the Small Business Research and Development Enhancement Act of 1992, authorized STTR.

Title I of that legislation amended the Small Business Act by reauthorizing the Small Business Innovation Research (SBIR) Program. At the time it was reauthorized, SBIR had been in effect for a decade, during which it achieved remarkable successes in its program goals of helping small business develop important technology and helping keep the nation at the forefront of technological innovation. Seeking to further expand small business opportunities in the technical arena, Title II of the act, the Small Business

Technology Transfer Act of 1992, established STTR.

The STTR program shares the underlying philosophy of its SBIR predecessor in that it targets federally funded research and development as a base for technological innovation that will contribute to the growth and strength of the nation's economy. It differs from its SBIR sister program in its implementation, however, in that STTR reserves its awards for small businesses that pursue technological innovation through cooperative research and development with certain federal laboratories and non-profit scientific and educational institutions.

Duration of the Program

Congress authorized expenditures in the STTR program for fiscal years 1994, 1995, and 1996. The program terminates on September 30, 1996, unless reauthorized by Congress.

Findings of the Small Business Research and Development Enhancement Act of 1992

After extensive hearings by several committees and the review of extensive testimony from numerous experts, government officials, participating small businesses, beneficiaries, and overview groups including the General Accounting

Office, Congress passed the Small Business Research and Development Enhancement Act of 1992 on October 28, 1992. The extraordinary success of the SBIR program over the previous decade provided the impetus for STTR, a similar program designed to further involve small businesses in technology development enterprises. The outcome of the hearings' extremely favorable findings on SBIR led not only to the reauthorization of the ongoing SBIR program, but also to the establishment of a logical complementary effort in STTR. The findings on SBIR concluded that the program is:

- A successful method of involving small-businesses in federal research and development.
- An effective catalyst for the development of technological innovations by small businesses.
- Providing high-quality research and development in a cost-effective manner.
- Developing innovative products and services that are important to the national defense, as well as to the missions of the other participating federal agencies.
- Effectively stimulating the commercialization of technology produced through federal research

and development, benefiting both the public and private sectors of the nation.

- Creating jobs, expanding business opportunities for small firms, stimulating the development of new products and services, and improving the competitiveness of the nation's high-technology industries.
- Helping to increase exports from small business.

Findings on the SBIR program also concluded that:

- Despite its general success, the proportion of federal scientific research and development funds received by small business concerns is less than 4%.
- Although successfully implemented by the participating federal agencies, additional outreach efforts are necessary to stimulate increased participation of socially and economically disadvantaged small businesses.

The Small Business Technology Transfer Pilot Program

Funding

Federal agencies that participate in the STTR program must have an extramural budget for research or research and development in excess of \$1 billion in fiscal year 1994, 1995, or 1996. Under program guidelines, the percentage of funds an agency may expend with small businesses specifically in connection with STTR programs is:

- Not less than 0.05 percent of such budget in fiscal year 1994.
- Not less than 0.1 percent of such budget in fiscal year 1995.
- Not less than 0.15 percent of such budget in fiscal year 1996.

The Federal Agency Participants

The five federal agencies that meet this threshold amount and are participating in the program are:

- Department of Defense

- Department of Energy
- Department of Health and Human Services
- National Aeronautics and Space Administration
- National Science Foundation

The Three-Stage STTR Process

Public Law 102-564 structured the STTR Pilot Program as a three-stage process designed to identify and nurture promising R&D interests within the small business community. STTR's three phases are:

Phase I: STTR determines to the extent possible the scientific, technical, and commercial merit and the feasibility of ideas submitted. The Phase I award generally will not exceed \$100,000 and is for a one-year effort.

Phase II: Phase I projects with the most potential will be funded to further develop proposed ideas to meet particular program needs. The Phase II award will generally not exceed \$500,000 for a two-year effort, however, the specific amounts awarded are at the discretion of the awarding agency.

Phase III: No STTR funds are expended during this phase, in which the program participants

pursue commercial applications of the innovations developed in Phases I and II. However, projects may receive additional non-STTR federal funds during Phase III to develop products and services intended for use by the federal government or awards from non-STTR federal funding sources for the continuation of competitively selected research and development.

Eligibility for Participation in STTR

The STTR program involves cooperative research and development performed jointly by a small business and a research institution. Thus, each STTR project comprises at least two partners, each of which must meet eligibility criteria in order for the project to be funded.

To be eligible for an STTR award, a **Small Business** must have no more than 500 employees, be independently owned and operated, not be dominant in the field of operation in which it is proposing, have its principal place of business in the United States, be organized for profit, and be primarily owned by U.S. citizens.

To be eligible for participation in an STTR award, a **Research Institution** must be a non-profit institution as defined by the Stevenson-Wydler Technology Innovation Act of 1980 or a federally funded research and development center (FFRDC) as identified by the National Science Foundation

in accordance with section 35(c)(1) of the Office of Federal Procurement Policy Act. Thus, most universities and colleges, non-profit research centers, and government-owned, company-operated laboratories are eligible.

Small businesses interested in participating in the STTR program are required to find a research institution meeting this definition and to develop a working agreement before proposing to compete for an STTR award.

Distribution of Work

An STTR award to a small business is designed as a true partnership venture for both the small business and the research institution. To ensure that relationship, the program establishes minimum performance levels for each participant. The Public Law stipulates that in an STTR award, the small business must perform at least 40 percent of the work; the research institution must perform at least 30 percent of the work.

Management of STTR Projects

While the conduct of the project is a cooperative research and development venture, the small business exercises overall management, control, and responsibility for the project.

Participating agencies are required to ensure that the small business manages and controls the funding agreement pursuant to a business plan that provides for the commercialization of the technology being funded.

Protection of Rights

STTR policy directs federal agencies to protect the rights for data generated during the performance of an STTR project for not less than four years from the inception of Phase III. This time period affords the small business the opportunity to protect an STTR-developed innovation through patents, copyrights, or corporate secrets, thereby helping to ensure security in the commercialization of the innovation.

Continued Use of Government Property

STTR guidelines also direct federal agencies to allow small businesses that use government equipment during the conduct of an STTR award to continue to do so for not less than two years after the beginning of Phase III.


Model Agreements

Participating agencies require that awardees negotiate a written agreement between the small

business and the research institution covering the allocation between them of intellectual property rights and, if any, rights to carry out follow-on research, development, and commercialization. To facilitate this process, participating federal agencies and SBA make sample model agreements available to awardees. These agreements may be used in whole or in part to assist the awardees in producing their own agreements.

Follow-On Funding Protection

To protect the small business, the STTR specifies policies directing participating federal agencies to ensure, to the extent practicable, that if they intend to pursue research, development or production of a technology developed by a small business under an STTR program, the agency must enter into follow-on, non-STTR-funded agreements with the small business for such research, development, or production.



Authorities and Responsibilities of the Participants

Participating Agencies

As delineated under the Public Law, the authorities and responsibilities of STTR participating federal agencies are to:

1. Unilaterally determine categories of projects to be included in its STTR program.
2. Issue STTR solicitations according to a schedule determined cooperatively with the Small Business Administration.
3. Unilaterally determine research topics within the agency's STTR solicitations, giving special consideration to broad research areas that further one or more critical technologies as identified by either the National Critical Technologies Panel or the Secretary of Defense.
4. Unilaterally receive and evaluate proposals resulting from STTR solicitations.
5. Unilaterally select awardees for its STTR funding agreements and inform each awardee, to the extent possible, of the allowable expenses under the funding agreement.

6. Administer its own STTR funding agreements.
7. Pay recipients on the basis of progress toward or completion of the STTR funding agreement requirements.
8. Submit an annual report on the STTR program to the Small Business Administration and the Office of Science and Technology Policy.
9. Develop a model agreement for approval by the Small Business Administration that allocates between small businesses and research institutions intellectual property rights and any rights to carry out follow-on research, development, or commercialization.
10. Develop procedures in consultation with the Office of Federal Procurement Policy and the Office of Government Ethics to ensure that federally funded research and development centers that participate in STTR agreements:
 - A) Are free from organizational conflicts of interests relative to the STTR program.
 - B) Do not use privileged information gained through work performed for an STTR agency or private access to STTR agency personnel in the development of an STTR proposal.
 - C) Use outside peer review, as appropriate.

11. Develop procedures for assessing the commercial merit and feasibility of STTR proposals.

Small Business Administration

Public Law 102-564 designates the SBA as the lead agency to implement the program, govern its policy, and monitor and analyze its performance. As lead agency, the SBA's authorities and responsibilities are to:

1. Develop, coordinate, and issue a Policy Directive for the general conduct of the STTR programs.
2. Assist small businesses in obtaining government contracts for research and development.
3. Assist small businesses in obtaining benefits of research and development performed under government contracts or at government expense.
4. Develop and maintain a source file and an information program to help ensure each qualified and interested small business the opportunity to participate in technology transfer pilot programs involving federal agencies.
5. Coordinate with participating agencies a schedule for release of STTR solicitations, and

prepare a master release schedule that maximizes small businesses' opportunities to respond to solicitations.

6. Independently survey and monitor the operation of STTR programs within participating federal agencies.
7. Report not less than annually to the Congress on the STTR programs of the federal agencies.
8. Consult and cooperate, perform studies, and make recommendations to government agencies.
9. Consult with representatives of small business with a view to assisting and encouraging such firms to undertake joint programs for research and development.

The STTR Program Policy Directive

Public Law 102-564 authorized the Small Business Administration to issue a Policy Directive to conduct the STTR Pilot Program within the federal government. Before issuing this Policy Directive, the SBA consulted with the heads of the two federal agencies participating in the formulation of the program: the Commissioner of Patents and Trademarks and the Director of the Office of Federal Procurement Policy.

The SBA met with the representatives of each of these organizations, and after significant discussion and modifications, finalized the Policy Directive effective October 1, 1993. During the drafting process, the five federal agencies authorized to participate in the program were consulted about the elements of the directive and were given primary drafts for comment and revision before the draft was published.

The law further stated that the proposed directive be published for public comment not later than April 30, 1993, with at least a 30-day opportunity for public response. This responsibility was met by SBA with publication of the draft in the Federal Register on April 28, 1993, allowing until May 28, 1993, for the receipt of public comment. Four organizations provided comments and suggestions for change.

This Policy Directive guides participating agencies in the operation of the STTR programs. The directive mandates simplified, standardized, and timely solicitations and funding processes. It also directs the participating agencies to reduce regulatory burdens associated with participation in STTR programs. In addition, the Policy Directive also provides guidelines for a model agreement to be used by all agencies for allocating intellectual property and other rights between small businesses and research institutions (see *Participating Agencies*, p6). It also provides procedures to

ensure that recipients of STTR awards meet eligibility requirements as small businesses and that they manage and control the performance of the STTR funding agreement.

Finally, the Policy Directive instructs the participating agencies to develop procedures to ensure follow-on, non-STTR funding agreements with the small business when appropriate (see *Follow-on Funding Agreements*, p10).

Surveying, Monitoring, and Reporting

Pursuant to the legislation, the Small Business Administration is to independently survey and monitor the operation of STTR programs within participating federal agencies. The law directs the Small Business Administration to report not less than annually to the Committee on Small Business of the Senate and the Committee on Small Business of the House of Representatives on the STTR programs of the federal agencies.



Implementation Actions

SBA Responsibilities

The Small Business Technology Transfer Act of 1992 established specific activities and deadlines for the implementation of the STTR program. The SBA has primary responsibility for implementation, with several specific functions assigned to participating agencies. The Public Law passed on October 28, 1992, mandated that program operations begin on October 1, 1993. SBA uses a Policy Directive to manage the STTR program activities of the participating agencies. This controlling mechanism specifically instructs all participating federal agencies to ensure that essential program operations at each of these agencies is standardized. The law established certain methods and deadlines to be met in implementing the Policy Directive. All mandated actions were successfully completed in a timely manner.

Model Agreements

Public Law 102-564 directs SBA to establish guidelines for a model agreement to be used by all STTR participating agencies in allocating intellectual property rights and follow-on rights (see *Participating Agency STTR Program Authorities and Responsibilities*, p.6). The law further

instructed each participating agency to develop a model agreement not later than July 31, 1993.

After several meetings with SBA and numerous drafts, representatives of each of the five participating agencies issued two model agreements: One published by the Departments of Energy and Health and Human Services and the other published by the Department of Defense, the National Science Foundation, and the National Aeronautics and Space Administration. The SBA approved these model agreements.

Small businesses are required to negotiate agreements between themselves and the research institutions, but they are not required to use the model agreements. Rather, they are free to formulate and execute their own agreements or to use the models in whole or in part.

Research Institutions

The STTR program is designed to foster cooperative research and development efforts between small businesses and research institutions. To ensure a reasonable balance of effort between the parties, the law stipulates that the small business conduct at least 40 percent of an STTR project and the research institution perform at least 30 percent of the work. While this approach encourages the best from each of the parties, it is further man-

dated that the small business manage and control the project in all STTR funding agreements.

Follow-On Funding Agreements

Following the completion of federal R&D contracts, it is not unusual for the agency involved to have further requirements that result in a continuation of work. It is anticipated that there will be numerous instances where, following the completion of Phase II of STTR, agencies will have remaining requirements to continue development of an innovation or, perhaps, need to produce a product or service developed under STTR. To ensure smooth continuation of this work, to protect the commercial rights to the innovation, and to continue to employ the expertise of the originating STTR small business, the agencies are directed, to the degree practicable, to award any non-STTR, follow-on contracts or grants to the originating small business. To make this process more efficient, the participating agencies have been notified that the competition for an STTR award serves as meeting the requirements of the Competition in Contracting Act. This allows the agencies to award non-STTR, follow-on work to the small business without further competition.

Rights to Data

A major concern of small, innovative firms is that data generated while performing research and development for the federal government will be made public. STTR legislation therefore stipulates that the program provide for the small business to retain the rights to data it generates while performing in the STTR Program. These retention rights remain effective for at least four years. The intent of this statute is to provide authority for the participating agency to protect technical data generated under the STTR funding agreement and to refrain from disclosing such data to competitors of the small business. The statute also stipulates that the agency cannot use the information to produce future technical procurement specifications, thus protecting the participating small business until it has a reasonable chance to seek patent protection, if appropriate.

Thus, the Policy Directive mandates that, except for program evaluation, participating agencies must protect technical data for at least four years from the completion of the project that generated the data. The government, however, retains a royalty-free license for government use of any technical data delivered under an STTR funding agreement, whether patented or not.

Critical Technologies

STTR legislation calls for agencies to give special consideration to broad research topics and to topics that further one or more critical technologies. These technologies are identified in the National Critical Technologies Panel reports required under section 603 of the National Science and Technology Policy Organization and Priorities Act of 1976 or by the Secretary of Defense in accordance with section 2522 of Title 10, United States code. To assist the agencies with this requirement, SBA requested a complete listing of critical technologies from the National Critical Technologies Panel and the Office of the Secretary of Defense. These listings were sent to each participating agency.



TTR—The Pilot Program's First Year

Public Law 102-564 provides both general guidance and specific instructions concerning the implementation of the STTR program. To ensure a successful implementation, the law specifically directed several important actions and established completion dates. All mandated actions were implemented in a timely manner.

Small-Business Participation

Small business responded to the STTR solicitation by submitting 1,950 proposals to the five participating federal agencies. In this first year of STTR program activity, 181 firms won 198 Phase I awards. Their share of the \$18,880,421 award funding was \$10,906,342, representing 57.8 percent of the total funding. The remaining \$7,529,631 went to participating research institutions to fund their involvement in the program.

Minority and Disadvantaged Firms

Of the 181 firms that successfully competed for STTR awards, 26, or 14.4 percent, were firms owned by minority or disadvantaged persons.

They received \$2,380,642 or 12.6 percent of the \$18,880,421 total awarded.

Research Institutions

Small businesses interested in participating in the STTR program must find a research institution that meets the program's definition and develop a working agreement before proposing to compete for an STTR award.

The statistics available at the end of the fiscal year indicate that 181 firms collaborated with 107 research institutions. Of contracts and grants awarded during the year, 154 went to universities and colleges, 31 to Federally Funded Research and Development Centers, and 13 to other non-profit research institutions. The research institutions were located in 31 states. Of funds obligated for the fiscal year, small business received 57.8 percent while 39.9 percent went to research institutions.

Solicitation Schedule

STTR policy directs each federal agency participating in the program to issue STTR solicitations in accordance with a schedule determined cooperatively with the SBA. After approval of SBA's master schedule, these agencies issued solicitations early

in fiscal year 1994 to invite small business to propose to STTR projects.

After approval of its solicitation schedule, each participating agency provided SBA with information necessary to publish a Pre-Solicitation Announcement. The announcements provided interested small businesses with information on forthcoming opportunities in the STTR program, as well as basic information on program requirements, opening and closing dates of solicitations, and agency contact points for further information.

In fiscal year 1994, the participating agencies had the following solicitation periods:

- Department of Defense—December 1, 1993 through April 1, 1994
- Department of Energy—January 24, 1994 through April 11, 1994
- Department of Health and Human Services—September 15, 1993 through December 1, 1993
- National Aeronautics and Space Administration—December 10, 1993 through March 3, 1994
- National Science Foundation—November 1, 1993 through March 15, 1994

Award Shortfalls

Program policy required participating agencies to expend on STTR awards not less than .05 percent of their fiscal year 1994 extramural budget for research and development. In fiscal year 1994, \$21,505,966 should have been obligated program wide; actual obligations were \$18,880,421. The \$2,624,545 shortfall was the result of the Department of Defense and the National Aeronautics and Space Administration obligating amounts less than required. These agencies will be required to make up this difference in future funding. Both agencies have the authority to reserve some of this year's funding requirement to help fund Phase II requirements in the second year of the pilot program. This strategy should help bring a balance of Phase I awards and Phase II awards in future years.



Conclusion

The first year of STTR Pilot Program activity builds on the resounding success of its predecessor program—SBIR. In 10 years of promoting technological innovation through small business, SBIR has produced a parade of products and technical achievements that confirms the merits of this ambitious federal/private sector project.

STTR is a natural adjunct to SBIR in that its purpose is also to enhance the nation's technological strength through the ingenuity and innovation of the small-business community. The opportunity to work hand-in-hand with some of the nation's strongest research institutions has been well received by small business in the pilot program's first year of operation. Scores of new technology projects are now under way, many of which may eventually make an important contribution to the nation's technological base. The small business community has shown great interest in the STTR Pilot Program for fiscal year 1994. The sense of mission and spirit of cooperation among that community, the participating agencies, research institutions, and the SBA are at work helping to ensure another successful year in the nation's quest for useful new technology.

STTR Research Institutions

Alabama	University of Alabama (2)	
California	FFRDC Jet Propulsion Laboratory (7)	
	FFRDC Lawrence Berkeley Laboratory (2)	
	FFRDC Lawrence Livermore Nat. Lab. (5)	
	FFRDC Stanford Linear Accelerator Cent. (2)	
	FFRDC The Aerospace Corp.	
	Other EEG Systems Laboratory	
	Other SRI International (2)	
	University California Institute of Technology (2)	
	University Stanford University (5)	
	University University of California, Berkeley (2)	
	University University of California, Davis	
	University University of California, Irvine	
	University University of California, Los Angeles (2)	
	University University of California, San Diego (2)	
	University University of California, San Francisco	
	University University of Southern California (4)	
Colorado	University of Colorado (5)	
Connecticut	University of Connecticut	
	University Yale University (3)	
Delaware	University of Delaware (2)	
District of Columbia	Georgetown University	
Florida	University Florida Atlantic University (3)	
	University University of Florida (4)	
Georgia	Georgia State University	
	University Georgia Tech Research Institute	
	University Georgia Tech Research Corp. (2)	
Idaho	University of Idaho	
Illinois	FFRDC Argonne National Laboratory (2)	
	University Illinois Institute of Technology	
	University Northwestern University	
	University Southern Illinois University	
	University University of Illinois	
Indiana	University Purdue University (3)	
Iowa	University Iowa State University	
Kansas	University Kansas State University	
	University University of Kansas	
Kentucky	University of Kentucky	
Maryland	Other American Red Cross	
	University The Johns Hopkins University (2)	
	University University of Maryland	

STTR Research Institutions

Massachusetts

FFRDC Lincoln Laboratory (4)
 Other Dana-Farber Cancer Institute
 Other Marine Biological Laboratory
 University Boston University (2)
 University Framingham State University
 University Harvard School of Public Health
 University Massachusetts Institute of Technology (4)
 University Northeastern University
 University Tufts University
 University University of Massachusetts

Michigan

Other Environmental Research Institute (2)
 University University of Michigan (6)

Minnesota

University University of Minnesota

Missouri

University University of Missouri (3)
 University Washington University (2)

New Hampshire

University University of New Hampshire

New Jersey

Other Center for Ceramic Research
 University Monmouth College
 University Princeton University
 University Rutgers University
 University Stevens Institute of Technology

New Mexico

FFRDC Los Alamos National Laboratory (4)
 FFRDC Sandia National Laboratory (2)
 University University of New Mexico

New York

University Cornell University
 University Rensselaer Polytechnic Institute
 University Rochester Institute of Technology
 University State University of N.Y., Stony Brook
 University State University of N.Y., Buffalo (2)
 University University of Rochester (2)

North Carolina

Other Research Triangle Institute
 University Bowman Gray School of Medicine (2)
 University Duke University (2)
 University North Carolina State University (2)
 University University of North Carolina
 University Wake Forest University (2)

Ohio

Other Ohio Supercomputer Center (2)
 University Case Western Reserve University
 University Medical College of Ohio
 University Ohio State University (2)
 University University of Cincinnati (3)
 University University of Dayton (2)
 University Wright State University (2)

Oregon

University Oregon State University

Pennsylvania

University Pennsylvania State University (2)
 University University of Pennsylvania (2)
 University Lehigh University

Tennessee

FFRDC Oak Ridge National Laboratory (2)
 University Tennessee State University
 University University of Tennessee

STTR Research Institutions

Texas

University Texas A & M University
University Texas Engineering Experiment Station
University of Houston (2)
University of Texas, Arlington
University of Texas, Austin (2)
University William Marsh Rice University

Utah

University of Utah (2)

Virginia

Other Jones Institute for Reproductive Medicine
University George Mason University
University Old Dominion University
University The College of William and Mary
University of Virginia (2)
University Virginia Commonwealth University
University Virginia Polytechnic Institute

Washington

University of Washington (2)

Wisconsin

University of Wisconsin (4)

STTR First Year Phase I Awardees

Alabama

Huntsville
Advanced Optical Systems, Inc.
CFD Research Corp

Arizona

Tempe
Lawrence Semiconductor Res. Lab., Inc. (2)
Tucson
Materials and Electromechanical Research

California

Alameda
Lexical Technology Inc.
Berkeley
Dataflow Systems
Franz Inc.
Calabasas
Lithran Software
Canoga Park
American GNC Corp.
Canon Country
Ultrafast Sensors & Applications Inc.
Capitola
INDEC Systems Inc.
Carlsbad
Isis Pharmaceuticals Inc.
Toranaga Technologies Inc.
Cupertino
Integrated Optical Circuit Consultants
Davis
Molecular Analytical Systems Inc.
Fremont
CVC Products Inc.
Goleta
Ilgen Simulation Technologies Inc.

Irvine
Dubbs & Severino
Livermore
Berkeley Optics Company
Los Altos
ESEA
Los Angeles
Intelligent Systems Technology Inc.
Quality Information Systems Inc.
Menlo Park
Spectra Biomedical Inc.
Mountain View
Immersion Human Interface Corp. (2)
Interconnect Technologies Corp.
Palo Alto
Centric Engineering Systems Inc.
Rancho Palos Verdes
Duly Research, Inc.
Pasadena
Epicenter Software (2)
San Juan Capistrano
Intrinsic Circuits
San Francisco
Sam Technology Inc.
San Diego
Signal pharmaceuticals, Inc.
Viagene, Inc.
Simi Valley
Simi Valley Ferminionics Corp.
San Jose
SDL, Inc.
Simi Valley
Ferminionics Corp
Stanford
Integrinatics Corp.
Sunnyvale
ARACOR

STTR First Year Phase I Awardees

California (cont'd)

- Torrance
Acta, Inc.
- Holoplex
Physical Optics Corp.
- WestlakeVillage
ISX Corp.

Colorado

- Boulder
NeXigen, Inc.
- Denver
Innovative Research Inc.
- Golden
Superconducting Core Technologies, Inc.
- Wheat Ridge
TDA Research, Inc.

Connecticut

- Branford
Analytica of Branford, Inc.
- Danbury
Advanced Technology Materials Inc. (2)
- Transitions Research Corp. (2)
- East Hartford
Advanced Fuel Research, Inc. (2)
- Giencia, Inc.
- Glastonbury
Scientific Research Assoc. Inc.
- New Haven
Applied Biotech Concepts, Inc.

Florida

- Alachua
Caledon Inc.

- Ft. Lauderdale
AndasR Pharmaceuticals, Inc.
- Gainesville
J and D Scientific, Inc.
- Nanoptics, Inc.
- Miami
Technos Inc.

Georgia

- Doraville
Cernnet, Inc.
- Norcross
Search Technology

Idaho

- Idaho Falls
Idaho Technology
- Moscow
Manning Applied Technology

Illinois

- Champaign
Global Information Systems Technology Inc.
- Rockford
Diamond Technology (2)
- Chicago
BioChem Analysis Corp.
- Clarendon Hills
Kroft-Brakston International Inc.
- Evanston
Fluid Dynamics International
- Hinsdale
Pulmonix, Inc.

Indiana

- West Lafayette
Advanced Process Combustionics
- Melwood Laboratories, Inc.

STTR First Year Phase I Awardees

Kansas

Manhattan
Dorn Associates

Louisiana

Baton Rouge
Electokinetics, Inc.

Maryland

Annapolis
Technology Assessment and Transfer (3)
Baltimore
Brimrose Corp of America

Beltsville

Interactive Archives, Inc.
Gaithersburg

Lofstrand Labs Ltd.
Rayex Corp.

Rockville
EntreMed, Inc.

Silver Spring
Grafilkon Ltd.

Infrared Fiber Systems

Massachusetts

Acton
Mintcor, Inc.
Andover

Physical Sciences, Inc.
PSI Powerserve

Braintree
Warren E. Collins, Inc.

Billerica
Aerodyne Research, Inc.

Boston
Biomechanics, Inc.

Brighton

Unica Technologies Inc.
Burlington

Molecular Simulations, Inc.
Cambridge

Cambridge Research & Instrumentation Inc.
Cytel Software Corporation

Cambridge
NZ Applied Technologies

Chestnut Hill
Saltime, Inc.

Concord
Signatron T.C.

Danvers
Southern Cross Corporation

Lexington
Redox Battery, Inc.

Natick
Research Biochemical International

Somerville
Science Research Laboratory, Inc. (3)

Wakefield
Implant Sciences Corp.

Waltham
Foster-Miller Inc. (2)

Weston
Alborne Research Assoc.

Winchester
Newton Scientific, Inc.

Woburn
Applied Science & Technology Inc.

Covalent Associates, Inc.
GENTEST Corporation

STTR First Year Phase I Awardees

Michigan

Ann Arbor
Cybernet Systems Corp. (2)
OPTRAND, Inc.
Public Data Queries, Inc.
Dexter
Aeromover Systems Corp.

Missouri

St. Louis
Software Systems Specialists Inc.
MEGAN Animal Health

Nebraska

Lincoln
LI-COR, Inc.
Zoex Corporation

New Hampshire

Hanover
Creare, Inc.
Hollis
Northeast Photosciences
Nashua
Ferrofluidics Corp.
Windham
Alternative System Concepts Inc.

New Jersey

Flanders
Visual Inspection Technologies Inc.
Hoboken
Skion Corp.
Lambertville
Advanced Ceremetrics, Inc.

Parerson

Compact Software
Piscataway
Enzon, Inc.
Princeton
Sensors Unlimited, Inc. (2)

New Mexico

Albuquerque
North Star Research Corp.
Blaine
APA Optics Inc. (2)
Los Alamos
JP Accelerator Works

New York

Briarcliff Manor
Nanocrystals Technology Limited Partners
Buffalo
Amherst Systems Inc.
Chestnut Ridge
Lecroy Corp./Jorway Corp.
Depew
PCB Piezotronics
Elmsford
Hypres Inc.
Rochester
Rochester Photonics Corp.

North Carolina

Durham
3D Ultrasound, Inc.
Raleigh
PTS Co.
Research Triangle Park
Natural Pharmacia International

STTR First Year Phase I Awardees

North Carolina (cont'd)

Winston-Salem
Salem Products LLC (SPLC)

Ohio

Beavercreek
Adtech Systems Research Inc.
Amelia
Robotics Research Inc.
Wright Materials Research Co.
Bowling Green
ReceptorPro, Inc.
Cleveland
Cann-Lem, Inc.
Dayton
Spectra Research Inc. (2)
Systan Corp
UES Inc.
Dublin
PreComp, Inc.
Vandalia
Leland Electrosystems Inc.

Oregon

Beaverton
Planar Systems, Inc.
Myrtle Creek
Umpqua Research Co.
Portland
PI Medical

Pennsylvania

Ambler
Moberg Medical Inc.
Bally
Bally Ribbon Mills

Lehigh Valley

Wavefront Research, Inc.
Philadelphia
Biosyn Inc.
Phoenixville
Electro-Optical Systems, Inc.

Tennessee

Chattanooga
Accurate Automation Corp.
Nashville
Mid-South Engineering, Inc.
Oak Ridge
Atom Sciences, Inc.
Delta M Corp.
Tallahoma
ERC, Inc.

Texas

Arlington
Human Performance Measurement Inc.
Austin
Off World Laboratories, Inc.
College Station
Knowledge Based Systems Inc.
Houston
Proportional Technologies Inc.
Tomoseis, Inc. (2)
San Antonio
Digner Research Inc.

Utah

Salt Lake City
Protein Solutions, Inc.

STTR First Year Phase I Awardees

Virginia

Annandale
JWK International Corp.
Arlington
Strategic Analysis Inc.
Charlottesville
Abtech Corp.
Fairfax
Digital System Resources Inc.
FM Technologies, Inc.
Materials Modification Inc.
McLean
Planning Systems Inc.
Pouquoson
Innovative Aerodynamic Technologies
Radford
American Research Corp. of Virginia
Reston
Genoa Software Systems, Inc.
Richmond
Commonwealth Biotechnologies Inc.

Washington

Duvall
Cygnus Laser Corp
Issaquah
JX Crystals, Inc.
Kent
Quest Integrated Inc.
Puyallup
Arnav Systems Inc.

Wisconsin

Grafton
Triomed Electronics, Inc.
Madison
Health Support Systems, Inc.

STTR Program Data Fiscal Year 1994

(dollars in thousands)

	DOD	HHS	DOE	NASA	NSF	Total
Fiscal Year 1994 Agency Obligations						
Agency Extramural Budget	21,950,590,000	8,367,000,000	3,506,000,000	7,153,000,000	1,986,311,000	42,962,901,000
Agency STTR Budget	10,976,295	4,183,500	1,753,000	3,600,000	993,171	21,505,966
Dollars Obligated	9,265,170	4,694,906	2,052,443	1,775,000	1,092,902	18,880,421
Percent of STTR Extramural Budget	0.042 %	0.056 %	0.059 %	0.025 %	0.055 %	0.044 %
Deficit/Surplus	(1,711,125)	511,406	299,443	(1,825,000)	99,731	(2,625,545)
Fiscal Year 1994 Award Profile						
Total Phase I Awards	100	48	21	18	11	198
Minority/Disadvantaged Ph I Awards	17	3	5	1	0	26
Total Phase II Awards	0	0	0	0	0	0
Minority/Disad Ph II Awards	0	0	0	0	0	0
Total Phase I Dollars Awarded	9,265,170	4,694,906	2,052,443	1,775,000	1,092,902	18,880,421
Min/Disad Ph I Dollars Awarded	1,576,475	214,645	489,522	100,000	0	2,380,612
Total Phase II Dollars Awarded	0	0	0	0	0	0
Min/Disad Ph II Dollars Awarded	0	0	0	0	0	0
Average Amount Ph I Awards (\$)	92,652	97,811	97,735	98,611	99,355	95,356
Fiscal Year 1994 Agency Solicitation Profile						
No. of Solicitations Released	1	1	1	1	1	5
No. of Research Topics	21	74	12	3	1	111
No. of Ph I Proposals Received	911	283	487	159	110	1,950
No. of Ph II Proposals Received	0	0	0	0	0	0
Fiscal Year 1994 Research Institution Profile						
Number of FFRDCs	14	2	14	1	0	31
Number of Universities	81	41	6	15	11	154
Number of Other Non-Profit	5	5	1	2	0	13
Fiscal Year 1994 Cooperative Research Profile						
Total Dollars of Awards	9,265,170	4,694,906	2,052,443	1,775,000	1,092,902	18,880,421
Dollars to Small Business	5,413,927	2,626,596	1,142,862	1,085,997	636,960	10,906,312
Percent to Small Business	58.43 %	55.95 %	55.68 %	61.18 %	58.28 %	57.77 %
Dollars to Research Institutions	3,642,216	1,951,587	817,644	662,242	455,912	7,529,631
Percent to Research Institutions	39.31 %	41.57 %	39.84 %	37.31 %	41.72 %	39.88 %
No. Awards to Universities	71	41	6	15	11	154
Dollars to Universities	2,950,167	1,653,197	230,111	550,923	455,912	5,840,310
No. Awards to FFRDCs	14	2	14	1	0	31
Dollars to FFRDCs	493,443	65,000	551,933	33,320	0	1,143,696
No. Awards to Other Non-Profit	5	5	1	2	0	13
Dollars to Other Non-Profit	198,606	233,390	35,600	78,000	0	515,596