DATABASES
in
ACCOUNTING RESEARCH

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A research monograph proposal to the American Accounting Association

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COMPUTERIZED DATABASES AND ACCOUNTING RESEARCH

ABSTRACT

The modern world of empirical research is essentially computer based and oriented towards archival data. This monograph would help empirical researchers to:

- 1) understand computer readable databases

- 2) assist in the utilization of these databases

- 3) decrease the initial difficulties of database utilization

- 4) shed some light on the costs of computer based research and,

- 5) add to the knowledge of methodological issues in database supported research

The first part of the monograph describes the role of computer readable databases in modern accounting research. This is followed by descriptions of the computer environment of today and tomorrow, and the wide variety of data alternatives currently available to the empirical researcher.

The second part of the study examines the cost x benefit tradeoffs faced by the modern researcher. These observations are based on an empirical assessment of research costs to form a cost x benefit model of empirical research.

The third section of the monograph examines database construction, insights, and errors, along with the integration of different databases. In conclusion, the monograph looks at potential types of future databases and database research while providing practical suggestions for empirical researchers contemplating or currently using archival databases.

Appendices to the monograph encompass lists of databases, their descriptions, some protocols of network access and some programs for the usage (and integration) of the most common databases.

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1 INTRODUCTION

The research environment, tooling and resources of the accounting field have substantially changed over the last 20 years. From an idea rich and normative approach, the literature has evolved towards an empirical orientation. (Vasarhelyi & Berk, 1983)

A review of the literature reveals the methodological tradeoffs between the sophisticated usage of established archival databases (e.g. Gonedes, 1975; Biddle & Lindahl, 1982) and the painstaking process of data gathering and its exploration (Wolfson 1983). Established databases allow for successive improvements in and replication of existing results . Private data acquisition, on the other hand, places most of the research effort in data gathering, typically leading to cursory analysis and difficulties in replication. These difficulties relate to the database construction decisions, made by the researcher, that will be highlighted in this study.

Another recent trend in the accounting literature is the search for "exotic" unexplored databases and their analyses (e.g. Elliott et al 1983; Pattel & Wolfson, 1981). These bases are the result of the recent proliferation of data in computer readable media and the lack of cross-fertilization of ideas and communication between disciplines and entities.

Other disciplines (e.g. Engineering and Information Sciences) have developed extensive query systems for bibliographic and databank availability. One of these efforts if the database of databases at the University of Illinois. In addition, the marketplace has generated a series of trade publications (e.g. Kruzos & Sullivan, 1978 to list, among other items, available databases. R.R.Bowker's "Information Industry Marketplace" has 90 pages of database listings. One page of this listing is attached to this proposal. (Attachment I) Such a systematic approach to accounting related databases and bibliographies still must be performed.

The use of financial accounting databases is prevalent in the accounting literature. A brief survey of The Accounting Review (AR, from 1/76 to 10/81), Journal of Accounting Research (JAR, from Spring 1976 to Supplement issue of 1981) and Journal of Accounting and Economics (JAE, from 3/79 to 10/81) was performed to determine the usage frequency of the Compustat and Value Line Databases. The results of this survey are shown in Figure 1. Despite their frequent usage, databases have been subject to only a minimal level of scholarly scrutiny. A brief but expanding literature (Benain, 1980; Bublitz & Stone, 1983) explores the problems and error rates of databases being used in research in accounting and finance. This preoccupation with the quality and nature of economic observations is not recent. Morgenstern (1963) pointed out some of the key issues, caveats and dimension in data observations and interpretation. Measurement theory and accounting measurement have been explored by Mock (1976), Sterling (1970) and others (e.g. Pfanzangl, 1968). The other issues, however, of database characteristics, construction, interpretation, comprehension, cost and utilization are seldom discussed in the literature. The issues are of major significance in the modern research world. This research monograph will attempt to fill some of these gaps with a twofold emphasis:

Figure 1: USAGE OF COMPUSTAT AND VALUE LINE DATABASES

YEAR JOURNAL	VALUE LINE & COMPUSTAT DATABASES						TOTAL
	76	77	78	79	80	81	
AR	4	5	9	1	5	6	30
JAR	0	1	5	4	7	2	19
JAE	NA	NA	NA	0	3	3	6
TOTAL	4	6	14	5	15	11	55

NA: not available.

a) the exploration of the issues around database
availability, construction and characteristics,
focusing on researcher insight into the nature of data
to be used and

b) the sharing of a substantial amount of information
on the usage of some popular financial accounting
databases. This could decrease some of the
initial effort, barriers to entry, and researcher
effort redundancy that are currently prevalent.

The proposed monograph is divided into 3 major areas and 7 chapters:

Part 1 – The computer and accounting database
environment
Part 2 – Cost x benefits in the empirical
accounting research effort
Part 3 __ Structure and characteristics of accounting
databases. Conclusions and a view of the
future.

The next section outlines the scope and content of the monograph while providing a
short description and commentary of the nature and content of the outlined chapter.

2 ANNOTATED OUTLINE

2.1 CHAPTER 1:THE ROLE OF COMPUTERIZED DATABASES IN CURRENT AND FUTURE ACCOUNTING RESEARCH

- the evolution of accounting research

- sources of data

- issues being researched: past and present (comparison)

- paradigms: past and present (comparison)

- foundation disciplines and prevalent paradigms

- types of databases in current research

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a. Formal
   -selected financial accounting information (Value Line,
    Compustat, Database # 33)
   -financial statements
    (NAARS, LEXIS)
   -other information (price of futures, insider trading,
    Dow Jones news retrieval, the Source)
b. Researcher Gathered
   -in Financial Accounting (Knauf, 1981;)
   -in Managerial Accounting (Mock & Vasarhelyi, 1983)
   -in Auditing (Neter & Loebbecke, 1975; Kinney, 1979)
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- The proliferation of inefficiencies

  * -data gathered that is not used or shared (Cohen commission, AICPA, 1977)

  * -many researchers writing the same data interface programs (contained in the DB # 33 tapes)

  * -there is little interest in or incentives for maintaining and updating researcher-gathered data for replication

- future data sources

This chapter will draw on data from the Vasarhelyi & Berk (1983) study to assess the evolution of data usage in extant accounting research. Next it will describe the most common sources of data used in these studies and compare these with researcher gathered data attempting to draw insights into the process. The final section of this introductory chapter will discuss the inefficiencies of the process and how some of these can be overcome while still respecting the proprietariness of data but allowing data sharing and updating. The chapter is supplemented by Appendix A which lists other databases and some of its characteristics. In addition, chapter 2 examines in detail some of the most commonly used databanks.

2.2 CHAPTER 2: THE COMPUTING ENVIRONMENT OF TODAY AND TOMORROW

- the computer support of extant research (mainly mainframe based)

- packaged software in intensive use (statistical packages and compilers)

- substantial repetition of efforts by researchers

- writeup support

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terminal access
word processing alternatives
text editing alternatives
other forms of "office automation support"
configurations for writeup support
   (e.g. electronic mail, electronic filing)
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- increased availability of microcomputers

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their features
their potential role in research
as "front-enders" to systems
```

4

- academic networks
    their definition, configuration and
        potential
    an illustration of BITNET architecture
    as communications devices
    as "sharing" media

- a model of future research and accounting
  researcher needs   .

- the accounting researcher and his interface
  with modern technologies
    changes in the research process
    changes in the sociology of the profession
    changes on the role of professional societies
    changes on topics being researched

- library search and retrieval
    the DIALOG system
    the NEXIS system
    the SOURCE
    retrieval by key words
    retrieval by example
    retrieval in natural language

This section will identify the main elements of computer-based academic research effort in accounting.   It will describe current computer utilization practices, available alternatives, the potential of networking and, the evolution towards microcomputers as elements of the academic instruction and research chain. The later part of the chapter will deal with research process changes evolving from the new facilities and new data media.

2.3 CHAPTER 3: DATABASE ENVIRONMENT

- databases and information retrieval

    * data organization (physical and logical)

    * data access and secrecy

    * types of database usage

    * some commercial databases (mainframe and micros)

    * using generalized databases in research

- accounting related databases

    * COMPUSTAT

    * VALUE LINE

    * CRSP

    * NAARS

    * DISCLOSURE II

    * DB #33 /DB # 36

This chapter will focus of the definition of databases, discuss the nature and characteristics of generalized database management systems, and describe the main elements and access characteristics of some major financial accounting databases. A large

number of databases are currently available to accounting researchers. Among these the ones described above which may be of direct interest to researchers. In addition, the extensive search for "exotic" databases may serve to enhance current accounting research efforts. Attachment I lists some bibliographic databases that may be of interest. The monograph will present a more comprehensive list of databases and their characteristics.

2.4 CHAPTER 4: COSTS AND TRADEOFFS OF COMPUTERIZED RESEARCH

- research quality and the benefits of research: a series of elusive issues

- the cost x benefit tradeoffs involving computerized accounting research

- main elements of cost in accounting research efforts

    * cost of databases

    * cost of batch computing power

    * cost of statistical packages

    * cost of storage media (per bit of information)

    * cost of linkup time

    * cost and quality of research assistance

    * cost of researcher time

    * cost of computer consulting

    * an aggregate costing model of computer based research efforts

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  APPENDIX - cost x benefits in a micro framework
           - costs in a micro x mainframe interface
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The issues surrounding research quality and contributions to knowledge have been extensively discussed in the literature. However, the real cost of research, particularly that of an empirical nature, has not been examined. This issue is of major interest, not only to researchers, but also to research and research—funding entities such as the FASB and some of the foundations created by the major public accounting firms.

In addition to the direct cost of computer time, storage and database acquisition, the less quantifiable issues of researcher time and assistance must be considered. In order to estimate some of these factors, this chapter will include a short survey of the costs of data processing support at ten universities and interviews with ten researchers about selected research projects.

This limited sample and investigation is not expected to result in a powerful cost benefit model, but rather, will point out the key computer related tradeoffs in the search and processing of data within accounting research projects. Additionally, the experiences of these researchers will be used to draw conclusion regarding the advantages and pitfalls of computerized databases.

This chapter will be followed by an Appendix dealing with costing factors in the microcomputer environment and describing two microcomputer research usages:

1. Pension data analysis using an IBM—PC computer. Advantages and shortcomings of such an endeavor.

2. Using microcomputers as front enders of mainframes: the Osborne and the IBM PC interfacing Kermit. Microcomputers as "dumb" terminals. The issues around passing files from micro to macro environments and vice—versa will be discussed.

2.5 CHAPTER 5: ACCURACY IN TWO COMMONLY USED DATABASES: VALUE LINE & COMPUSTAT

- Morgenstern's "error in accounting"

- common variables

- matching these variables

- detailed examination of a sample

- definitional differences

- detected errors

- errors by industry

- the effect of database choice on research findings

This chapter expands on a recent paper (Vasarhelyi & Yang, 1983) where the comparison of seven fields "common" to VL and CMP (using ten years of data) resulted in some startling findings. There was a 39% discrepancy rate in the depreciation figures between the two databases. A breakdown by industries showed major definitional differences that were accountable for some of the discrepancies. A detailed request of reconciliation to Compustat and Value Line revealed differences in coding procedures, documentation and retroactive data treatment.

The identified definitional differences may lead to research results that are not identical using the two databases. A test of this hypothesis will be performed by replicating a traditional market study and feeding the model with alternate data from two (CMP & VL) different sources.

2.6 CHAPTER 6: DATABASE CONSTRUCTION & INTEGRATION

- reasons for understanding database construction

- objectives of data gathering

- the data gathering form and ways of recording data

- soft vs. hard data

- coding and data collection

- data verification and analytical tests

- merging with existing databases

- data characteristics and statistics

- coded vs. non-coded data

- lack of standardization of financials

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        example:  * collecting sales data
                  * in industrials
                  * at GM (with or without GMAC)
                  * at financial companies
                  * in insurance companies
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- selectivity in data item selection

- the problem of new standards

- the problem of retroactive data adjustment

- accuracy and allowable error

- "buried" or non-disclosed data depreciation

- non-compliance with the FASB

- documentation of data rules

- structure vs. free-access

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  APPENDIX: * collecting data (examples)
            * coding and punching
            * collecting online
            * validating at point of entry
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This chapter will draw on the experience derived from the development of the DB #33 (inflation) and DB #36 (pension) to formulate and develop a general set of problems and issues in database construction.

Insight into database construction and structure is a must in the researcher's arsenal of tools. Poor understanding of coding rules and classifications can lead researchers to making wrong interpretations of data and drawing unwarranted conclusions.

Actual examples of coding problems and their resolution will be used to illustrate the database construction issues. A detailed description of the ways that data are gathered, coded, prepared, and checked, samples are selected, and analytical reviews are performed will be provided.

Part of the insight for this chapter is based on discussions with William Close (Value Line Investment Services) and Kathy Brown (Compustat) who currently manage the development of their databases.

Burton and Beaver, as the consultants to the FASB on SFAS #33, advised the Board to create a database on inflation accounting disclosures. Their assertion was that research follows when data and research funds are available. This led to the 33/36 database efforts that are described here.

Many choices face the database constructor when obtaining input data. These relate to standardization, items to be collected, and sample and validation techniques. A detailed description of these decisions, their research-related consequences, and alternative methodologies followed are discussed.

The last part of this chapter relates these decisions to the actual nature of the data. Descriptive statistics and other simple statistical analyses are performed, with a discussion of these results vis-a-vis database issues.

The alternatives available to researchers for data input or gathering in an online mode are many. They offer a wide range of accuracy and cost tradeoffs. Illustrations of data gathering through: 1) An APL program, 2) a BASIC program, 3) Interactive SAS and 4) a WYLBUR macro are presented as an appendix to the chapter.

2.7 CHAPTER 7: CONCLUSIONS

- tradeoffs of data gathering and database usage

- often and seldom explored databases

- the need for source data evaluation

- the classification fallacy

- full-text databases and natural language query

- trends in database design and usage

- a path for the researcher

The conclusion will summarize the main findings of the monograph with particular emphasis on methodological issues. Attention will be given to the main tradeoffs the researcher faces when using computer readable databases.

The myopic emphasis on the quantitative aspects of financial statements is associated with the rigid classification criteria required by current databases. Techniques from the subfield of natural languages (Sager, 1981) in the Artificial Intelligence (Rich, 1983; Winston, 1979) area can be used in the examination of the semantic characteristics of parts of financial statements. A positive assessment of the feasibility of Natural Language query of full text accounting databases (e.g. NAARS) could open the route for an entirely new mode of query and analysis of financial statements.

The conclusion of the monograph takes a brief look towards the future of accounting database usage. It will examine trends in 1) automation of data sources, 2) electronic filings with the SEC, 3) natural language and query, 4) expert systems for self-indexation, 5) different modes of hardware and software and, 6) research into accounting system-related issues.

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APPENDIX A:   A few additional databases currently available
              but seldom used in accounting research.
              Availability; Content; Description; Cost.
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3 RESEARCH SOURCES

This study will draw heavily on materials from several previous projects that I have been involved in. Each of these projects entailed substantial computer utilization, database construction, database usage and, database analysis. These projects were:

1. Inflation and Pension Accounting Databases. This FASB sponsored project gathered data on about 1450 companies over 4 years. The data consisted of SFAS 33 and SFAS 36 mandated data that are of supplementary nature and typically not collected by other data sources. In addition some Net Asset data was obtained from the database confirmations This data, was not directly used in the database, but did raise some interesting classification and coding issues.

2. The TREAT System. This system,(an instructional EDP audit software) was developed in the APL language and transmitted or installed in a multiplicity of environments and formats. The experiences of preparing data tapes for reading in multiple hardware environments (IBM, DEC, CDC, Honeywell and others), as well as attempting to provide transportable code is of major value in the discussion of databases.

3. Information Structure Experiments. Mock and Vasarhelyi (1983) describe this series of computer-based behavioral experiments performed over 15 years, involving more than 400 subjects.

4. COMPUSTAT vs VALUE LINE Comparison. Vasarhelyi and Yang (1983) compared these two databases, resulting in substantial insights into the process of data preparation as well as into the pitfalls of data analysis with cursory data comprehension by the user.

The study being proposed will formalize the investigation of different database-related issues that arise in empirical research projects. In addition, a cost x benefit framework will be proposed based on researcher interviews and the examination of archival data. Finally, substantial bibliographic and industry background research are planned. This background study will look for existing databases, their cost, hardware and software requirements, data availability, etc.

The interviews with researchers will focus on their insights into database utilization. Researchers will be chosen through articles from the recent accounting literature based on

their use of: 1) unusual data; 2) common data in a particularly interesting way and 3) studies deemed as typical of archival data utilization.

4 SCHEDULE

If funded, this project would be performed over a one year effort starting around May 1984. The author will be on a half (two 3 credit courses per year) teaching load with no significant administrative or other obligations. Figure 2 displays a proposed schedule.

Figure 2:   Project Schedule

Months 1-2   Chapter 2
               Computer Environment

Months 3 & 5   Chapter 3
               Database Survey
               Database access illustrations
               Database merging illustrations

Month 4   Chapter 4 -Survey
               Costs and Benefits
               (at annual meeting)
Month 6   -Writeup

Month 7   Chapter 5
               DB Construction and Integration
               Interviews / examination of archives
               Formulation of routes
Month 8   Chapter 6
               Replication of study with two databases
               Study of Error and definitional
               differences; nature of distributions
Month 9   Chapter 1 , writeup
               Introduction
Month 10   Chapter 10
               Conclusions

Month 11   Revisions

Month 12   Revisions
               Submission of first draft to the AAA

5 BUDGET

The proposed budget is displayed in Figure 3.

Figure 3:   BUDGET

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A. Faculty Stipend      4000.00
B. Faculty Consulting   2000.00
C. Software              400.00
D. Misc. & Travel       1000.00
                        ---------
   TOTAL                7400.00
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NIOSHTIC—National Institute for Occupational Safety & Health (NIOSH). Clearinghouse for Occupational Safety & Health Information

Oceanic Abstracts—Cambridge Scientific Abstracts (CSA)

PAIS Bulletin—Public Affairs Information Service Inc (PAIS)

PAIS Foreign Language Index—Public Affairs Information Service Inc (PAIS)

PASCAL—Centre National de la Recherche Scientifique, Centre de Documentation

Pesticidal Literature Documentation (PESTDOC)—Derwent Publications Ltd

Pollution Abstracts—Cambridge Scientific Abstracts (CSA)

RAPRA Abstracts—Rubber & Plastics Research Association (RAPRA)

SAFETY—Cambridge Scientific Abstracts (CSA)

TECHNOTEC—Control Data Corp (CDC)

Technet—Information Handling Services (IHS)

Toxicology Data Bank (TDB)—Toxicology Information Program (TIP)

Urbamet—Reseau Urbamet

Vatten-och-Avloppsnytt (VA-NYTT)—K-Konsult

Verfahrenstechnische Berichte Tape Service (VtB Tape-Service)—Bayer AG

Waste Management & Resources Recovery Information Database (WMRR-ID)—International Research & Evaluation (IRE)

Zentraler Datenpool der Agrardokumentation—Zentralstelle fur Agrardokumentation & Information (ZADI)

FINANCE

ABI/INFORM—Data Courier Inc (DCI)

ACOMPLINE—GLC Research Library

AGSM Company Annual Report File—Australian Graduate School of Management (AGSM) Centre for Management Research & Development

AGSM Share Data File—Australian Graduate School of Management (AGSM) Centre for Management Research & Development

Accountants' Index—American Institute of Certified Public Accountants (AICPA)

Agriculture Database—Evans Economics Inc (EEI)

American Banker Index—Bell & Howell, Micro Photo Div

Australian Business Index (ABIX)—Australian Business Index

BI/DATA—Business International Corp

Bridge Data Stock & Option Realtime Information System—Bridge Data Co

Business Index (BI)—Information Access Corp

Business International Country Assessment Service (BI-CAS)—Business International

ACIS—ACROSNAT

Commodity—Commodity Information Service

Conference Board Data base (CBDB)—The Conference Board

Consumer Price Index Database—Evans Economics Inc (EEI)

DAFSA-RESO—Documentation & Analyse Financiere SA (DAFSA)

DISCLOSURE II—New York Times Information Service

Data Resources Inc (DRI)—Data Resources Inc (DRI)

Datastream—Datastream International Ltd

Disclosure Online—Disclosure Inc

EXSTAT—Extel Statistical Services Ltd

Economics Abstracts International—Learned Information Ltd

Economics Abstracts International (EAI)—Economic Information Service, Library & Documentation Centre

FEDWIR—Money Market Services Inc (MMS)

Facts & Comparisons: Drug Information—HARFAX Database Publishing Inc

Financial Database—Evans Economics Inc (EEI)

Financial Post Annual Corporate Databank—Financial Post Investment Databank

Financial Post Dividend Database—Financial Post Investment Databank

Financial Post Mutual Fund Database—Financial Post Investment Databank

Financial Post Quarterly Corporate Databank—Financial Post Investment Databank

Financial Post Securities Database—Financial Post Investment Databank

Financial Post Survey of Predecessor & Defunct Companies—Financial Post Investment Databank

Financial Post Weekly Stock Profile—Financial Post Investment Databank

Financial Times Currency & Share Index Databank—Financial Times Business Information Ltd

Flow of Funds Database—Evans Economics Inc (EEI)

Government National Mortgage Association (GNMA)—Lloyd Bush & Associates

Harvard Business Review Database (HBRD)—Harvard Graduate School of Business Administration

IMF International Financial Statistics—Evans Economics Inc (EEI)

Industry Price Index Database—Evans Economics Inc (EEI)

Info Globe—Info Globe

International Database—Evans Economics Inc (EEI)

Kentucky Annual County Data Bank—Kentucky Economic Information Systems (KEIS)

LEXIS—Mead Data Central (MDC)

MMS Financial Analysis—Money Market Services Inc (MMS)

MMS Weekly Survey—Money Market Services Inc (MMS)

Management Contents—Management Contents

Metals Database—Evans Economics Inc (EEI)

NEWSEARCH—Information Access

National Newspaper Index (NNI)—Information Access Corp

New Issues of Corporate Securities—Securities Data Co Inc

New Issues of Municipal Debt—Securities Data Co Inc

PAIS Bulletin—Public Affairs Information Service Inc (PAIS)

PAIS Foreign Language Index—Public Affairs Information Service Inc (PAIS)

Private Placements—Securities Data Co Inc

Producer Price Database—Evans Economics Inc (EEI)

Regional Forecasting Service Database—Evans Economics Inc (EEI)

SCANP—Helsingin Kauppakorkeakoulu, Kirjaston Helsinki School of Economics Library

SCIMP—Helsingin Kauppakorkeakoulu, Kirjaston Helsinki School of Economics Library

SGB—Societe Generale de Banque (SGB)

Seleval—Documentation & Analyse Financiere SA (DAFSA)

Share Price Data Bank (SPDB)—Scicon Computer Services Ltd. Information Systems

Standard & Poor's News—Standard & Poor's Corp

USA Database—Evans Economics Inc (EEI)

Valport Securities Database—Frederick Towers & Co

Value Line Data Base—Value Line Data Services

FOOD SCIENCE & NUTRITION

AGRIS—AGRIS—International Information System for the Agricultural Sciences Technology

Agricultural On-Line Access (AGRICOLA)—National Agricultural Library (NAL), US Dept of Agriculture

BIOSIS Previews—BioSciences Information Service (BIOSIS)

Biological Abstracts on Tape (BAT)—BioSciences Information Service

Biomedical Bibliographic Information (BIOMED)—Institute for Scientific Information (ISI)

CA Index Guide—Chemical Abstracts Service (CAS)

CA Search—Chemical Abstracts Service (CAS)

CAB Abstracts—Commonwealth Agricultural Bureaux (CAB)

CAS Source Index (CASSI)—Chemical Abstracts Service (CAS)

CIS—Centre d'Informations Spectroscopiques (CIS)

Chemical Industry Notes (CIN)—Chemical Abstracts Service (CAS)

Chemical Titles (CT)—Chemical Abstracts Service (CAS)

Composants Et Reglementations Alimentaires Europeens (CORALIE)—Centre de Recherche Documentaire (CREDO)

Documentation Generale sur les Produits Alimentaires (DIPA)

EMBASE—Excerpta Medica

Several Bibliographic Databases Commonly Used For Searching Business Information

NAME/PRODUCER	VENDORS	COSTS	COVERAGE	UPDATES	CONTENTS	EMPHASIS
ABI/INFORM Data Courier Inc.	Bibliographic Retrieval Services Inc. (BRS) Lockheed Information Systems SDC Search Service	$65-$51 per connect-hr. (pch) + 10 cents per citation $75 pch $65 pch	Primarily U.S. Aug. 1971 to date.	About 2,000 records per month.	Citations and abstracts of periodicals on business management and administration. Subject areas: accounting, banking, market research, labor relations, planning, production and distribution, sales management, training, etc.	Stresses general decision sciences information applicable to many types of businesses and industries. Some specific product and industry information is included.
DISCLOSURE Disclosure Inc.	Mead Data Central Lockheed Dow Jones & Co.	$90-21 pch + terminal and other charges $90 pch + $1.50 per record printed on-line $79.00 pch	U.S. 1979 to date.	Weekly	"10K" excerpts on public companies which must file with the Securities and Exchange Commission (SEC); includes balance sheet and income statement items, officers, legal proceedings, etc. "Profiles" containing co. name, principal office address, state of incorporation, fiscal year-end, etc.	Financial and administrative data on public companies. Stresses information useful in marketing, corporate planning and development, portfolio analysis, legal research, etc.
DOW JONES NEWS/RETRIEVAL SERVICE Dow Jones & Co.	Dow Jones	$80-$40.25 pch	Primarily U.S. for up to the last 18 months.	Continuous throughout the day.	Full-text, edited news stories and articles from The Wall Street Journal, Barron's and Dow Jones News Service. The Stock Quote Reporter carries price quotations on all companies traded on major U.S. exchanges.	Stresses news relating to companies, the general economy, and the financial markets.
MAGAZINE INDEX Information Access Corp.	Lockheed	$45 pch	U.S. 1976 to date.	About 8,000 records per month.	Citations and very terse descriptions of feature articles, news reports, editorials, product evaluations, biographical pieces, reviews, etc. appearing in popular magazines; includes all magazines in the Reader's Guide to Periodical Literature.	Extensive coverage of current affairs, leisure-time activities, business, consumer product evaluations, science and technology, home-centered arts, recreation and travel, etc.
MANAGEMENT CONTENTS Management Contents Inc.	BRS Lockheed SDC	$65-$51 pch + 6 cents per citation $55 pch $65 pch	International. Sept. 1974 to date.	About 1,900 records per month.	Citations and abstracts of world-wide English-language journal literature in business and management. Subject areas: accounting, banking, managerial economics, commodities and goods, production, industrial relations, public administration, planning, marketing, human resource management, decision sciences, etc.	Stresses decision sciences and forecasting. Material especially geared to business, consulting firms, educational institutions, and government agencies and bureaus.
NATIONAL NEWSPAPER INDEX Information Access Corp.	Lockheed	$75 pch	International. 1979 to date.	About 15,000 records per month.	Citations to all articles, news reports, editorials, letters to the editor, editorials, product evaluations, biographical pieces, columns, illustrations, etc. in the New York Times, The Christian Science Monitor, and The Wall Street Journal.	Covers the full range of subjects found in newspapers; general interest news, business, leisure-time activities, social affairs, regional news, environmental issues, etc.
NEW YORK TIMES INFORMATION BANK The New York Times Information Service	The New York Times Information Service	$120-$75 pch + 70 to 80 cents per abstract read or printed on-line with Bank using BRS software.	International. The Times: 1969 to date. Other publications: 1972 to date.	Daily; about 28,000 records added per month.	Citations and abstracts of all news and editorial matter from Late City Edition of the New York Times, and selected material from 10 other newspapers and 48 magazines that does not duplicate material abstracted from The Times. It includes maps, charts, and diagrams.	Covers full range of subjects found in newspapers and news magazines. Also covers international business and affairs.
NEXIS Mead Data Central	Mead Data Central	$90-$21 pch + subscription, monthly terminal charges, and other fees.	International. Newspapers and wire-services 1977 to date. Magazines 1975 to date.	Daily for newspapers and wire-services. Weekly for magazines.	Full-text of all news and feature articles appearing in The Washington Post, Newsweek, The Economist, and Associated Press, United Press International and Reuters wire services, U.S. News & World Report, Congressional Quarterly, Dun's Review, British Broadcasting Corp.'s Summary of World Broadcasts, PR Newswire.	Covers full range of subjects found in newspapers and business/economics magazines, news wires, and press release areas.
PTS F & S INDEXES Predicasts Inc.	Lockheed	$90 pch	International. 1972 to date.	About 12,500 records per month.	Citations and abstracts from world-wide literature on companies, products, and industries. Cited literature: business, financial, and trade magazines and newspapers, bank letters, reports of Congressional hearings, reports of government agencies and investment advisory services, documents of international agencies and books.	Stresses acquisitions and mergers, new products, technology, socio-political and economic factors affecting industries, analyses of companies by securities firms, and forecasts of sales and profits.
PTS PROMT Predicasts Inc.	Lockheed SDC BRS	$90 pch $90 pch $65-$55 pch	International. Feb 1972 to date.	About 4,000 records per month.	Citations and abstracts from world-wide literature on new products and industries appearing in trade newspapers and magazines, government reports, bank letters and special reports. Industries covered: chemical, communications, computers, electronics, energy, fibers, food, instruments & equipment, metals, plastics, paper.	Stresses acquisitions and mergers, capacities, end-uses, market technology, production, environment, foreign trade, and regulations for industries. Sales and income by the Fortune 1000 companies.