Gale Directory of Databases
V.1 (A)

GALE

DIRECTORY

OF

DATABASES

Volume 1: Online Databases

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Industry Analysis by Martha E. Williams

The Gale Group

GALE

DIRECTORY

OF

DATABASES

Highlights

Formed by the merger of Gale's *Computer-Readable Databases* and Cuadra/Gale's *Directory of Online Databases* and *Directory of Portable Databases*, the *Gale Directory of Databases* continues the comprehensive coverage of the electronic database industry established by its predecessors. This March 1999 issue contains contact and descriptive information on more than 12,700 databases, more than 3600 producers, and more than 2400 online services and vendors/distributors of database products—easily making it the most complete guide to the electronic database industry world-wide.

Consolidation Shaped by Advisory Board

The *Directory* was developed in conjunction with an advisory board of prominent information industry professionals to ensure that this consolidation would meet user needs. The *Directory* combines the best features of its predecessors, incorporating the easy-to-use format of the Cuadra/Gale directories and the detailed coverage of *Computer-Readable Databases*. Features include:

- Comprehensive scope
- Producer contact information included in database entries
- Easy-to-use entry format
- Detailed description of database subject coverage
- New and revised entries highlighted
- Comprehensive producer and online service/vendor/distributor listings

Two Volumes Organized by Medium

The *Gale Directory of Databases* is published in two convenient volumes, which are revised and updated every six months:

Volume 1: Online Databases. Profiles nearly 5500 online databases made publicly available from the producer or an online service.

Volume 2: CD-ROM, Diskette, Magnetic Tape, Handheld, and Batch Access Database Products. Profiles more than 7200 database products offered in "portable" form and through batch processing.

Arrangement and Indexes

Each volume of the *Gale Directory of Databases* contains three sections of descriptive entries and three indexes:

Online Databases (Vol. 1) and **Product Descriptions** (Vol. 2): Features complete descriptions of electronic database products.

Database Producers: Includes contact information for database producers and a list of products they produce.

Online Services (Vol. 1) and **Vendors/Distributors** (Vol. 2): Provides contact information for vendors and distributors, conditions of use, and a list of the products they offer.

Geographic Index: Lists the database producers, online services, and vendors/distributors by headquarters country.

Subject Index: Classifies products within more than 1800 specific subject terms and cross-references.

Master Index: Lists all databases and related product and organization names in a single alphabetic sequence.

Gale Directory of Databases Available Electronically

The *Directory* is available on a subscription basis through GaleNet, Gale's online information resource that features an easy-to-use end-user interface, powerful search capabilities, and ease of access through the World Wide Web. For more information call 800-877-GALE.

The *Directory* is also available online through ORBIT•QUESTEL and DataStar, replacing the Cuadra file on these services; additionally, the *Directory* is accessible through DIALOG. A CD-ROM version of the *Directory* is available from SilverPlatter Information, Inc. Diskette and magnetic tape versions of *GDD* are available from The Gale Group.

Acknowledgments

The editors would like to thank the numerous users of Gale's *Computer-Readable Databases* and Cuadra/Gale's *Directory of Online Databases* and *Directory of Portable Databases*, who shared their suggestions and comments with us. Their assistance enabled us to determine that the needs of our users would best be served by the merger of these three titles into the *Gale Directory of Databases*.

Gale Directory of Databases Advisory Board

An advisory board comprising information industry, business, and library professionals representing all types of organizations and the electronic information industry media was formed to shape this publication. Members of the Advisory Board completed a detailed survey covering scope, organization, entry content, indexing, and other issues, and made themselves available for follow-up questions.

The editors would like to extend sincere thanks to the following members of the *Gale Directory of Databases* Advisory Board for their guidance, recommendations, and suggestions during the ongoing development of this title:

Introduction

The *Gale Directory of Databases, Volume 1: Online Databases* continues the comprehensive coverage for which its predecessors—Gale's *Computer-Readable Databases* and Cuadra/Gale's *Directory of Online Databases*—were known. The *Directory* provides detailed descriptions of databases available online throughout the world. This March 1999 issue provides descriptive and contact information for nearly 5500 databases of all types and in all subject areas produced worldwide that:

- Contain a collection of data or a body of information that is organized for rapid retrieval via a computer

- Are available online directly from the producer or through a third-party online service

- Are made publicly available

Advisory Board Helps Shape the Directory

An advisory board of prominent information industry, business, and library professionals was selected to help the *Directory's* editorial staff develop this publication. The board has provided ongoing recommendations on scope, content, arrangement, indexing, and frequency to ensure that user needs are met by the *Directory*. Consult the "Acknowledgments" on page vii for a complete list of advisory board members.

Directory Combines Best Features of Predecessors

The *Gale Directory of Databases, Volume 1: Online Databases* combines the best features of *Computer-Readable Databases* and *Directory of Online Databases*. Users of either of the two former publications will note that the *Directory* features the easy-to-read format of the Cuadra/Gale database directories and the comprehensive coverage of *Computer-Readable Databases*. Highlights include:

Producer contact information listed within database entries. The producer address, telephone number, toll-free number, fax number, email address, URL, and specific contact information are included in the entry to provide one-stop access to information on the database producers.

Database entries use easy-to-read format. For easy access to specific pieces of information within a database entry, rubrics have been organized as follows:

- organization information
- descriptive information
- accessibility information

Detailed "Subject Coverage" rubric. This paragraph provides a detailed look at the subject coverage of a database based on available producer or vendor information.

"Online Availability" rubric includes rates. Entries include database-specific online charges, providing all the necessary information to make the choice between databases or online services. This rubric now also indicates when a database is removed from an online service.

Symbols indicate "New" and "Changed" status of database entries. A closed star (★) indicates that the database entry appears in the *Directory* for the first time. A closed triangle (▲) indicates that the database has undergone significant changes in one of the following items: name, producer, scope, language, availability, or alternate formats.

Comprehensive Database Producers and Online Services listings. Entries in these two sections now include, if appropriate, the former name of the organization and branch office contact information, offering access to all information on producers and vendors in a single place. Additionally, entries in the Online Services section now

include vendor-specific conditions of access, such as annual password fees, subscription packages, or restrictions.

Catchwords facilitate access. Catchwords have been added to the top of each page in the outer corner inside the guide number to facilitate locating a specific database listing by name in the Online Databases, Database Producers, or Online Services sections.

Consult "Using the Directory" following this introduction for more detailed information on these and other features of the *Gale Directory of Databases, Volume 1: Online Databases*.

Chart Tracks Continued Industry Growth

The overall growth in the online database industry over the past 21 years can be traced through the statistics shown in the chart below. As a result of an ongoing editorial initiative to maintain current, accurate information, the March 1999 edition of the Directory reflects a decrease in the number of included databases. Efforts to replace these listings with new databases will result in a significant increase in entries in future editions. The retrospective statistics are based on the number of entries published in the former *Directory of Online Databases* since its inception in 1979. They have been modified to exclude distinctly named files within database entries.

Year	Number of Databases	Number of Producers	Number of Online Services
1979	300	221	59
1980	411	269	71
1981	641	411	135
1982	919	612	189
1983	1360	820	244
1984	1807	1069	327
1985	2247	1316	414
1986	2369	1379	454
1987	2823	1568	528
1988	3135	1685	555
1989	3535	1813	600
1990	3943	1950	645
1991	4332	2120	718
1992	4447	2033	772
1993	5183	2204	818
1994	5300	2232	822
1995	5342	2202	828
1996	5511	2255	860
1997	6592	2404	1093
1998	5561	2124	1070
1999	5497	2107	1076

For further statistical and trend analysis of the electronic database industry as a whole, consult Martha Williams' "The State of Databases Today: 1999." The analysis appears following the "Using the Directory" section.

Arrangement and Indexes

The *Directory* is arranged into three sections containing descriptive entries and three indexes that speed access to the listings sections:

The **Online Databases** section covers nearly 5500 databases, including 110 new databases, arranged alphabetically by database name. Also covered are 217 databases that are defunct or no longer publicly available.

The **Database Producers** section lists contact information for, and the databases organized or compiled by, the 2107 organizations identified in the Online Databases section.

The **Online Services** section lists contact information for, and the databases offered by, the 1076 vendors and distributors of the databases profiled in the Online Databases

section.

The **Geographic Index** lists both database producers and online services by alphabetical country headings.

The **Subject Index** classifies the databases under more than 1800 subject terms and cross-references.

The **Master Index** is an alphabetical listing of all databases and organizations covered in the Online Databases, Database Producers, and Online Services sections, including current, former, and alternate names and acronyms. The index also cites unique database file labels and the titles of corresponding information sources and includes inversions on significant keywords appearing in the product names.

Method of Compilation

Each issue of the *Gale Directory of Databases, Volume 1: Online Databases* represents the complete revision and updating of entries that appeared in the previous issue. Information for both new and revised entries is obtained from materials provided by the database producers and online services themselves.

Available in Electronic Formats

Diskette/Magnetic Tape. *Gale Directory of Databases* is available for licensing on magnetic tape or diskette in a fielded format. The complete database may be ordered. The database is available for internal data processing and nonpublishing purposes only. For more information, call 800-877-GALE.

Online. *GDD* is available online as File GDDB through The Dialog Corporation's DataStar service and as File GALE through ORBIT*QUESTEL. *GDD* (along with *Gale Guide to Internet Databases*) is accessible as File 230 through The Dialog Corporation's DIALOG service. For more information, contact The Dialog Corporation, DataStar, Haymarket House, 1 Oxendon St., London SW1Y 4EE, England, phone: 171 9307646; ORBIT*QUESTEL, 8000 Westpark Dr., McLean, VA 22102, phone: (703)442-0900, toll-free: 800-456-7248; or The Dialog Corporation, Dialog, 2440 El Camino Real, Mountain View, CA 94040, phone: (650)254-7000, toll-free: 800-3-DIALOG.

GaleNet. *Gale Directory of Databases* is available on a subscription basis through GaleNet, Gale's online information resource that features an easy-to-use end-user interface, powerful search capabilities, and ease of access through the World-Wide Web. For more information, call 800-877-GALE.

CD-ROM. *GDD* is available on CD-ROM from SilverPlatter Information, Inc. The annual subscription includes the compact disc and six-month update disc, retrieval software, and user documentation. For more information, contact SilverPlatter Information, Inc., 100 River Ridge Dr., Norwood, MA 02062-5043, phone: (781)769-2599, toll-free: 800-343-0064.

GDD is also available as part of the Gale's Ready Reference Shelf on CD-ROM and through GaleNet.

Comments and Suggestions Welcome

Users are invited to send the editor any information for online databases not currently listed as well as additional information on databases listed in the *Directory*. All editorial questions and comments should be directed to:

> *Gale Directory of Databases*
> The Gale Group
> 27500 Drake Rd.
> Farmington Hills, MI 48331-3535
> Phone: (248) 699-4253
> Toll-free: 800-347-GALE
> Fax: (248) 699-8069
> Email: lisa.kumar@gale.com

Lisa Kumar

Using the Directory

Entries in the *Gale Directory of Databases, Volume 1: Online Databases* are arranged in three text sections:

- Online Databases
- Database Producers
- Online Services

Access to entries in these sections is facilitated by three indexes:

- Geographic Index
- Subject Index
- Master Index

Each of the text sections and indexes is explained below.

Online Databases

Entries in the Online Databases section are arranged alphabetically by database name. Each entry contains a description of the database and provides details about its accessibility through one or more online services.

An entry in the Online Database section of the *Directory* may contain up to 20 items of information, as shown in the following sample entry. Each numbered item in the sample is explained in the corresponding numbered paragraph that follows.

---

1 . **419** . **2** **BioLine (BL)**   **3**   ★

4 Biological Information, Inc.   Phone: (312) 555-1234
200 Main St.   800-BIOLINE
Chicago, IL 60606   Fax: (312) 555-1236

5 **Contact:** BioLine Customer Service.
Email: bioline@net.com
URL: http://www.bioinfo.com
6 **Coproducer:** BioReSearch, Inc.
7 **Formerly Produced By:** BioMed Research Ltd.
8 **Alternate Database Name:** BioLit Online.
9 **Former Database Name:** BiologyLine.
10 **Type:** Bibliographic. **11** **Content:** Contains more than 457,000 citations, with abstracts, to the world's periodical and other published literature dealing with all fields of the biomedical sciences. Covers periodicals, journals, books, conference proceedings, technical reports, and government documents. Corresponds to *BioLit.*
12 **Subject Coverage:** Biological sciences, including biochemistry, biotechnology, genetics, immunology, microbiology, and toxicology. **13** **Lang.:** English. **14** **Geo. Coverage:** International. **15** **Year First Available:** 1975. **16** **Time Span:** 1972 to date. **17** **Updating:** 1250 records a month.
18 **Online Availablility:**
• *Data-Star* (BIOL: $103.76/connect hour, 56 cents/full record displayed online, 62 cents/full record printed offline).
• *DIALOG Information Services, Inc.* (888: $88/connect hour, 45 cents/full record displayed online, 55 cents/full record printed offline).
• *ORBIT•QUESTEL* (dropped).
19 **Also Online As Part Of:** Biology and Biochemistry Abstracts.
20 **Alt. Formats:** *CD-ROM* (BioDisc).
Diskette (BioLine PC).

Parts of an Entry

1 **Entry Number.** A sequential entry number precedes each entry and is used in the indexes to refer to an entry. To facilitate the location of an entry, the first entry number on each left-hand page and the last entry number on each right-hand page are provided at the top outer corner of the pages.

2 **Database Name and Acronym.** The official database name and acronym (if applicable). May include a trademark, registered, or service mark symbol.

3 **New or Revised Symbol.** If a listing is appearing in the *Directory* for the first time, a closed star (★) appears at the end of the database name at the right margin. If a listing has undergone significant changes since the last issue, a closed triangle (▲) appears at the end of the database name at the right margin. This symbol appears when a significant change is made to any of the following pieces of information: database name; producer name, address, or contact numbers; scope of database content; language; online availability; and alternate formats. In addition, the triangle is used to indicate when a database's status has changed from "active" to "no longer maintained" or "no longer publicly available."

4 **Producer Name, Address, and Telephone Numbers.** The primary organization or individual responsible for gathering or organizing the information in the database, along with their address, telephone number, toll-free number, and fax number. For a complete list of databases offered by a producer, consult the Database Producers section of the *Directory*.

5 **Contact.** The name of the individual or department within the producing organization responsible for providing information about the database. Includes electronic mail addresses and URLs when available.

6 **Coproducer.** The name(s) of the organization(s) that coproduce the database. For complete address and contact information, consult the Database Producer section of the *Directory*.

7 **Formerly Produced By.** The name(s) of the organization(s) that formerly produced the database.

8 **Alternate Database Name.** The alternate name(s) and acronym(s) by which the database is known; for non-English language databases, provides the official English-language name and acronym of a database (if applicable).

9 **Former Database Name.** The former name(s) and acronym(s) by which the database was known.

10 **Type.** The type(s) of information provided in the database, classified by one or more of these categories:

Bibliographic. Citations to printed literature (i.e. journal articles, reports, patents, dissertations, conference proceedings, books, newspaper items, etc.); may include abstracts.

Bulletin board. A forum for the exchange of information and correspondence, usually on a given topic, between users.

Dictionary. A collection of word definitions, a list of terms particular to a specific discipline or subject, or a thesaurus.

Directory. Contact information, often including descriptive profiles, for persons, organizations, publications, or other entities.

Full-text. Original publications (i.e. journal articles, reports, newspapers, legal materials, etc.) or original writings stored in a form that enables individual words to be used in retrieval.

Image. A collection of graphic materials, including graphic design aids, photographs, charts, figures, illustrations, representations of works of art, maps, or text in image form.

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Numeric. A collection of numeric data, including stock quotations, prices, and other numeric data. Properties, statistical, and time-series data are excluded.

Properties. Numeric data representing the characteristics of a chemical or physical entity.

Software. A library of computer programs, including freeware and shareware, that can be downloaded for local use.

Statistical. A collection of quantitative, numeric data.

Time series. Original survey data and/or statistically manipulated representations of data, frequently organized to represent measurements (e.g., tons or dollars) over time for a given variable (e.g., production or shipment statistics for a given product or industry).

Transactional. Information on consumer goods, the stock market, and other entities for which the user may place orders electronically.

11 **Content.** A description of the database's scope and coverage. The original source(s) of the information, including references to corresponding products in print media, is also provided when known. (Corresponding products in electronic media are listed under the Alternate Electronic Formats rubric—see paragraph 20 below.)

12 **Subject Coverage.** The subjects that characterize the content, form, or potential use of the information contained in the database in as much detail as provided by the producer or online service.

13 **Language.** The language(s) in which the database is maintained and/or searched.

14 **Geographic Coverage.** The geographic area to which the information applies or from which it was derived.

15 **Year First Available.** The year in which the database was first made publicly available online.

16 **Time Span.** The time period covered by the data.

17 **Updating.** The frequency with which new or replacement data are provided for all or some part of the database.

18 **Online Availability.** The organization(s) through which the database is accessible online. Includes file labels and rates information. Rates provided represent maximum rates charged by the vendor according to the most current price lists available. Consult the Online Services section of the *Directory* for online service addresses, contact information, conditions of access, networks and gateways, and a complete list of databases offered.

19 **Also Online As Part Of.** The database(s) through which the profiled database is made available in addition to the online services already listed. If the profiled database is not offered as an individual file on any online service, but only as part of a larger database, the **Online As Part Of** rubric appears instead.

20 **Alternate Electronic Formats.** The medium and name of product that correspond to a given online database. Each listed product has a separate entry in the *Gale Directory of Databases, Volume 2: CD-ROM, Diskette, Magnetic Tape, Handheld, and Batch Access Database Products*. When the online database is available only as part of a broader or "umbrella" database product, only the medium is indicated.

In addition to the above standard items of information appearing in an entry, a **Special Note** paragraph is used to indicate that a database is no longer maintained or publicly available, or that special circumstances concerning the online availability of the database exist. Entries containing a special note appear in the text section for two issues.

Database Producers

The Database Producers section lists the organizations or individuals that are responsible for the gathering and organizing of the information used in the databases listed in the Online Databases section. Each entry is preceded by an entry number, which is used in the Master and Geographic indexes to refer to that entry. The numbering sequence continues from the Online Databases section.

Entries in this section provide the name, address, and contact numbers of each database producer and a list of the databases it produces. When applicable, former organization names and branch office information are also provided. The section is arranged alphabetically by producer name; database names are arranged alphabetically following each producer name and address. The number following each named database refers to the sequential entry number assigned to that database's entry in the Online Databases section.

Online Services

The Online Services section lists the organizations through which the databases covered in the Online Databases section are accessible online. Each entry is preceded by an entry number, which is used in the Master and Geographic indexes to refer to that entry. The numbering sequence continues from the Database Producers section.

Entries in this section are arranged alphabetically by organization name and include the address and contact numbers for each, followed by an alphabetical list of databases available. When applicable, former organization name, branch office information, conditions of access, and networks and gateways are also provided. The number following each named database refers to the sequential entry number assigned to that database's entry in the Online Databases section.

Indexes

The *Gale Directory of Databases, Volume 1: Online Databases* contains a Geographic Index, a Subject Index, and a Master Index. The indexes refer to listings by entry numbers in the sections, rather than the page numbers on which the entries appear.

Geographic Index. The Geographic Index arranges each database producer and online service by the country in which it is located. Citations are arranged alphabetically by country and listed alphabetically by organization name. Each citation provides an organization's name and its corresponding entry number(s) in the Database Producers and/or Online Services sections, as appropriate.

Subject Index. The Subject Index provides controlled subject access to entries in the Online Databases section. It contains more than 1200 alphabetically listed subject headings; database names and entry numbers are listed alphabetically under one or more relevant headings. More than 600 cross-references are also included.

Citations in the Subject Index include the database name and, within brackets, information on the database type categories in which the database is classified. The type categories are represented by the following codes, as indicated in the legend that appears on the bottom of each right-hand page:

B = Bibliographic
D = Dictionary
F = Full-text
I = Image
L = Bulletin board
N = Numeric
P = Properties
R = Directory
S = Statistical
T = Time series
W = Software
X = Transactional

Master Index: The Master Index is an alphabetical listing of all databases and organizations covererd in the Online Databases, Database Producers, and Online Services sections, including current, former, and alternate names and acronyms. The index also cites unique database file labels and the titles of corresponding information sources and includes inversions on significant keywords appearing in product names. The boldface entry number(s) following each citation refers to the main entry for the cited database or organization. The lightface entry numbers denote all other references to databases, organizations, and corresponding products.

The State of Databases Today: 1999

Martha E. Williams
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Purpose

The database statistics herein date back to the early 1970s when I began collecting metadata about the database industry and publishing the statistics in an effort to understand and stay on top of the worldwide database industry. From 1976 through 1992 *Computer-Readable Databases* (CRDB) (which I founded in 1975, compiled and edited through 1985) was the major vehicle for distribution of the statistics. I have continued to update and expand the statistics and they are now included in the *Gale Directory of Databases* (referred to as GDD or the *Directory*). This article is a statistical analysis of data in the current issue of GDD together with comparative statistics on databases from prior years in CRDB, and then GDD. Some statistics date back as far as 1974; others start with later dates. All are continuously updated. "The State of Databases Today: 1999" includes text, tables, and figures. The figures effect quick presentation of data and visualization of trends; they relate to the contents of both volumes of the *Directory*.
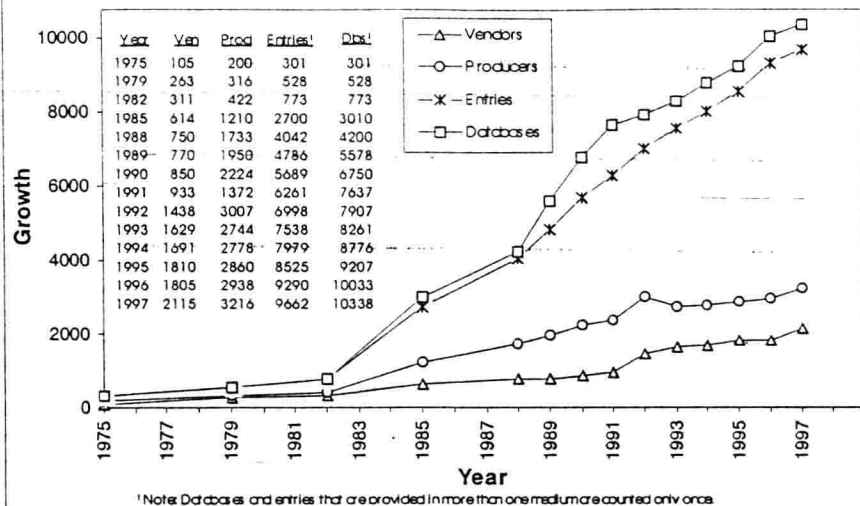
The *Gale Directory of Databases* was formed in 1993 by the merger of three database directories acquired by Gale Research, Inc.: *Computer-Readable Databases*, founded by editor Martha E. Williams in 1975 and acquired by Gale in 1987; the *Directory of Online Databases* founded by Cuadra Associates in 1979 and acquired by Gale in 1992; and *Directory of Portable Databases*, founded by Cuadra Elsevier in 1990 and also acquired by Gale in 1992. The three directories were merged into the *Gale Directory of Databases*, which is published twice a year in two volumes. The statistics presented in this article cover both volumes with duplications between the two volumes eliminated. They cover the worldwide database industry and are independent of the media in which databases are distributed and accessed unless specifically noted.

In the interest of maintaining continuity with prior database statistics, and in order to build a continuing comprehensive set of comparable database statistics, entries are coded specifically for this analysis even though these special codes do not appear in print. The statistics include figures indicating the growth of the database industry as represented by the increase in number of database records, online searches, databases, database entries in GDD, database producers, and database vendors. As in past analyses, I have looked at databases in terms of the geographic region and status of the producers, where producer status refers to the sector of society from which they come—Government, Commerce/Industry (for-profit), Not-For-Profit (NFP) which includes Academe, and Mixed sectors. I have also considered databases in terms of the form or representation of the data, the subject matter or intellectual content of the data in the database, and the medium for access and/or distribution. All data relative to prior years, and some of the current data, have been published previously by Martha E. Williams, though not in the exact same form, in a variety of papers and reports.
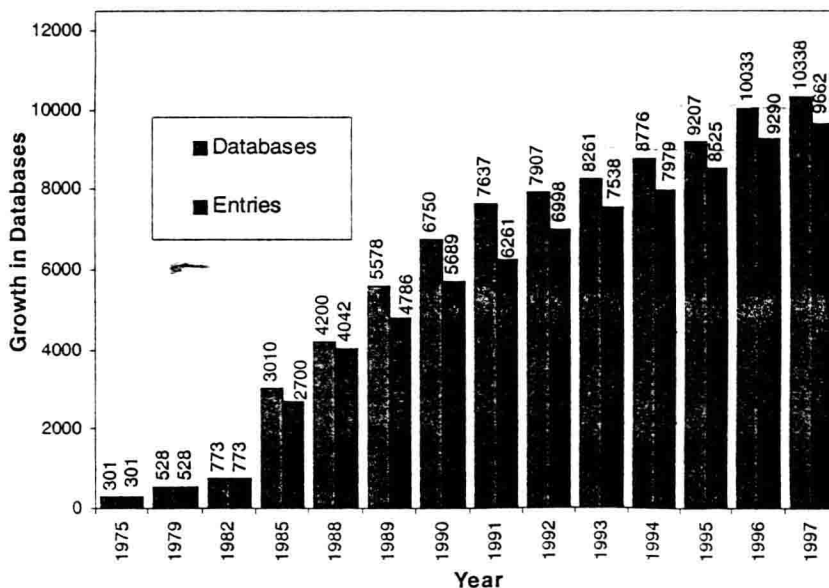
Growth in Database Records, Online Searches, Databases, Producers, and Vendors

This September 1998 issue of the *Directory* covers some 11,339 unique live databases and subfiles in 10,597 unique live entries. For purposes of this article an entry represents a given database regardless of the variety of media on which it may be provided. Some entries represent families of databases and sets of subfiles rather than single databases; databases are sometimes called files and members of families of databases are sometimes called subfiles. Some database entries appear in both volumes because a given database may be marketed as an online product, a CD-ROM product, and may also be in other media. There are 12,706 database-media entries (individual database product entries) across both volumes. Some several hundred of the entries are "obit" entries, meaning that the producer no longer maintains the file in a particular medium, the producer no longer makes it publicly available, the file is no longer available from a particular vendor indicated in the prior edition of the *Directory*, or, in a few instances, the status of the file and its producer could not be verified. Throughout the balance of this analysis database duplication is removed; the statistics relate either to the 10,597 unique database entries or to the 11,339 individual databases and subfiles rather than to the 12,706 database-media entries or products in the two volumes where multiple media for a database are presented in separate entries. Databases occurring in more than one medium are counted only once in this article.

Figure 1
Growth in Number of Vendors,
Producers, Database Entries, and Databases.

Year	Ven	Prod	Entries[1]	Dbs[1]
1975	105	200	301	301
1979	263	316	528	528
1982	311	422	773	773
1985	614	1210	2700	3010
1988	750	1733	4042	4200
1989	770	1958	4786	5578
1990	850	2224	5689	6750
1991	933	1372	6261	7637
1992	1438	3007	6998	7907
1993	1629	2744	7538	8261
1994	1691	2778	7979	8776
1995	1810	2860	8525	9207
1996	1805	2938	9290	10033
1997	2115	3216	9662	10338

Legend: —△— Vendors, —○— Producers, —✕— Entries, —□— Databases

[1] Note: Databases and entries that are provided in more than one medium are counted only once.

Figure 2
Number of Databases
and Database Entries by Year
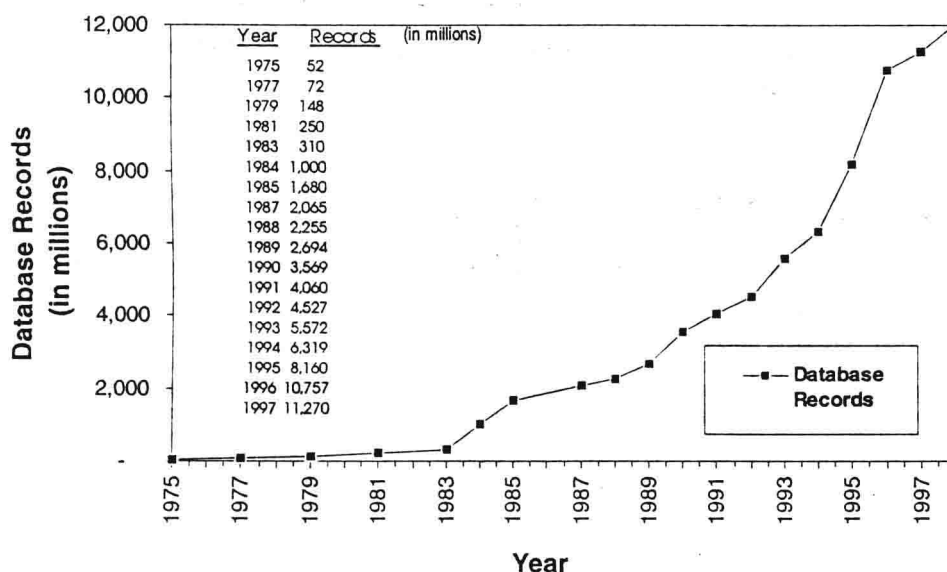

Legend: ■ Databases, ■ Entries

Throughout this article one can determine the normalized number of databases and entries for a datum by multiplying the associated percentage by 11,339 for databases and by 10,597 for entries.

The size of the database industry can be interpreted in terms of the increase in the number of database records, online searches, databases, database entries, database producers, and database vendors (see Figures 1, 2, 3, and 4). The growth in number of database entries, databases, producers, and vendors is plotted in Figure 1. The number of discrete databases is the number of database entries plus counts for the numbers of sets of databases contained within single entries; thus the number of individual databases is larger than the number of entries. The number of database entries, and the number of individual databases, are plotted on the bar graph in Figure 2. The number of producers is the number of discrete database producer entries in both volumes of the *Directory*. Many producers of online databases also produce databases in other media such as CD-ROM or diskette and those producers appear in both volumes; overlap has been deleted in preparing the producer count in Figure 1. The total number of vendors is given in Figure 1. Again, some vendors appear in both volumes of the *Directory* and the overlap has been removed from the numbers in Figure 1. While numerical growth is indicated by the statistics, the success of the database industry is largely a result of the transition of the information industry from paper-based services to computer-based services and can be measured in terms of the use of computer-readable databases. One such measure is the number of searches (see Figure 4). In this analysis, the database records are the smallest units or entities, followed by discrete

Figure 3
Number of Database Records by Year

Year	Records	(in millions)
1975	52	
1977	72	
1979	148	
1981	250	
1983	310	
1984	1,000	
1985	1,680	
1987	2,065	
1988	2,255	
1989	2,694	
1990	3,569	
1991	4,060	
1992	4,527	
1993	5,572	
1994	6,319	
1995	8,160	
1996	10,757	
1997	11,270	

databases, database entries, online searches, producers, and then vendors. The rate of growth of entities increases as entity size decreases with the slowest growth at the vendor level, and with database records (the smallest entity) increasing at the fastest pace.

Database Records

Over the 23-year period from 1975 through 1998 (see Figure 3), records have grown by a factor of 231. The number of records increased from 52 million to 12.05 billion, while the number of databases has grown (see Figure 1) from 301 to 11,339— a factor of 38. The database entries have grown from 301 to 10,597— a factor of 35. The number of producers continues to grow at a somewhat slower rate because individual producers create multiple databases. Producers have grown by a factor of 18 from 200 to 3,686, with the average