

ACCESSING THE RESOURCES OF THE NATIONAL
TECHNICAL INFORMATION SERVICE

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The National Technical Information Service (NTIS) is an unusual agency of the U.S. Government. It is national in term of its primary user community, it is Federal in terms of the content of the materials it makes available, and it is unique in the U.S. Government in terms of its mission.

Basically, we collect, organize, and market technical information and intellectual properties generated by the U.S. Government in the field of science and technology. This function is intended primarily to: (1) improve the efficiency and effectiveness of the U.S. research and development enterprise, and (2) help increase productivity and innovation in the United States.

Historical Background

It wasn't always this way. NTIS predecessor organizations go back 39 years to 1945 when President Truman signed an Executive Order establishing the "Publications Board" to make available Government research reports that had been withheld because of their security classification. Soon thereafter the Publication Board's mission was extended to include the handling of captured World War II scientific and industrial information.

At that time, Congress recognized that it was the responsibility of the Federal Government to set up and maintain a national clearinghouse for scientific and technical information. Public Law 776, enacted in 1950, directed the Department of Commerce to operate this clearinghouse.

In 1964, President Lyndon B. Johnson announced that he accepted the recommendations of the Federal Council for Science and Technology to formalize the "clearinghouse" function.

In 1970, the Department of Commerce established the "National Technical Information Service" as a primary operating unit of the Department, with full authority to continue functioning as a clearinghouse for scientific, technical, and engineering information, as well as assisting other Commerce operating units in the dissemination of business and statistical information.

Current NTIS Functions

NTIS is a relatively small Government organization. It has less than 400 employees. The organization is also unusual in that it pays its own way; NTIS prices its products and services to fully recover its costs of providing them.

The basic NTIS product is the scientific and technical re-

search report produced by or for the Federal Government. The reports describe the results of most of the U.S. Government's research, development, testing, and evaluation programs. Over \$40 billion was invested by the Government in such programs in 1984.

When Government agencies, their contractors, and grantees forward their reports to NTIS, they are cataloged, indexed, abstracted into a computer system, and microfilmed for an archival system. These indexes are maintained under computer control and the bibliographic data base can be accessed by the public, either directly or through any one of the major commercial online information processors.

NTIS' coverage is very broad and contains technical information on almost any conceivable subject. The organization was founded to provide bibliographic control and physical availability for a class of documents rather than for a subject area; therefore, NTIS is not only an archive but also a supplier of useful technical products and services. In order to meet Congress' requirement to be self-supporting NTIS supplies materials at a price that will recover their cost of processing.

Technical Information Products and Services

The NTIS data base includes acquisitions from the National Aeronautics and Space Administration (NASA), the Departments of Defense, Energy, Commerce, Health and Human Services, and more than 200 other Federal agencies. Each year some 60,000 reports are added from these agencies, along with about 15,000 reports from foreign agencies such as the European Space Agency and the National Aerospace Laboratory of Netherlands. More than 1.4 million different technical publications are now available, none of which is ever out of print at NTIS. In 1983 we sold about six million copies of reports to some 100,000 customers in the United States and abroad.

A comprehensive journal, Government Reports Announcements and Index (GRA&I), is published biweekly to identify some 2,800 reports entered into the data base during the previous 2 weeks. This journal is the basic written record of the NTIS collection used by librarians, technical information specialists and others requiring all the bibliographic summaries in a single volume. Since this journal is sorted into major subject fields it provides easy browsing for earth science and other disciplines. A hard-bound cumulative index is also produced at the end of each year to assist those using the journals to search the year's 75,000 new reports.

From the hundreds of new reports collected and processed daily and from the bibliographic records produced, a number of "current awareness" periodicals are published. Weekly newsletters provide abstracts of significant new reports in

28 different technical subjects. Several of these concentrate on serving photogrammetry and remote sensing professionals:

- o Natural Resources and Earth Sciences
- o Environmental Pollution and Control
- o Ocean Technology and Engineering
- o NASA Earth Resources Survey Program

Many Federal agencies and some non-profit organizations utilize NTIS as a central public source for their periodicals. More than 20,000 subscribers buy copies of 70 different periodicals and standing order services. These periodicals include:

- o Selected Water Resources Abstracts (from the Department of the Interior)
- o Scientific Event Alert Network (from the Smithsonian Institution)
- o Special Bibliography with Indexes of all Environmental Protection Agency Reports
- o Earth Resources. A Continuing Bibliography with Indexes (from the National Aeronautics and Space Administration)

NTIS also has a specialized packaging and distribution service called Selected Research in Microfiche (SRIM) that automatically provides subscribers with copies of research reports on microfiche in special interest profiles they select. Subject specialists, at NTIS, help subscribers choose a profile from 500 different subject categories and 200,000 unique descriptive terms. For example, if your area of interest were "Natural Resource Management and Surveys" you would receive the complete text of about 400 reports over a 12-month period, at about one-fourth the cost if those reports were purchased individually. The reports are sorted automatically by our computer and distributed every two weeks as a standing order service. SRIM service includes, as an option, a quarterly index that is tailored exactly to your own subject profile. The quarterly index to the selected microfiche is cumulated throughout the year and is sorted for access six different ways: 1) Subject, 2) Personal Author, 3) Corporate Author, 4) Contract/Grant Number, 5) Accession/Report Number, and 6) Title.

As mentioned earlier, the major commercial information processing systems, Dialog Information Services, System Development Corporation (SDC) Search Service and Bibliographic Retrieval Service (BRS) provide online access to the NTIS data base to the general public. In special cases, NTIS also provides customized on-line searching of its data base for those instances where the subject matter requires a very precise strategy or when the customer does not have a terminal to make direct access. So when a researcher, design engineer, biologist, economist, or communications expert requests a search by NTIS, the subject specialist responsible for indexing that type of information can develop a search strategy to find relevant documents quickly and precisely. The analyst also knows

if NTIS does not have what the researcher is looking for and will, in those cases, reference other more specialized sources of information.

These same subject specialists also produce Published Searches and other bibliographic directories, using on-line searches of the NTIS data base and other closely related data bases such as those from Engineering Information, Inc., American Petroleum Institute, Department of Energy, Information Services for Physics and Engineering Communities (INSPEC), and the Institute of Paper Chemistry. Published Searches consist of abstracts covering very specific subjects, such as Photogrammetry: Equipment and Image, Processing from the INSPEC Data Base and Remote Sensing Applied to Urban and Regional Planning from the NTIS Data Base, produced in response to the needs of technical experts. More than 3,000 Published Searches have been developed and are updated each year. The obvious advantage is that Published Searches are stored in the computer and therefore, can be retrieved and distributed to customers quickly and at a reasonable price.

New Initiatives

Several new programs have recently been developed at NTIS to assist innovators and entrepreneurs by improving access and expediting transfer of technology from government laboratories to private sector organizations and State and local governments.

The first program focuses on a new office established at NTIS, the Center for Utilization of Federal Technology (CUFT). The Center works with Federal agencies and their laboratories to select and highlight new technologies with potential commercial or industrial applications. The thrust of the CUFT program is to: 1) encourage Federal agency efforts in technology evaluation 2) improve online access to this selected technology, 3) promote this Federal laboratory technology to industry, and 4) encourage the licensing of U.S. Government-owned inventions. Examples of Patent Applications available for licensing include "Method and Apparatus for Delta K Synthetic Aperature Radar Measurement of Ocean Current" and a "Photo-Reconnaissance System."

Another new emphasis for NTIS, covers acquisition and distribution of government-produced computer programs and computerized data bases (both bibliographic and statistical).

There has been a phenomenal increase in both the number and use of machine-readable data bases developed by the Government. At the same time, many present and potential users are finding that

machine-readable data gathered, organized, and presented for one purpose can be reorganized and reformatted and used just as effectively for other purposes. They are finding that several data bases, or parts of different data bases, can be merged into more comprehensive collections of greater value, that will permit extensive new and different analyses and correlations.

Primarily, we provide wholesaler-type support to information vendors, or other customers, who will refine the data and programs according to their customers needs.

Currently there are four phases to this program:

- 1) Access is provided to bibliographic data bases produced by Federal agencies. Lease agreements have been concluded for release of the following data bases:

- Selected Water Resources Abstracts of Department of the Interior
- Summary of Projects Completed of the National Science Foundation
- Energy Data Base of Department of Energy
- Federal Research in Progress (FEDRIP)

- 2) Some 2,000 machine-readable Federal statistical data bases have been cataloged and indexed.

- 3) A current catalog of Federal computer software has been published and will be updated each year.

Recent acquisitions for the Data Base Services Program include:

- o Photogrammetry Software: A Package for Everyone
- o Interactive Access to Photogrammetric Records with a Small Computer

International Sharing

Like most organizations, NTIS cannot be all things to all people. We do, however, concentrate on our mission of serving U.S. industry and business, universities, and Federal, State, and local governments by providing improved access to all types of scientific and technical information.

This leads to concerns about the one-way flow of U.S. technical information to foreign countries. Ours is a free and open democratic society and, as a matter of national policy, we as Americans openly share our scientific information in the hope that its application will help improve the quality of life for all mankind.

The United States encourages the full international exchange of scientific and technical information. While it is true that there has been inflow into the U.S. of scientific infor-

mation, usually through the medium of the scientific journals, the inflow of foreign developed technological information into the U.S. has been small and, in some areas of technology, there has been no inflow. There are many reasons why technological information is not flowing into the United States. In fact, for many years U.S. business and industry were not particularly interested in knowing about or using foreign technology. This parochial attitude has change as more and more foreign products have claimed an increasing share of the U.S. market and, in some cases even the dominant share. At the same time, U.S. products and services have not fared very well in foreign markets. U.S. industry is now becoming increasingly interested in foreign technology and a new NTIS program of foreign technology acquisition intends to be responsive to this need.

The Foreign Technology Acquisition Program provides extensive foreign technical literature for the NTIS collection in order to make it available to business and industry. This is accomplished primarily by locating, acquiring and announcing selected foreign technical literature. An added feature includes translation of the most important items and making the translations widely and easily available.

Early in 1983, NTIS introduced a new Abstract Newsletter, Foreign Technology. This weekly newsletter covers new techniques and research applications from highly industrial countries. These acquisitions join the 300,000 foreign technical reports already in the NTIS collection. A few foreign technology reports included in this newsletter and relevant to this conference are:

- o Single Lens Reflex Camera System with Dynamic Lens Measurements and Electronic Guiding Automatic Diaphragm Mechanism, acquired from West Germany.
- o Selective Optical Coatings on Plastic Sheet for Inexpensive Radiation Insulation of Visible Windows, from the United Kingdom.

A partial listing of countries from which NTIS has already acquired valuable technical information includes: Australia, Canada, Denmark, Finland, France, Germany, Ireland, Japan, Netherlands, Norway, South Africa, Sweden, and the United Kingdom.

The value of the NTIS centralized data base to its beneficiaries is difficult to exaggerate. For the researcher or the design engineer it is a source of information that greatly reduces the possibility of "reinventing the wheel"; for the manager it can go a long way in helping to solve identified problems, and for the technical information specialist it is a unique guide to unpublished government technical reports.