

**GAO**

United States General Accounting Office  
Report to Congressional Committees

March 1984

**FEDERAL RESEARCH**

**Interim Report on the  
Pilot Technology  
Access Program**



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Resources, Community, and  
Economic Development Division

B-255654

March 7, 1994

## Congressional Committees

Several federal programs exist or are being proposed to bolster U.S. industries' competitiveness. One ongoing program directed to help small businesses compete was created when the Congress amended the Small Business Act in 1991 to establish the Pilot Technology Access Program (commonly referred to as TAPP).<sup>1</sup> TAPP provides small businesses with access to (1) computerized data bases containing technical and business information that they typically are not aware of, or cannot afford, and (2) experts knowledgeable in a wide range of technical fields.

The law specified that TAPP be implemented at several small business development centers that are administered by the Small Business Administration (SBA). The centers deliver counseling, training, and research assistance to small businesses through a network of 56 centers—one or more in each of the 50 states—and more than 700 service locations. Although the SBA provides funding for TAPP, the National Institute of Standards and Technology (the Institute)—an agency within the Department of Commerce's Technology Administration—manages and monitors the program. In 1991, the Institute selected six centers located in Maryland, Missouri, Oregon, Pennsylvania, and Wisconsin to implement TAPP. Public Law 102-140 requires us to submit an interim report on the implementation of TAPP to several congressional oversight committees. The law also requires us to submit in September 1994 a final report evaluating the effectiveness of the program.<sup>2</sup> Accordingly, this interim report provides information on the status, implementation, and evaluation of TAPP. In addition, this report includes the judgments of the participating centers' directors on TAPP's effect on small businesses' productivity and innovation.

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**Results in Brief**

During the first year of TAPP, the Institute assumed a "hands off" approach, allowing the six centers to have autonomy and control over the development of their pilot programs. During this time, the centers focused on program development. By the end of the first year, all of the centers

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<sup>1</sup>TAPP was originally established by section 232 of the Small Business Administration Reauthorization and Amendments Act of 1990, which was repealed by section 609 of Public Law 102-140 and replaced with the current program.

<sup>2</sup>As discussed in this report, the data needed to evaluate the effectiveness of the program are not yet available and may not be available for some time. Accordingly, we are discussing with congressional oversight committees an appropriate date for the final report.

were providing some services to their small business clients, although the Institute considered two programs—one in Oregon and one in Wisconsin—nonperformers because of the centers' lack of progress in developing and implementing their programs. By the end of the second year, Institute officials told us that Wisconsin's program had improved but that Oregon's had to drop out of TAPP because it could not obtain matching state funding.

While each program director views TAPP as a valuable tool for educating small businesses on the value of computerized information, only a limited number of clients were served by the program during the first year, which began in September 1991. The number of clients who used the program at five of the six centers ranged from 1 to 13 percent of the total number of clients counseled at the centers. (Texas did not identify the number of clients who used the program for this period.) However, program use has generally picked up, with several of the programs exceeding the number of first-year users during the first three quarters of the second year. Furthermore, the centers have experienced relatively low demand for technical experts. In addition, the centers initially had some problems marketing the benefits of using the program to their counselors and clients; however, during the second year, the centers devoted more time to marketing the program.

Because the program is new, it is too early to make any overall judgment about its effectiveness. Furthermore, the program did not begin collecting uniform data from the centers until March 1993—well into the program's second year. In addition, no uniform data have been collected from the centers on client satisfaction or program impact. Only recently did the centers develop uniform questionnaires to assess program impact. Although Institute officials believe that the questionnaires support their program management needs, we believe that in their present form the questionnaires will not generate the accurate, valid data needed to evaluate the impact of the program because they lack clarity and precision.

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## Background

TAPP was modeled on a Minnesota state program established in 1989—Minnesota Project Outreach—which provides small businesses with access to technical experts and computerized data bases with technical and business information. Minnesota selected Teltech Resource Network Corporation (Teltech)—a national supplier of technical and business knowledge—to develop and deliver these services. The perceived success

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of this program in providing user-friendly services to small businesses that would not otherwise have the means or the ability to obtain needed technical information created the stimulus for the TAPP legislation. (App. II describes Minnesota Project Outreach.)

Section 232 of Public Law 101-574, the Small Business Administration Reauthorization and Amendments Act of 1990, in establishing TAPP, stipulated that SBA work in consultation with the Institute and the National Technical Information Service.<sup>3</sup> In early 1991, the Institute and SBA signed a memorandum of understanding that resulted in the Institute's implementing TAPP on behalf of and in close cooperation with SBA. In October 1991, section 609 of Public Law 102-140 repealed section 232 of Public Law 101-574 and replaced it with the current program.

Officials from the Institute's Manufacturing Extension Partnership manage and monitor the program. These officials view the program as contributing to their objective of coordinating statewide technical assistance programs to small businesses and as a vehicle that provides scientific and technical information to all types of businesses. In managing the program, Institute officials visit all of the centers at least once a year to review their progress in developing their programs. The Institute also requires that the centers' directors or program administrators attend quarterly meetings to discuss their progress with each other. The centers must also submit to the Institute quarterly and annual reports that characterize their progress toward program goals. An SBA official receives copies of all reports, participates in site visits and directors' meetings, and is involved in making all decisions about TAPP. SBA officials see the program as a way to expand the range of services to small businesses and attract a broader range of small businesses to the small business development centers.

Small businesses typically visit centers for business management assistance. When a small business owner visits a TAPP-funded small business development center, a counselor determines whether the client also needs technical or scientific information. If the client needs these services, the counselor will provide access to TAPP data bases. TAPP can also provide a list of experts in a wide range of technical and scientific fields so that a client can identify who he or she can consult with on a particular subject.

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<sup>3</sup>Both the National Technical Information Service and the Institute are components of the Department of Commerce. Within the Department, the Institute was the agency that undertook the consultative role.

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## Program Status

In September 1991, six small business development centers were selected to participate in TAPP on the basis of their ability to (1) increase access by small businesses to online data base services that provide business and technical information relevant to the needs of industries in their areas, (2) integrate TAPP with existing federal and state technical and business assistance resources, and (3) continue providing technology access after the pilot program which is authorized through fiscal year 1995, is terminated. As a prerequisite to receiving funding, each center had to obtain matching state funds.

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## First Year of Operation Focused on Program Development

During the first year of the program, which began in September 1991, each of the TAPP centers received \$200,000, with the exception of Maryland, which received \$50,400. According to Institute officials, during the first year of TAPP, the Institute assumed a hands off approach in order to allow the centers to develop unique pilot programs tailored to the specific environments of their states. Furthermore, the program was short-staffed; only one person was available part-time to manage the program until July 1992, when the State Technology Extension Program (now part of the Manufacturing Extension Partnership) hired a manager whose responsibilities included managing TAPP.

Because the TAPP centers spent much of the first year developing their programs, and because Institute managers did not want to prescribe an information collection system before the programs were established, the Institute did not obtain uniform data from the centers on what type of clients they were serving or what type of information the centers were providing to clients. For example, in their first-year annual reports, the centers provided client usage data using different terms such as "log-ins," registered users, and/or research projects. In addition, data base searches were categorized differently by each of the programs. Nevertheless, all of the programs were providing some TAPP services to small businesses by the end of the first year.

After receiving first-year reports from the centers, Institute officials expressed concern that some of the programs were providing market information to the exclusion of technical information. The Institute defines nontechnical information as marketing, management planning, trademark, and vendor information and technical information as product/process, development/modification, and patent or regulatory information. Furthermore, the officials were concerned that many of the clients receiving this information were not technical or manufacturing

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concerns but rather small local retail-type businesses. (TAPP data bases contain "nontechnical" information such as demographics as well as technical data.) The officials cautioned the centers that there must be a balance of information provided because they believe that the program should also provide scientific and technical information to small businesses as prescribed by Public Law 102-140; the officials also believe that interactive data bases are not the most cost-effective means of providing marketing information.

Although the Institute has no official policy concerning the specific percentage of program activity that should be devoted to providing scientific and technical information, several Institute officials told us that they hope that eventually 50 percent of the information provided to TAPP clients will be technical and/or scientific. However, three of the centers' directors told us that they were concerned that directing the program to providing technical information would narrow the number of interested participants. In that regard, some directors expressed concern that they not be limited to providing scientific and technical information under the program. The directors believe that clients benefit from marketing information obtained from data base searches.

The following is an example (from Pennsylvania's 1991-92 annual report) of how a client used marketing data obtained from TAPP:

- A 30-year-old company that manufactures fiber optic cables and local area network cable systems needed to obtain information on market size, potential areas of growth, and competitors in order to analyze which European countries to target in future marketing efforts. A small business development center counselor retrieved relevant information from a TAPP data base. With this information as part of its marketing plan, the company was chosen to participate in a Pennsylvania program that subsidized attendance in European trade shows for promising state firms. Subsequently, the company's president submitted a quote for a cable order to a European firm.

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## TAPP's Second Year Focused on Improving Program Operations

During the second year of the program, the Institute awarded each of the six centers \$190,400, except Maryland, which received \$50,000,<sup>4</sup> and the Institute encouraged the centers to analyze whom they provided information to and what type of information they were providing. In so

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<sup>4</sup>Institute officials told us that Maryland received as much funding as it requested for the first and second years of the program.

doing, the Institute provided the centers in March 1993 with a TAPP client tracking format, developed in cooperation with the centers' directors, and required that they use it to prepare client usage statistics for quarterly reports. This format requires the centers to categorize clients by type of business, Standard Industrial Classification Code (developed by Commerce) category, age of firm, and type of information received as scientific/technical or nontechnical. The first reports using the new format were submitted in April 1993. Quarterly reports also describe progress toward program goals, characterize businesses that use the program, and include case studies of those that use the program.

## Recompetition for Program Funding

In November 1992, the Institute and SBA officials notified the TAPP centers that they had decided to require the centers to submit proposals to compete for third-year TAPP funding. According to the officials, this decision was made because (1) two states (Oregon and Wisconsin) were not operational 1-1/2 years into TAPP—that is, they were not operating according to the statement of work included in their proposal; (2) total program funding for the third year was being cut and it would therefore be better to consolidate the number of states receiving funding rather than cut the amount of funding to all six states; and (3) the Institute wanted to ensure that states with operational programs were chosen for funding since they would be able to better use the funding. To further preserve the integrity of TAPP, Institute and SBA officials agreed that the recompetition would be limited to the existing six programs. After the recompetition, the Institute awarded \$170,000 each to Maryland, Missouri, Pennsylvania, Texas, and Wisconsin in September 1993. (Oregon decided not to submit a proposal during the recompetition because it could not obtain matching state funding.)

According to the Institute, the recompetition for TAPP funds caused the centers to be more responsive to the Institute's requests. Institute officials said that earlier the centers did not provide them with requested information, such as business plans, and that as part of evaluating their programs, they had yet to ascertain customer satisfaction. The officials also said that the centers' reluctance to provide them with information could in part be attributable to extensive data requirements already imposed by SBA. By the later part of TAPP's second year, the centers responded to the Institute's request that they monitor client satisfaction and developed a standard client evaluation methodology. However, two states said that the recompetition process inhibited their ability to share

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information with other centers because they did not want to give away any competitive advantage.

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### The Institute's Perspective on the Status of TAPP

Currently, Institute officials are generally satisfied with the centers' progress in developing their programs. In particular, for the first 1-1/2 years of TAPP, Institute officials believe that Texas and Missouri had the strongest programs because these states initially made the most progress in developing their programs. For example, Missouri integrated its program into the state small business support infrastructure, which was an explicit part of the legislation creating TAPP, and attempted to provide a mix of technical and business information to its clients. However, Institute officials believe that the distinction between Texas and Missouri and the other centers has become less pronounced as they have developed and focused their programs. For example, the officials note that Wisconsin—one of the original nonperformers—has progressed under the direction of a new program administrator who developed a technical expert network and a manual for counselors that facilitated implementation of the program. Furthermore, Institute officials note that they had concerns that Oregon's program development was behind schedule and that it was not providing a mix of technical and business information to clients. Nevertheless, an Institute official said that Oregon made progress in developing its program in the last 6 months before it dropped out of TAPP because it could not obtain matching state funding.

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### The Six TAPP Centers Have Different Approaches but Similar Operating Experiences

The Institute and SBA view TAPP as a pilot project and as a result provided limited direction to the six states as they established their programs. Consequently, the recipient centers used their grants to create diverse, unique programs. However, the programs are similar in that each of the six states has contracted with a computer vendor or a supplier of technical and business information to provide access to data bases that contain scientific, technical, and marketing information.

Typically, the technical and business information companies provide specialists who give technical support to TAPP counselors and clients. These specialists are generally available to search data bases for clients, to help counselors conduct data base searches, to provide training for counselors and clients on how the program works, and in some cases, to promote TAPP. Missouri is an exception because it provides in-house specialists to conduct data base searches. Other centers either rely entirely on the information specialists provided by the information

suppliers for data base searches or use them as a backup to help counselors conduct searches. Some centers allow clients to do their own data base searches directly. Counselors, information specialists, or clients can access information from data base searches on a wide range of subjects. For example, clients can receive patent information, information on their competitors, or addresses of potential distributors of their product.

Some of the technical information suppliers have data bases with the names of technical experts that clients can also access. In other cases, states use other sources for access to technical experts. For example, Pennsylvania uses the Ben Franklin Institute—a state-funded nonprofit corporation that provides financial and technical assistance to businesses—to provide access to data bases but uses PENNTAP, a statewide information and technology access program, to find technical experts.

Although the TAPP centers have some broad program similarities, they also have many differences. For example, the centers vary in the way they (1) assign roles to counselors, (2) provide services, (3) target different audiences to market the program to, and (4) require payment from users. For example, under Pennsylvania's program, counselors conduct data base searches for clients, whereas in Missouri the counselors refer clients to technical experts for marketing information or data base searches. Furthermore, Missouri's program has a very integrative approach to clients, which can take them from an initial idea through product development and marketing, while other programs, such as Oregon's, refer clients to an outside vendor for data base searches and technical experts.

The centers also market and charge for their TAPP services differently. For example, Maryland targets participants in the Small Business Innovation Research program (an SBA program established to strengthen the research and development role of small innovative companies), while Texas targets manufacturers and technology-oriented companies in different industries. Each program has established fees for data base searches, and small businesses often have to pay some amount for consultations with experts. These fees vary from center to center and are largely dependent upon the amount of time spent on a data base search and the amount of subsidization each program has decided to provide. In Wisconsin, for example, clients get their first data base search free and are billed directly by the information vendor for subsequent usages, while Texas bills clients

50 percent of the cost of additional assisted searches after an initial free search. (For a detailed description of each program, see app. III.)

### Small Percentage of Centers' Clients Used TAPP During the First Year of the Program, but Preliminary Client Feedback Is Positive

In general, uniform client data on the program were unavailable during TAPP's first year, which began in September 1991. For example, Texas did not collect data on the number of clients who used the program until the third-quarter of the second year of the program. On July 22, 1993, as part of the recompetition process, Institute staff asked each center to go back and tabulate program activity in terms of the number of clients who actually used TAPP services. Available information indicates that during the first year of the program, between 78 and 224 clients used TAPP, or 1 to 7.2 percent of all of the clients counseled within each of the four small business development centers located in Maryland, Missouri, Oregon, and Pennsylvania. For this same period, 238 clients, or about 13 percent of Wisconsin's small business development center's clients, used TAPP services. (Texas did not calculate the number of clients counseled.) During the first year of the program, the five programs served an average of about 163 clients. However, as table 1 illustrates, program use has generally picked up, with several of the programs exceeding first-year usage numbers in the first three quarters of the second year of the program.

Table 1: TAPP Clients

Program location	No. of clients in first year of program	No. of clients in first three quarters of second year of program
Maryland	224	139
Missouri	146	201
Oregon	78	<sup>a</sup>
Pennsylvania	130	236
Texas	<sup>b</sup>	171
Wisconsin	238	267

Note: We did not verify the accuracy of the data in this table, which we obtained from Oregon's 1991-92 annual report and the other five programs' 1994 proposals for funding.

<sup>a</sup>Information unavailable.

<sup>b</sup>Texas collected data only on the number of TAPP searches for this period.

Although all TAPP clients have not been surveyed and each of the programs had its own approach to requesting feedback, preliminary information from all of the centers indicates that clients view the program favorably.

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For example, one client who used the Missouri program credits it with creating his business, while another client said that the Pennsylvania program helped her make a good decision about allocating her resources. A client from the Wisconsin program said that TAPP saved him time in obtaining needed information.

All of the centers' directors agree that TAPP's purpose is to make small businesses more competitive by educating them on the value and use of online information systems. Furthermore, all of the participating program administrators and center directors believe that the program is a positive addition to small business development centers' services and has a positive impact on clients' productivity and innovation. In particular, directors told us that the program has saved clients time, provides timely information, and helps clients position themselves against their competition.

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### Low Demand for Technical Expert Network Searches

Several of the centers told us that there is little client demand for technical expert searches. In addition, we reviewed the other centers' third-quarter second-year reports to see how many requests for searches of the expert network were made and found that Texas had 8 requests during this period out of a total of 93 data base searches, while Wisconsin conducted 108 searches, but only 16 of these were searches for technical experts. One center's director was not sure if the low use is attributable to not marketing the program well or if no market exists for these services. Another director attributed the low demand to clients' concerns over the potential expense of these services or concerns about experts' stealing ideas. In addition, several of the directors said that it is difficult to develop technical expert networks—developing a network can be time-consuming and challenging with respect to identifying such experts.

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### TAPP Has Posed Marketing Challenges for Centers

Several of the centers' directors said that the program initially was tough to "sell" to their counselors—a key factor in terms of providing TAPP services to potential clients. Centers' counselors typically work with small businesses that have cash flow problems or companies that need to obtain financing. Generally, the counselors are not familiar with science or technical areas or computer data bases. One counselor said that at the beginning of the program, she had a learning curve to overcome in order to understand the data bases and was not sure what the program could deliver. As a result, counselors needed to be educated on what the program does and what the program is about. All of the centers have

provided training for counselors, and two centers told us that they have created reference materials that describe the program or describe key processes to help counselors provide services. For example, Wisconsin's program has developed a description of all of its services, which it gives to each counselor. In addition, counselors are generally not accustomed to charging fees for services because most services from small business development centers are free. An information specialist who provides support for Pennsylvania's program said that it was initially difficult for counselors to charge clients for program services but that most counselors became accustomed to doing it.

According to several centers' directors, their programs have also had problems marketing TAPP to clients. The directors have had trouble convincing clients about the benefits of data bases or have clients who have never used online services. For example, one counselor said that clients are reluctant to use the program because they are afraid of the cost and do not understand the technology. One center director summed up his concerns about marketing by saying that there are a lot of up-front costs in developing demand.

As a result, some of the programs have targeted specific clients for TAPP services. For example, as previously noted, Maryland is targeting Small Business Innovation Research program participants to provide them with information that will move them from Phase I (designed to determine the scientific and technical merit and feasibility of a proposed idea) to Phase II (designed to further develop the idea) of the Small Business Innovation Research program. Texas is targeting manufacturers and technology-oriented firms. Wisconsin is concentrating on working with existing manufacturers and technology-based companies. In addition, some of the programs are conducting demonstrations for interested businesses. For example, Texas conducts a workshop called "Technology at Your Fingertips," in which it asks participants (potential clients) for search ideas and demonstrates the program's searching capabilities.

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## Program Evaluation Weaknesses and Other Concerns

Evaluating the impact of TAPP on small businesses is complicated by two factors: (1) The Institute did not develop an evaluation methodology or collect uniform data during the first year of the program, and (2) it is hard to link the information provided to small businesses to increased productivity. Furthermore, the diversity and uniqueness of each of the programs will complicate any evaluation.

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The Institute did not develop a method for evaluating TAPP before making its initial awards in September 1991 or during the first year of the program. The program's first year was highly developmental; that is, each center was structuring its program and choosing data bases and technical expert networks. Each center tracked program use differently, using its own definitions and techniques. As a result, first-year data cannot be compared across programs. During the second year of the program, in March 1993, the Institute provided the centers with a specific format for tracking the number of clients who used the program and gathering preliminary data on client satisfaction. However, several centers still had not conformed to the assigned format in their reports submitted in April 1993.

Furthermore, the centers have not widely or uniformly surveyed clients to determine their satisfaction with TAPP or received sufficient response rates from clients. For example, Missouri surveyed all 146 of its clients and received only 42 responses, while Wisconsin using a different questionnaire surveyed all of its clients and received a 58-percent response rate. Pennsylvania attempted to telephone survey its clients but was unsuccessful because it had problems getting in touch with them.

In March 1993, the Institute began requiring each center to conduct a postcard survey of its clients similar to an earlier survey conducted by the Maryland center. During the first year of the program, Maryland asked its clients (1) if they received information that they needed, (2) if they used the information to make a business decision, (3) what type of information was most useful, (4) if they would be willing to use the program in the absence of a subsidy, and (5) what prices they would consider paying for TAPP services. Only 60 companies were surveyed and 47 responded. Eighty-three percent of the respondents said that Maryland's program, the "Technology Expert Network," provided them with information that they needed, and 66 percent said that it provided them with information that was used to make a business decision.

According to the Institute, three additional centers (Missouri, Oregon, and Texas) have conducted postcard surveys of their small business clients. These surveys did not ask the same questions, so comparisons cannot be made across programs. Furthermore, Missouri sent its survey to clients during the second quarter of the program's second year, and Texas and Oregon sent their surveys to clients during the third quarter of the program's second year. Oregon's preliminary results, with only 17 clients responding of 58 polled, indicate that 11 respondents found the overall quality of TAPP to be excellent.

As part of their fiscal year 1994 proposals for funding, Institute and SBA officials encouraged the centers to develop a standard client evaluation methodology. The methodology includes (1) a questionnaire on client satisfaction that will be distributed to clients directly following completion of the first data search and dissemination of information, (2) a questionnaire on client impact that will be sent to clients 6 months after receiving the information from the initial data search, (3) and a competitive position survey that will be mailed to clients 1 year after the initial data search to find out what impact the program has had on the company's competitive position.

We believe that these questionnaires, in their present form, will not generate reliable and valid data for a number of reasons. First, the questionnaires lack precision and clarity. For example, the questionnaires do not provide definitions of terms or instructions that will help respondents understand how to answer questions. Second, questions in the instruments do not make a direct connection between the program's impact on clients and their businesses' productivity. For example, the client behavior section of one of the questionnaires does not ask the respondent if he or she was impacted by the program and then ask the degree to which he or she was impacted by the program. Instead, the questionnaire lists factors that could have occurred without TAPP and does not give clients the ability to state the degree to which the program had an influence on them. Finally, the questionnaires fail to ask clients basic questions, such as if they were satisfied or dissatisfied with the program, or request them to identify key factors that led them to be satisfied or dissatisfied with the program.

Because of these concerns, we have little confidence that the questionnaires in their present form will generate data that will allow the Institute to gauge client satisfaction and accurately represent the impact of the program on its small business clients. Furthermore, it is possible that low response rates to these questionnaires will preclude the Institute from obtaining valid data. On November 1, 1993, we met with Institute officials to discuss these concerns and suggested that they address them so that the questionnaires will yield valid, accurate data.

In November 1993, the TAPP Program Manager reviewed the questionnaires with the program directors at the quarterly directors' meeting and provided them with input from the Manufacturing Extension Partnership's Associate Director for Program Quality. Our concerns with the questionnaires were discussed at this meeting, and Institute officials told

us that the directors would attempt to "tighten up" the questionnaires. In addition, in September 1993, the Associate Director for Program Quality told us that her future role will be to develop evaluation methodologies for all partnership programs, including TAPP.

In December 1993, we met with Institute officials, who told us that the centers have implemented the first questionnaire on client satisfaction and have since made some modifications based on our comments. We reviewed the revised questionnaire and determined that only minor changes had been made, and most of our initial concerns had not been resolved. The officials also told us that the centers' directors are modifying the two other questionnaires in response to our comments but do not know when they will be complete. The officials said that the questionnaires meet their program management needs and that they view them as only one tool that can be used to evaluate TAPP.

Although uniform data on program effectiveness are not available, each of the centers has collected some anecdotal information from clients that generally indicates that small businesses are satisfied with TAPP. The following examples were obtained from TAPP annual reports:

- A research and development company involved in the electrochemical treatment of wastewater and the treatment and preservation of certain highly perishable food products contacted TAPP to obtain patent information, current and historical literature on relevant technology and its applications in environmental industries, and the location of important but difficult to find books pertaining to the technology. The company received this information and used it to respond to several large nationally issued requests for proposals for services.
- A small high-technology firm that specializes in research, development, and marketing a group of proprietary chemical formulations—especially for the microelectronics manufacturing industry—contacted TAPP. The firm requested hard-to-get information on the research, development, patenting, and marketing of its products. TAPP provided the firm with this information, which was incorporated in Small Business Innovation Research program proposals and used to better understand the potential for growth in areas targeted for its new products.

Finally, even when more impact data are collected, it will be difficult to link the information that the program provides to an increase in small businesses' productivity. Centers' directors and administrators agree that the program's impact is and will be difficult to measure. For example, one

director said that he was unable to identify data on program impact because it takes a long time between when a company gets a piece of information and sees a result of increased productivity. Another director volunteered that it is difficult to correlate literature searches and counseling to productivity and innovation.

## Other Competitiveness Initiatives

Since TAPP was enacted, other initiatives for bolstering U.S. industries' competitiveness have been proposed or are already implemented. For example, over the next several years, the Department of Defense's Advanced Research Projects Agency will be providing funding for defense technology conversion, reinvestment, and transition assistance. Also, the National Aeronautics and Space Administration has a National Technology Transfer Center that can give businesses access to data from federal laboratories for specific technologies that can be transferred to the private sector. In addition, states, such as Washington, have developed technical assistance programs for small businesses without TAPP funding.

Institute officials agreed that there needs to be coordination between the existing and proposed programs designed to bolster competitiveness to avoid duplication and to make use of existing resources. An Institute official told us that he has started work on a resource map that geographically represents a comprehensive listing of industry assistance programs available to small businesses. When completed, this map will enable policymakers to better direct resources across the country and give service providers knowledge about programs that they can tell clients about. However, this effort is projected to take 1 year to complete.

## Conclusions

The TAPP centers have created diverse and somewhat unique programs. By the end of the first year, all of the programs were providing some TAPP services to small business clients. On the basis of comments centers' directors and counselors made about their experiences to date, it appears that the key to the program's development is each center's ability to market TAPP services to potential clients, provide counselor training, and provide good technical support services for clients. These activities have a direct impact on promoting small businesses' awareness and usage of the program, improving counselors' comfort level with using the program, and ensuring that clients receive information that they can use and need. These activities are crucial to being able to attract and maintain demand for the program. It is also important that the centers communicate with one

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another to refine their programs, share ideas, and help resolve common problems and concerns.

It is too early, however, to make any overall judgment about the effectiveness of TAPP. The program is new, and no uniform data have been collected from the centers on client satisfaction or client impact. Only recently did the centers develop uniform questionnaires to assess program impact. Although Institute officials said that these questionnaires adequately support their management needs, we believe that in their present form they will not generate accurate, valid data needed to evaluate the impact of the program. To facilitate the collection of such data, we have met with Institute officials and provided them with feedback on the questionnaires.

Although it was beyond the scope of our mandate to review similar programs aimed at increasing the competitiveness of U.S. industry, the government should be aware of all such existing and proposed programs, including TAPP, and make sure that they are coordinated to avoid duplication.

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## Recommendation to the Secretary of Commerce

Because an accurate determination of the effectiveness of the Pilot Technology Access Program will be critical to future decisions about the program, we recommend that the Secretary of Commerce direct the Administrator of the Technology Administration to take steps to improve the precision and clarity of the questionnaires that managers use to collect client feedback on the program. The questionnaires should provide definitions where appropriate and ask direct questions that will determine client satisfaction and program impact.

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## Agency Comments

We discussed the factual contents of this report with Institute officials from the Manufacturing Extension Partnership who manage TAPP and SBA's Associate Administrator of Small Business Development Centers. SBA officials generally agreed with the fact sheet that we provided to them. Institute officials, however, raised concerns about some of the language and word choices in the fact sheet that they believed overstated or oversimplified the program's problems. The officials provided us with detailed comments that have been incorporated into the report where appropriate. The officials also maintain that existing evaluation tools are sufficient to meet the information and internal management needs of the individual state directors and Institute and SBA officials. However, our

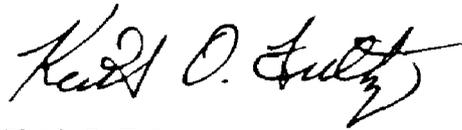
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recommendation goes beyond what the Institute says it needs for internal management purposes to ensure that an accurate evaluation of client satisfaction and program impact can be made. The Congress needs accurate program impact information in order to make an informed decision on whether to extend the program. As requested, we did not obtain written agency comments on a draft of this report.

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We conducted our review between March and December 1993 in accordance with generally accepted government auditing standards. (App. I provides a detailed description of our scope and methodology.) We are sending copies of this report to appropriate congressional committees; the Secretary of Commerce; the Administrator of SBA; and the Director, Office of Management and Budget.

This review was conducted under the direction of Victor S. Rezendes, Director, Energy and Science Issues, who may be reached at (202) 512-3841 if you have any questions. Major contributors to this report are listed in appendix IV.



Keith O. Fultz  
Assistant Comptroller General

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List of Committees

The Honorable Dale L. Bumpers  
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**Abbreviations**

BIAS	Pennsylvania Business Intelligence Access System
GAO	General Accounting Office
MOTAP	Missouri Technology Access Program
NASA	National Aeronautics and Space Administration
OIC	Oregon Innovation Center
OTAP	Oregon Technology Access Program
SBA	Small Business Administration
SBDCs	Small Business Development Centers
TAPP	Pilot Technology Access Program
TAP/Texas	Texas Technology Access Program
Teltech	Teltech Resource Network Corporation
TEN	Maryland Technology Expert Network
WisTAP	Wisconsin Technology Access Program

# Scope and Methodology

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To obtain information on the Pilot Technology Access Program (TAPP), we spoke with officials from the National Institute of Standards and Technology's (the Institute) Manufacturing Extension Partnership in Gaithersburg, Maryland, and the Associate Administrator from the Small Business Administration's (SBA) Small Business Development Centers (SBDC) in Washington, D.C. We reviewed the Institute's files on each of the six centers selected to implement TAPP. The centers are located in Maryland, Missouri, Oregon, Pennsylvania, and Wisconsin. We also reviewed TAPP annual and quarterly reports.

We interviewed Directors and Program Administrators from each of the six participating centers to obtain their perspectives on their programs and visited the programs in Maryland, Pennsylvania, and Wisconsin. We also spoke with SBDC counselors and clients at each center who participate in and use the program, whose names were provided by the centers. We obtained the Association of Small Business Development Center's perspective on TAPP from its legal representative as well as perspectives from officials from Washington State and Maine involved in technology access programs that are not funded by TAPP. We also obtained information on the Minnesota Project Outreach from a Teltech Resource Network Corporation (Teltech) official whose company operates the project and delivers the service.

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# Description of the Minnesota Project Outreach Program

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Minnesota Project Outreach was adopted in 1989 by the Minnesota Legislature, whose goal was to provide small manufacturing firms in Minnesota with access to technical and business knowledge so that these firms could be competitive in the global economy. The program targets up to 400 manufacturing firms for service directly. Eligibility is restricted to companies with annual sales of less than \$10 million. These firms have use of computer software enabling on demand access to Project Outreach services. Teltech was selected to develop and deliver this service. Teltech is a national supplier of technical and business knowledge, including its network of experts, literature search, and vendor locating services. During the first 2 years of service, the state provided \$4.4 million for Project Outreach.

According to a Teltech official, Teltech has learned several lessons thus far. First, small businesses attach little value to free services, with a consequence that they are not used well or at all. Thus, during the project's third year, the structure of the program was changed to require that all firms receiving service pay an initiation fee along with a fee each time the service was used. Second, clients want to be able to get their question answered quickly and efficiently with little loss of time and at affordable rates. Also, clients have a great need for marketing information to back up their technology idea or product. Last, the importance of providing a variety of important services through a single point of contact has been confirmed by clients. For example, sometimes clients request to speak with an expert and end up doing a patent search.

# Description of Six Programs

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## Maryland Technology Expert Network

The Maryland Technology Expert Network (TEN) contracts with Teltech,<sup>1</sup> a private information vendor, to provide online data base and expert network services to its small business clients. TEN provides these services at five regional subcenters throughout the state. SBDC counselors can conduct data base searches with clients or request that Teltech conduct such searches or clients can access the Teltech system directly. Teltech provides access to more than 1,000 worldwide data bases on public and private technology, services, and expertise and more than 10,000 experts in science and technology. The Maryland program targets Small Business Innovation Research phase one award recipients as clients for its services.

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## Missouri Technology Access Program

The Missouri Technology Access Program (MOTAP) is a complex support system in which small businesses can gain access to a wide range of technology and marketing information through caseworkers, technical and marketing specialists, experts, and data bases. MOTAP services can be accessed at 12 regional locations, 2 specialized centers, and a host office that are geographically distributed across the state. Clients can also use a toll free number for assistance.

Caseworkers identify client problems and refer them to the appropriate specialists. The program uses data bases such as Dialog, NASA Recon, and resources available through Teltech to conduct searches. The program is structured to provide fully integrated information and counseling efforts across a broad range of technical areas using primarily "in-house" expertise and by accessing state resources.

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## Oregon Technology Access Program

The Oregon Technology Access Program (OTAP) contracts with the Oregon Innovation Center (OIC)—a technology assistance organization—to conduct all data base searches and referrals to technical experts for clients. Clients can access OIC by calling a 1-800 number, using an electronic bulletin board or via public access sites, including 20 locations throughout Oregon. OIC provides access to data bases such as CompuServe and Dialog and Teltech's technical expert data bases. OTAP has targeted certain key industries and SBIR recipients as clients for its services.

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<sup>1</sup>Some of the SBDCs that currently use Teltech have indicated that its cost may result in them changing vendors after their contract has ended.

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## Technology Access Program for Texas

The Technology Access Program for Texas (TAP/Texas) contracted with an in-state resource, Texas Information Network System, to provide online data base searching capability and access to technical experts. Clients can also access Teltech, Knowledge Express, and NASA Midcontinent Technology Transfer Center data bases by contacting 56 locations throughout the state. In addition, clients can access these resources directly. The TAP/Texas program has targeted manufacturers and technology-oriented companies in different industries as clients for its services.

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## Wisconsin Technology Access Program

The Wisconsin Technology Access Program (wisTAP) contracts with Teltech, Dialog, TechSearch (at the engineering library at the University of Wisconsin at Madison), the Office of Industrial Research (at the University of Wisconsin at Milwaukee), and several other technical consultants to provide data base searches and technical counseling. SBDC counselors, at 10 subcenters throughout Wisconsin, conduct online data base searches for clients interactively (on-site) or remotely (telephone requests to wisTAP office or TechSearch). In addition, the Applied Population Laboratory can provide clients with demographic and economic data for specific geographic areas. wisTAP also provides clients with access to the Wisconsin Expert Network, which includes nearly 4,000 local technical experts.

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## Pennsylvania Business Intelligence Access System

The Business Intelligence Access System (BIAS) contracts with the Ben Franklin Technology Center's Business Information Center to provide online and other research training to counselors and assist clients and counselors on complex data base searches. Otherwise BIAS counselors access Telebase to conduct searches for clients at 14 locations throughout Pennsylvania. BIAS offers clients access to over 850 data bases that include information on trade and specialized industry newsletters, articles from business sections of local papers across the country, reports from financial analysts, and summaries of current university- and government-funded research projects. This system notifies the user of the cost of each search, thereby allowing counselors to gauge the cost of searches. SBDC contracts with PENNTAP, a statewide information and technology access program, to provide technical experts to interested clients.

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# Major Contributors to This Report

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