

# THE MICROCOMPUTER LINK ONLINE DATABASE SERVICES AND LOCAL ELECTRONIC LIBRARIES

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Since the late 1960s, it has been possible to search computer-stored data — "databases" — at a terminal distant from the computer operated by the online service organization. The data bases relate to a variety of topics: science, technology, health, business, economics, and everyday life. The user makes contact with the computer through a telecommunications network and, using the particular query language of the system involved, is able to search for and receive relevant numeric data, literature citations, abstracts, and/or, in some cases, the full text of documents.

The online database services are a phenomenon of the 1970s, but their growth and acceptance were based on technological developments of the 1960s, the most important of which allowed publishers to capture and store various kinds of data in computer-readable form, to facilitate the typesetting of printed publications, and to analyze and format large amounts of numeric data. The other things that were needed for the development of online database services were: (1) low-cost computer power; (2) low-cost disk-storage devices, capable of storing millions of citations and abstracts; (3) low-cost telecommunications, to link the user to the computer; and (4) fast, reliable computer terminals.

By the early 1970s, these requirements had been met well enough to support the development of the online database service business. Today, there are over 240 online systems offering more than 1,600 online databases to their users.

*Growth of Online Databases.* The growth in the number of online databases can be seen in Exhibit 1, which shows the number of online databases identified and described in the quarterly publication, *Directory of Online Databases*. (See Cuadra Associates, Inc., *Directory of Online Databases*, Volume 4, No. 1. Santa Monica, CA, Cuadra Associates, Inc., Spring 1983.)

This growth reflects the increasing capacity to collect data in computer-readable form and to convert those data into online databases. Almost all major weekly news magazines in the United States are composed by computer, as are a great many journals. This means that there will be an ever-increasing flow of information that can readily be turned into online databases. If the growth in the 1980s is anything like what we have witnessed to date, there could be over 5,000 online databases available for access by the middle of the 1990s.

There are two major types of online databases. *Reference* databases point the user to something else. There are two subtypes of reference databases. *Bibliographic* databases contain citations and abstracts that point the user to a document. *Referral* databases point the user to a named person, a project, or something other than a document. Examples of referral databases, which are not as well-

understood as bibliographic databases, include:

*AMERICAN MEN AND WOMEN OF SCIENCE*, which contains biographies;

*TECHNOTE*, which refers users to a person or an organization from which a specific kind of technology can be bought or licensed; and

*TECH-NET*, which contains industry standards, specifications, and industrial products.

*Source* databases do not point to something else; they provide the actual information sought. There are several subtypes of source databases: *Numeric* databases are a subtype that contain numeric values from original surveys, historical time series, or data that have been statistically manipulated. Most of these databases are found in the areas of business, economics, finance, and the social sciences. Examples include:

*U.S. IRON AND STEEL IMPORTS*, which contains historical time series on the quantity and value of United States imports of iron and steel; and

*MERGERS AND ACQUISITIONS*, which contains information on corporate mergers, acquisitions, and tender and exchange offers.

*Textual-numeric* databases contain records with fields of both textual and numeric information. Some examples of textual-numeric databases that have recently become available include:

*SPECTRUM OWNERSHIP PROFILES*, which provides information on the ownership of publicly held United States companies;

*GML*, which contains information on computer peripheral product models;

*THERMODATA*, which contains thermodynamic data for chemical elements, components, and alloys in minerals; and

*IRSS*, which contains information on infrared spectra.

*Full-text* databases contain records of the complete text of an item or some primary source material. Many of these databases can be found in the areas of news, government, and the law. Examples of full-text databases that have recently become available include:

*CHEMLAW*, which contains chemical regulations from the United States Code of Federal Regulations;

*ENCYCLOPAEDIA BRITANNICA*, which contains the information corresponding to the printed publication, the *Encyclopaedia Britannica*; and

*STATUTORY ORDERS AND REGULATIONS*, which contains Canadian federal regulations that are currently in force.

The past three years have seen the emergence of another type of database, which can probably be best described as "consumer" databases — databases that are also of interest to individuals in their nonprofessional capacity. Examples of such databases include:

*DATABUCK\$*, which is a discount shopping service; and  
*BILLBOARD INFORMATION NETWORK*, which is a report-

ing system for the music industry of playlist charts from United States radio stations.

Altogether, the use of the various types of databases described above now constitutes a billion-dollar business involving over 800 database producers (or "information providers") and online service companies, as well as manufacturers of terminals and telecommunications equipment.

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