In 1990, Congress authorized the creation of a pilot Technology Access Program (TAP), to be administered jointly by the Small Business Administration and the National Institute of Standards and Technology. TAP, modelled substantially on a Minnesota state program, will subsidize access by small businesses to [1] a network of several thousand peer-recommended technical experts across the country and [2] interactive searching of technical and business literature databases. Preliminary evidence, from two surveys of random samples of companies that subscribe to the Minnesota service, indicate that this form of technology transfer is effective and could have a substantial positive impact on the productivity of small companies. If the pilot TAP program is successful, it could serve as the basis for a national technical-extension service.

On November 15, 1990, President Bush signed into law the Small Business Administration Reauthorization and Amendment Act of 1990. In the act, Congress created a pilot Technology Access Program (TAP), whose purpose is "to increase access by small businesses to on-line database services that provide technical and business information, and access to technical experts, in a wide range of technologies." TAP was championed in the House of Representatives by Rep. John J. LaFalce, Chairman of the Small Business Committee, Rep. Ron Wyden, and Rep. Sherwood Boehlert. The lead sponsor in the Senate was Sen. Rudy Boschwitz. Modelled substantially on a Minnesota state program, TAP will implement on a pilot basis what appears to be an innovative and effective form of technology transfer. It could have a substantial positive impact on the productivity of small companies.

In the first section of this article, I discuss the form of technology transfer embodied in TAP and how it differs from other transfer systems. Following that, I present preliminary evidence indicating the effectiveness of this method, describe the purpose of the legislation creating TAP and how the program will work once it begins operation in 1991, and in conclusion discuss unresolved questions that a pilot TAP program might answer.

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TAP'S SYSTEM OF TECHNOLOGY TRANSFER

TAP is modelled on Minnesota Project Outreach, in which the state government subsidizes access by small businesses to database services provided by a private contractor, Teltech, Inc. of Minneapolis. Teltech's business is technology transfer. Its clients, in addition to the small businesses participating in the outreach project, are mostly medium- and high-technology companies, both large and small, across the country, and include about one-third of the Fortune 500 companies. Teltech provides two services to its clients—the expert database and the interactive literature search. Since TAP would subsidize access by small businesses to these two services, provided by Teltech or another private contractor chosen on a competitive basis, in what follows I discuss the services as they have been provided by Teltech.

The Expert Database

The first service that Teltech offers its clients is access to an expert database comprising 10,000 technical experts which Teltech has recruited from universities, federal laboratories, and the ranks of retired industry scientists and engineers. Teltech identifies potential recruits primarily through peer recommendation, and, if they are willing to be recruited, interviews them. Final selection is based on a number of criteria, including specific area of expertise (the candidate must be a recognized expert in one or more technologies), broad area of technical
knowledge, the needs of Teltech's clients, the candidate's practical experience, and his or her ability to communicate. When a person is chosen to be an expert, his or her name, areas of expertise and research, and telephone number are entered into a database.

A small-business client with a technical question can gain access to the expert database with a personal computer with a modem. Typical questions include:

"What's causing this product failure?"
"Am I making the right technical decision?"
"What vendor can supply me with this part?"
"How can I design a better product-testing procedure?"

The client types in the specific technical area in question (e.g., "corrosion"), thereby pulling up on the computer screen a list of up to eight experts in that area, with descriptions of their areas of expertise and research, and telephone numbers. The client then chooses an expert (or experts) from the list, calls on the telephone, and asks the question. The expert, who is paid $75 for each telephone contact, is required by contract with Teltech to respond to the client within 24 hours of the initial phone message and to treat the client with respect, regardless of the client's level of technical sophistication.

An average client-expert conversation lasts about half an hour. If the client and the expert wish to enter into a consulting relationship, they may do so on their own terms. After each client-expert phone call, Teltech contacts the client business to find out whether it received a satisfactory answer to its question. The expert database is, in short, a way of putting a business with a technical question in touch with a leading authority in that technical field within 24 hours.

The expert database, by providing user-friendly access to experts, overcomes many of the barriers which currently deter businesses from taking advantage of outside expertise on their own. Normally, business wanting to tap outside expertise must either have pre-existing relationships or must conduct an extensive, time-consuming search for an expert. A typical business may not have the skills to make a competent selection, may encounter experts who have no interest in talking with the business or who ridicule the business' lack of technical expertise, or may have to wait days or weeks for an expert to return its phone call. The expert database service, by contrast, allows a business with a technical question or problem to find an expert immediately who is both qualified to answer the question and willing to respond quickly.

For similar reasons, Teltech's expert database appears to have several advantages over more traditional expert-referral services. Because these advantages have not been subject to systematic empirical investigation, I present them as plausible hypotheses rather than as verified conclusions:

First, Teltech's practice of pre-selecting the experts and paying them probably makes Teltech's system more user-friendly than traditional referral services, which are usually not as careful about pre-selecting experts and generally do not pay them. If the experts are not carefully pre-selected for their expertise and willingness to engage in technology transfer, a business may need to undertake its own selection process in order to find an appropriate expert. As described earlier, that process can require repeated phone conversations and long delays, and carries no guarantee of success. A typical business may not have the skills to make a competent selection and may not be willing to incur the necessary time and cost. Furthermore, if the expert is not paid for his or her time, there is no way to ensure that phone messages will be returned in a timely fashion or that the business will be treated with respect.

A second advantage is the system's comprehensiveness. Whereas traditional referral services usually draw their experts from one or perhaps several institutions (particular universities or federal laboratories), Teltech's database contains 10,000 experts from institutions all over the country encompassing virtually all areas of technology. A business is more likely to find an expert on its particular problem in such a comprehensive database.

A third possible advantage of Teltech's system is that it facilitates direct contact between the business and the expert, with no intermediary. Many technology-transfer systems have one or more intermediaries, someone who listens to the business' request and then locates an expert. The Federal Laboratory Consortium, for example, refers a business needing technical assistance to technology-transfer personnel at a federal laboratory, who in turn link the business with an expert at the laboratory. In some technology-transfer systems, the intermediary puts the business directly in touch with the expert; in others, the intermediary discusses the business' problem with the expert and then reports back to the business.

A disadvantage of systems that use intermediaries is that much information may be lost in the chain of communication. The intermediary may not fully understand the business' problem and thus may not choose the most appropriate expert. In addition, the intermediary may not relay the problem in all its complexity to the expert. If the expert then