

1.5 DEVELOPMENT OF A BASIS/TELIDON  
HYBRID DATABASE  
FOR THE  
CANADIAN RECORD CATALOGUE

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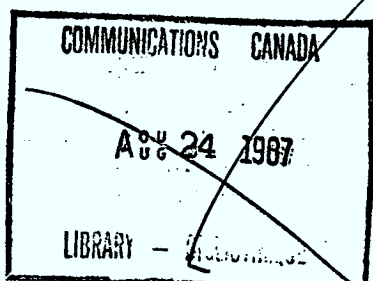
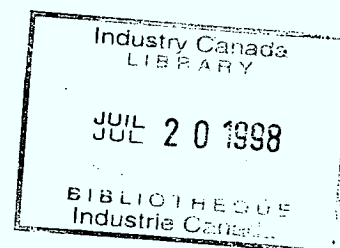
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A Proposal to  
THE DEPARTMENT OF COMMUNICATIONS,  
GOVERNMENT OF CANADA

Submitted by  
INFOMART *ant*  
122 St. Patrick Street  
Toronto, Ontario

July 1981



## EXECUTIVE SUMMARY

This document is a proposal to the Department of Communications of the Government of Canada for the development by INFOMART of a database and associated computer software combining TELIDON graphics with BASIS information management facilities.

In conjunction with the Canadian Independent Record Production Association (CIRPA) and Battelle Columbus Laboratories, the developers of BASIS, INFOMART proposes to mount the Canadian Record Catalogue onto the INFOMART information retrieval facility with textual, numeric and graphic information, providing a hybridization of information search and videotex technologies. This database will be demonstrated at the MIDEM festival in Cannes, France in January 1982.

The work done to achieve this objective will be immediately applicable to a wide range of other databases, including existing libraries of TELIDON pages, like that for the Task Force on Service to the Public of the Department of Supply and Services.

Because of the involvement with both technologies, INFOMART has perceived a market need for the provision of such a hybrid facility. Existing and potential users of information search facilities have stated a need for the inclusion of graphics into databases of information which up until now have been limited to text and numerics. Videotex users have identified a need for data management tools to facilitate the creation, management and accessibility of graphics information. The proposed product will fill that market need. They have also identified a requirement for access via TELIDON terminals and networks to capabilities not currently provided by existing systems; the proposed software will demonstrate the ability to use third party computer hardware and software for the manipulation of TELIDON information.

EXECUTIVE SUMMARY (cont'd)

Direct costs for the project are estimated to be \$289,600. Of this total, \$145,600 is for the development of software, \$38,000 is required for extensions to the CIRPA database, and \$104,000 is assigned for expenses, including the creation of 1000 graphics pages to be added to existing textual material in the database.

As primary contractor, INFOMART will provide project management, software development, database analysis and videotex services. Additional software development will be provided by Battelle Columbus Laboratories. Database content will be developed jointly with CIRPA.

INFOMART staff are convinced that the provision of such additional function will greatly improve the market penetration of TELIDON technology. Immediate prospects for delivery of the new services include the fifty worldwide users of the BASIS information management system and existing TELIDON clients and prospects who have a need for gateway access to value added services. Because BASIS is supported on a wide range of computer systems, a very large base of additional host systems could be brought online to TELIDON networks very quickly.

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## 1. PROJECT OVERVIEW AND STATEMENT OF OBJECTIVES

## 1. PROJECT OVERVIEW AND STATEMENT OF OBJECTIVES

The objective of the project is the provision by INFOMART and CIRPA of an information retrieval database containing the Canadian Record Catalogue, for first public demonstration at the MIDEM festival in Cannes, France in January of 1982. The database will be demonstrated using TELIDON terminals, with access to the database on the INFOMART BASIS facility, and will include a mix of textual and graphic information. The primary benefit of this approach compared to traditional TELIDON database access will be the provision of information search capabilities, particularly keyword search.

While the specific target of the project is the demonstration of the Canadian Record Catalogue using a hybrid of TELIDON and BASIS facilities, the strategic benefits far outweigh the tactical. These benefits are expected for both the recording and videotex industries.

The Canadian recording industry is expected to benefit initially through the interest which will be generated by delivery of up to date, accessible, and attractive information. Longer term benefit is expected through the ongoing availability of that information to CIRPA's membership and other subscribers. The accessibility of information specific to Canadian content will tend to increase the Canadian market share, particularly if the database is made available internationally.

## 1. PROJECT OVERVIEW AND STATEMENT OF OBJECTIVES (cont'd)

The Videotex industry is expected to benefit dramatically from the marriage with information search technology. These benefits will be described in more detail later in this proposal but are noted briefly below:

1. the full function of information search technology will be shown to be applicable to TELIDON data. Keyword search, associative retrieval, multilingual access to unilingual source material, and sessions tailored to different user needs are a few of the functions to be included;
2. this implementation or a later extension to it will demonstrate access to third party value-added services via TELIDON facilities. This work will contribute to an improved understanding of the gateway mechanism and will speed its development;
3. the project will demonstrate improved portability for TELIDON data since the vehicle (BASIS) is available on a wide range of host processors, including DEC, IBM, CDC and UNIVAC, and is independent of DEC PDP11 software currently limiting TELIDON availability;
4. the project will demonstrate a prototype which could be applied to existing market demand from both sides of the hybrid. From the TELIDON side, it will provide enhanced availability of information. From the information search and processing side, it will provide enhanced function with relatively cheap colour graphics.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT

BASIS is a data management system developed by Battelle Columbus Laboratories, a not-for-profit research organization with headquarters in Columbus, Ohio. INFOMART is licenced for the use of BASIS and is currently concluding a sublicensing agreement which would allow redistribution of the system by INFOMART.

### THE CENTRAL BASIS SYSTEM:

The central BASIS system includes a series of programs which provide facilities for the definition, manipulation and retrieval of databases of textual and numeric information. Unlike traditional database management systems, BASIS provides very flexible support for textual material. Once a database has been analyzed, defined and loaded into BASIS files, it becomes accessible for natural language query, printing and display from online terminals or batch. A wide range of options are available in the definition of the database to allow flexible and accurate retrieval of information via inverted file index structures. Any unit of information is typically comprised of several fields of data, either textual or numeric. An entire field, portions of a field, or individual words in a field may be indexed for search purposes, allowing retrieval by content rather than location. The Canadian Record Catalogue database has been defined with approximately sixty fields, including album title, performer's name, catalogue numbers, playing time, date released, availability, Canadian content codes, and graphics for album covers, lead sheets and biographical portraits. Most of the fields have been indexed to allow associative retrieval by field content. A typical query might request all database entries which contain certain key words in the album title, performed by any of specified groups and published in Canada. Using a traditional alphanumeric terminal, a user might specify such a request as:

FIND ATI=RAIN OR ATI=SNOW AND PER=MURRAY AND CC=P

which would find all entries in the database which have the words "rain" or "snow" in the album title field, the name "Murray" in the performer field and Canadian content code indicating a Canadian publisher. The user would then be able to display the contents of these and selected other fields at the terminal using various formats.

Additional functions are provided by a series of modules supporting the BASIS central system; descriptions of these functions follow.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

### BASIS MODULES:

Batch input is provided with the "FORMS" module, allowing loads of large volumes of data into the database with content validation.

"OLIVE" allows interactive input and modification of database information, invoking validation criteria specified at data definition time. Correction of errors in data contained within the database becomes very easy through the use of retrieval coupled with OLIVE macro facilities.

One of the major benefits of BASIS information retrieval is the function provided with the "THESAURUS" module. Through the definition of conceptual relations between words, THESAURUS allows standardization of indexing and content, improved precision of retrieval through the use of the relationships, multilingual access to unilingual source material, and assistance to the user in formulating search strategies.

Further assistance to the user, whether novice or professional, is provided with the "PROFILE" module which supports continuance of interrupted sessions, tailoring for repetitive actions, menu driven command initiation and selective dissemination of information through the prior establishment of interest profiles.

The "SORT" module provides resequencing of selected document sets to control the order of presentation to the user, and allows the creation of new sets of information based on field or subfield selection criteria.

The "REPORT" module is a user oriented high level programming language for the creation of output reports in formats not supported by the BASIS central system. Output formats can be tailored to specific display needs, selecting a subset of the fields for each document retrieved if desired and allowing very flexible textual and numeric manipulation. Rudimentary arithmetic can be performed on numeric fields and external files can be accessed or created for processing.

Database administration staff can use the "MONITOR" module for the capture of usage and accounting statistics, allowing objective management of the information resource.

The "COMPUTATION" module provides statistical analysis functions to be used for numeric field data, including standard univariate descriptive statistics, linear regression, arithmetic analysis and the presentation of information in rudimentary graphical output form.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

### THE BASIS DIALOG:

A feature of BASIS which has made tailoring for the TELIDON PDI environment very easy is the BASIS DIALOG facility. The DIALOG file is the central repository for BASIS messages and command syntax. It contains "EXPLAIN" topics for online assistance to users, a "LEXICON" of commands and reserved words and "MESSAGES" of text sent to the user. Each of these can be modified, without any program change to BASIS itself, to tailor the BASIS command and message environment to specific user needs. This may be accomplished through modifications to the DIALOG file itself or through changes to the DDL (data definition language) specific to a particular database.

It is anticipated that most of the programming effort required to tailor BASIS to the TELIDON environment can be accomplished through modification of the DIALOG file. The work done to date to test feasibility was accomplished entirely without program changes, through the redefinition of a small number of messages to include PDI directives, in the DDL for the test database. With the appropriate choice of run-time options available within BASIS to tailor session characteristics, these modifications provided a rudimentary menu-driven session for a TELIDON terminal equipped with an alphanumeric keypad or keyboard.

It is intended that the work to be done to tailor BASIS further for the TELIDON environment shall be tackled as much as is possible via DIALOG file changes and using standard BASIS programs. Within this context, it should be possible to implement a menu-driven fill-in-the-blanks dialog with users who have little, if any, prior BASIS or information search background. This will be accomplished through modification of the standard BASIS messages to insert TELIDON PDI instructions for the formatting of option selection menus and with corresponding changes to the BASIS lexicon to allow a small number of keystrokes for selection of actions to be performed. Users will require access to an alphanumeric keypad or keyboard, however, since the search process may require specification by the user of textual selection criteria, e.g., a performer's name.

The user dialog will be made completely bilingual, in English and French, through the creation of two DIALOG files which will be user selectable on entry to the database. It should be emphasized that not only the messages will be in both languages but also the command language entered by the user. This is made possible through the use of the LEXICON and MESSAGE facilities of the BASIS DIALOG file.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

### BASIS PROGRAMS:

There will be some program changes required to support the TELIDON user dialog; these are expected to be minor or supportable with new software not tightly coupled to existing BASIS modules. One such module will be required to tailor TELIDON terminal access to the VAX/VMS computer system. The standard DISPLAY verb of the BASIS central system will require minor modification to avoid the spurious insertion of carriage return and line feed characters. Other changes to BASIS modules will be required to take cognizance of the menu oriented approach rather than a line by line command approach. The Battelle senior managers responsible for BASIS recently endorsed this proposed activity most enthusiastically and are anxious to see TELIDON colour graphics facilities integrated into BASIS. We can expect cooperation and assistance from Battelle for this project. They are convinced that such a facility will be very attractive to existing BASIS clients throughout the world, providing additional business opportunities for both BASIS and TELIDON. BASIS is currently installed at over fifty sites, each of which could become a user of TELIDON technology as a result of the development of PDI support in BASIS.

A preprocessor program will have to be extended to allow transfer of PDI files created at standard TELIDON information provider workstations into existing BASIS database records. This preprocessor will read files containing the album cover, lead sheet, and biographical graphics, converting them into a format acceptable to the BASIS FORMS module, for entry by batch processing into the database.

REPORT programs will be created for the display of material extracted from the database during an interactive search session. These programs, written in the BASIS REPORT language, will concentrate on the formatting of material for display on TELIDON terminals in several formats which will vary in content depending on the type of information retrieved and the intended use of the material. One such report program, selected from a menu of such, will draw the album cover as a backdrop to album or song specific content extracted from other (textual) fields. These fields might typically be the catalogue number, distributor's name, and musical category for album or song retrievals. Another report program would display the lead sheet graphics as a backdrop to song-specific fields, while another would draw an artist's portrait and overlay it with a list of the artist's awards. Since not every entry in the database will have graphics created explicitly, default PDI displays will be created for such.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

### BASIS PROGRAMS (cont'd):

The MONITOR module will likely remain unchanged although it may prove advantageous to define new usage reporting records and to tailor post-processing utilities to show usage patterns related to graphics.

With the exception of changes to the associated DIALOG MESSAGES and LEXICON, no changes are anticipated for OLIVE or SORT.

The THESAURUS module should remain unmodified but one of the project activities would be the early development of a bilingual (or multilingual) vocabulary which would facilitate retrieval. This vocabulary would be used for validation of the input data and for the creation of index entries to assist users with search strategies. While the BASIS DIALOG will be fully bilingual, full translation of each entry in the database would be exorbitantly expensive; if a small dictionary of language equivalent terms is defined, however, a search which specifies search terms from one language could retrieve database entries stored originally with unilingual content in another language. Such language and context switching could be controlled so that only selected fields are targetted.

Since the CIRPA database contains only minimal numeric data, there will be little use of the arithmetic and computational facilities of BASIS. Nonetheless, these facilities stand to benefit dramatically from the availability of TELIDON colour graphics capabilities. INFOMART staff have already demonstrated the ability to create colour graphic histograms with BASIS using numeric fields extracted from a very large document set. The rudimentary printer graphics functions provided with BASIS in the computational module are expected to be easily modifiable for TELIDON PDI output. This enhancement is viewed by INFOMART and BATTELLE as an important product extension, with wide market appeal and utility. No specific work will be done within the context of this proposal but independent development work by INFOMART or BATTELLE will be available for use by other database applications following this prototype. Potential applications include analysis and display of such data as company financial records, CANSIM, LANDSAT images, weather, geological survey information, computer performance evaluation, and demographic surveys.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

### BASIS PROGRAMS (cont'd):

A minor change to the BASIS INDEXER utility could result in the automatic indexing of text contained within graphics fields. This would be accomplished by instructing the utility to ignore data contained between the SI and SO control characters which delimit graphics instructions.

(A future extension could be made to INDEXER which would allow rudimentary pattern recognition through the use of BASIS ranged search facilities. Such an extension might allow search strategies specifying graphical elements, for example to find all documents in a database which have a blue square and red circle whose centres are within one third of a screen of each other.)

The BASIS SET verb would be modified to allow an option which allows display of textual information mixed with graphics to be extracted for display at a non-graphic terminal. Through the use of a command "SET PDI OFF", display would trap transmission of PDI data, letting only textual material pass. This would be a necessary future objective since a number of non-TELIDON terminals will be accessing the data.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

### GATEWAY ACCESS:

There has been discussion within the Videotex community of the need for third party gateway access to value added services. We believe that access to the Canadian Record Catalogue database via BASIS is an example of the kind of value added service which could be provided via TELIDON networks to fulfill that need. All of the technical developments noted above are prerequisites for a general availability of alphanumeric information retrieval facilities via BASIS.

The resulting product will be immediately applicable to a wide range of data bases and end user needs.

The access intended for this particular project is independent of any existing TELIDON network or host support, being provided by the usual direct dial or Datapac telecommunications facilities to the INFOMART VAX without the need for host TELIDON software. It is intended, however, that gateway access via existing and planned TELIDON networks would be provided with only minor additional development effort. This approach has the advantage of providing early delivery of these services while allowing flexibility in access modes; another potential delivery vehicle for the Canadian Record Catalogue Database could be the BELL INET trial scheduled for early 1982.

Existing plans within INFOMART call for the development of gateway access to applications not currently supported by TELIDON. The architecture being planned could support access to BASIS hybrid databases, either coresident on the same host or on separate hosts with a communications link. Since BASIS currently is available on a wide range of host processors, there is potential for a wider availability of TELIDON value added services using such gateway support. This is likely to provide significantly improved market penetration for TELIDON without major host development costs.

## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

CIRPA and INFOMART have a "Private File Service" agreement for the provision of storage and retrieval of the Canadian Record Catalogue using CIRPA data and the INFOMART BASIS facility. This agreement assumes that existing textual and numeric survey material describing Canadian content in the recording industry will be entered into a searchable database. One of the products resulting from the agreement will be a hard copy catalogue indexed by album title, song title, performer and composer. This proposal assumes the availability of this information and the addition of several textual and graphics fields beyond the scope of the original database structure. The completed database will contain up to 10,000 entries, only 1000 of which are targeted under this proposal to contain graphics.

Four categories of information will be contained in the database. The first is the "ALBUM" category, comprising information related to record albums. The second, the "SONG/SINGLE" category describes individual cuts on albums or individually released singles. The third, "BIOGRAPHY", includes biographical descriptions of personalities associated with the recording industry, especially performers. The last category provides "MAILING" information. Most of the fields have been defined as searchable. All are potentially displayable. The graphics fields (the last nine) contain data defined for the control and display of TELIDON graphics associated with the other fields. The following table is a review of the fields of information contained in the various categories.

| Field Name              | Album | Song/<br>Single | Bio-<br>graphy | Address |
|-------------------------|-------|-----------------|----------------|---------|
| File Segment            | X     | X               | X              | X       |
| Link                    | X     | X               |                |         |
| Performer               | X     | X               | X              | X       |
| Album Title             | X     |                 | X              |         |
| Label                   | X     | X               | X              | X       |
| Affiliation             | X     | X               | X              | X       |
| Distributor             | X     | X               |                | X       |
| Producer                | X     | X               | X              | X       |
| Studio                  | X     | X               | X              | X       |
| Foreign Releases        | X     | X               |                |         |
| Foreign Availability    | X     | X               |                |         |
| Bar Code Number         | X     | X               |                |         |
| Library of Congress #   | X     | X               |                |         |
| National Lib. Deposit # | X     | X               |                |         |
| National Lib. File #    | X     | X               |                |         |
| Record Catalogue #      | X     |                 |                |         |
| Cassette Catalogue #    | X     |                 |                |         |
| 8-Track Catalogue #     | X     |                 |                |         |
| Videodisc number        | X     |                 |                |         |

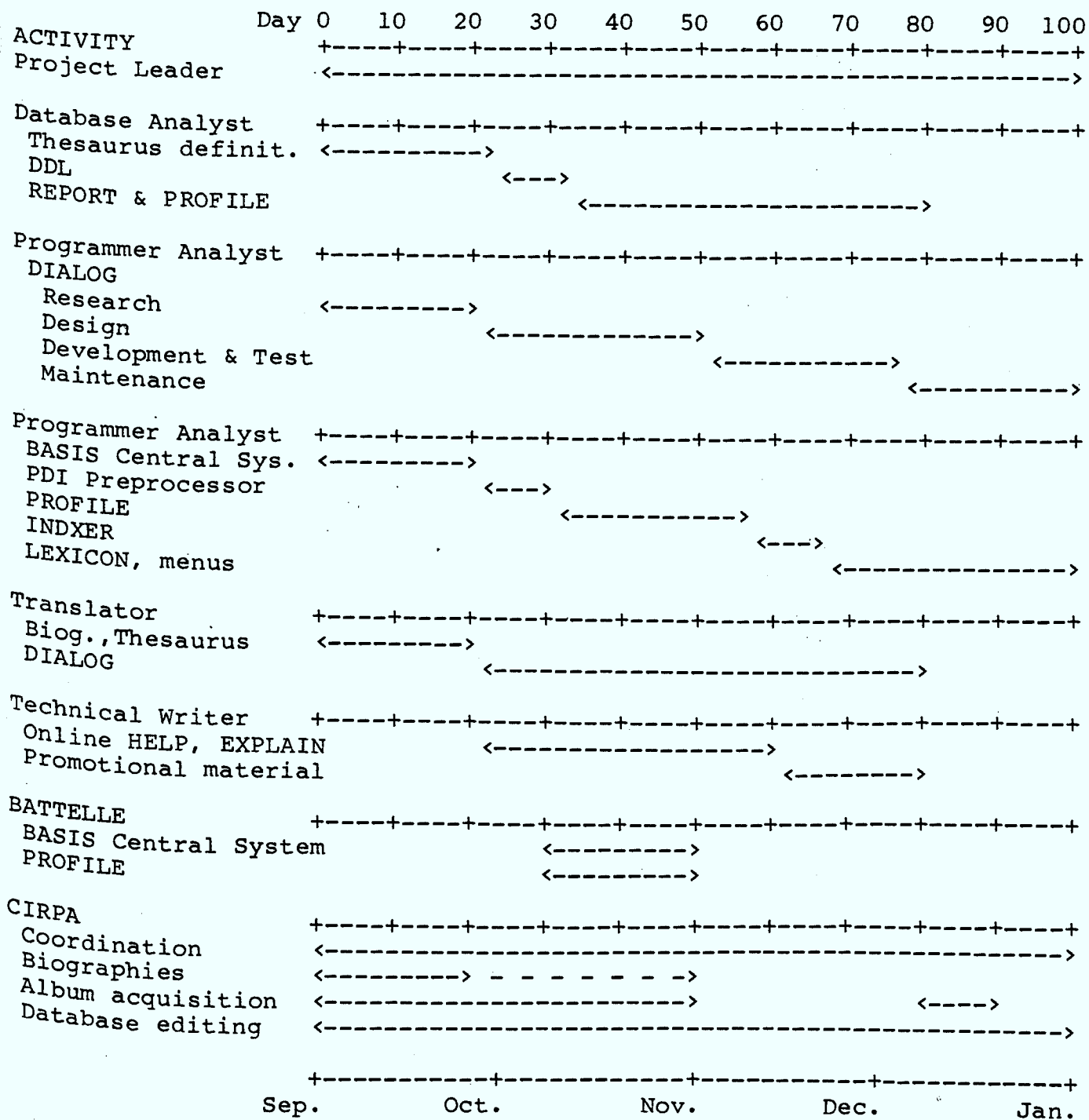
## 2. TECHNICAL OVERVIEW AND DATABASE CONTENT (cont'd)

| Field Name              | Album | Song/<br>Single | Bio-<br>graphy | Address |
|-------------------------|-------|-----------------|----------------|---------|
| Format                  | X     | X               |                |         |
| Date Released           | X     | X               |                |         |
| Status                  | X     | X               |                |         |
| Language                | X     | X               |                |         |
| Notes                   | X     | X               | X              | X       |
| Certification or awards | X     | X               | X              |         |
| Chart Position          | X     | X               |                |         |
| Song (cut) number       |       | X               |                |         |
| Song Title              |       | X               |                |         |
| Composer                |       | X               | X              | X       |
| Lyricist                |       | X               | X              | X       |
| Print indicator         | X     | X               | X              | X       |
| Publisher               |       | X               | X              |         |
| Performing Rights       |       | X               |                |         |
| Foreign Publishing      | X     | X               |                |         |
| Foreign Pub. Availab.   | X     | X               |                |         |
| Mechanical Licence      | X     | X               |                |         |
| Single Number           |       | X               |                |         |
| Side                    |       | X               |                |         |
| Musical Category        | X     | X               |                |         |
| Playing Time            |       | X               |                |         |
| CANCON codes            |       | X               |                |         |
| Biography/History       |       |                 | X              |         |
| Representative          | X     | X               | X              | X       |
| Manager                 |       |                 | X              | X       |
| Agent                   |       |                 | X              |         |
| Subscriber              |       |                 | X              |         |
| Company                 |       |                 |                | X       |
| Address                 |       |                 |                | X       |
| City                    |       |                 |                | X       |
| Province                |       |                 |                | X       |
| Country                 |       |                 |                | X       |
| Postal Code             |       |                 |                | X       |
| Telephone Number        |       |                 |                | X       |
| Telex Number            |       |                 |                | X       |
| Album Header            | X     |                 |                |         |
| Album Cover Graphics    | X     |                 |                |         |
| Album Subjects          | X     |                 |                |         |
| Lead Sheet Header       |       | X               |                |         |
| Lead Sheet Graphics     |       | X               |                |         |
| Lead Sheet Subjects     |       | X               |                |         |
| Mug Shot Header         |       |                 | X              |         |
| Mug Shot Graphics       |       |                 | X              |         |
| Mug Shot Subjects       |       |                 | X              |         |

### 3. PROJECT PLAN AND COSTS

### 3. PROJECT PLAN AND COSTS

The following is an estimate of the activities expected. A more detailed project plan will be developed in the early stages of the project, following the initial research phase, as specific design and implementation details are defined.



### 3. PROJECT PLAN AND COSTS (cont'd)

The following is a summary of the costs expected:

#### INFOMART

|                                    |                      |          |
|------------------------------------|----------------------|----------|
| Project Leader(s)                  | 80 days @ \$375/day  | \$30,000 |
| Database Analyst                   | 80 days @ \$300/day  | \$24,000 |
| Programmer Analyst                 | 100 days @ \$200/day | \$20,000 |
| Programmer Analyst                 | 100 days @ \$150/day | \$15,000 |
| Technical Writer                   | 60 days @ \$150/day  | \$9,000  |
| Technical Translator               | 60 days @ \$250/day  | \$15,000 |
| BATTELLE development staff         | 40 days @ \$250/day  | \$10,000 |
| Corporate G&A (@ 20% of \$113,000) |                      | \$22,600 |

|                            |           |
|----------------------------|-----------|
| Total INFOMART staff costs | \$145,600 |
|----------------------------|-----------|

#### CIRPA

|                                     |                      |          |
|-------------------------------------|----------------------|----------|
| Database editing and coordination   | 50 days @ \$200/day  | \$10,000 |
| Graphics selection and coordination | 100 days @ \$150/day | \$15,000 |
| Biographies and research            |                      | \$4,500  |
| Translation (biographies)           |                      | \$5,000  |
| Secretarial Support                 | 35 days @ \$100/day  | \$3,500  |

|                         |          |
|-------------------------|----------|
| Total CIRPA staff costs | \$38,000 |
|-------------------------|----------|

#### EXPENSES

|   |           |
|---|-----------|
| Provision of BASIS system software and processing                                 | no charge |
| Album and materials acquisition   | \$10,000  |
| Page creation 1000 pages @ \$75/page  | \$75,000  |
| Storage and processing 1000 pages @ \$0.80/month                                  | \$2,000   |
| Communications and terminals  | \$10,000  |
| Travel (Project review in Ottawa, MIDEM, etc.)<br>@ \$300/day including air fares | \$9,000   |

|                |           |
|----------------|-----------|
| Total EXPENSES | \$106,000 |
|----------------|-----------|

|                    |           |
|--------------------|-----------|
| TOTAL PROJECT COST | \$289,600 |
|--------------------|-----------|

### 3. PROJECT PLAN AND COSTS (cont'd)

The INFOMART organization is made up of a variety of human and technical resources that are unique in Canada in the Videotex context.

The following is an outline of the skills of the company's departments that will be directly involved in the development of a BASIS/TELIDON database hybrid for the Canadian Record Catalogue.

#### Database Publishing

The principal functions of Database Publishing are the organization, processing and storage of archival information in a database and distribution of that information to a specific market grouping by way of the BASIS system and the department's Digital Equipment Corporation VAX11/780 computer.

To achieve our commitments to clients and to maintain our leadership in the database searching business, Database Publishing is organized into two major functional groups, each headed by a manager.

#### (1) BASIS System Development and Operations

Key responsibilities include:

- Execute, design, develop and maintain BASIS system software components, applications systems and documentation.
- Interface with clients, vendors, suppliers, and INFOMART departments to ensure that database products and services are delivered on time, within cost estimates.
- Monitor and control service levels, hardware, software and data communications performance levels, and client satisfaction after successful BASIS turnkey system acceptance by the customer.
- Coordination of system problem determination and escalation of problem resolution to meet client expectations.

### 3. PROJECT PLAN AND COSTS (cont'd)

#### (2) Database Development and Operations

Key responsibilities include the following:

- Provide corporate discipline over and standardized approaches to the creation and use of databases.
- Develop and document database plans, product and services specifications and definitions.
- Plan, design, develop and maintain databases and operate them to agreed-upon service levels.
- Interface with clients and INFOMART departments to ensure that databases are delivered on time and within cost estimates.
- Keeping abreast of state of the art and industry developments.

#### Database Publishing Management

Georg Mauerhoff, Department Director, has been involved with information retrieval systems since 1969. He was responsible for the development of CAN/OLE, the online system of the National Research Council and managed the other search services provided by the Canada Institute for Scientific and Technical Information. He has been with INFOMART since its beginning in 1974 (some would say he was its founder) and has held a number of positions in that time. He holds a B.A. (Mathematics) and M.S.L.S. (Information Science).

Alan Burke, Manager, BASIS, holds a B.Sc. in Mathematics and Physics from the Royal Military College of Canada, and has over 15 years of data processing experience in a broad range of business, systems and applications software. Prior to joining INFOMART, Alan held various management positions at Mobius Software Limited, L'Industrielle Services Techniques (IST) and Systems Dimensions Limited (SDL). He served in the Royal Canadian Air Force from 1966 to 1969, where he was involved with telecommunications operations and maintenance. Information retrieval systems software is his specialty.

Dorothy Tomiuk, Database Administrator, holds a B.A. and M.L.S. in Library Science. Before joining INFOMART, Dorothy held the position of Managing Editor at Micro Media Ltd., an electronic publisher with extensive interests in database applications. She has a solid background in automated information systems and database development.

### 3. PROJECT PLAN AND COSTS (cont'd)

#### Videotex Database Design and Page Creation Services

This department offers a unique blend of information analysts, writers, editors, commercial artists and computer specialists. They are a new breed of professionals with knowledge not yet commonly available in the market. It is this department that designs and implements the videotex applications. The department currently numbers forty people.

Their key functions are:

- (1) Evaluation of prospective material and applications for videotex.
  - Will videotex carry the message?
  - Is the material or application adaptable to videotex?
- (2) Application/database design and implementation.
  - (a) Concept generation:
    - generate the videotex concepts involved.
    - determine what will work and what will not.
  - (b) Database/system structuring:
    - designing of the retrieval structure so that it will allow dynamic, unique and efficient access to the data.
  - (c) Writing:
    - videotex pages must present the desired information with its original meaning BUT in a visual and sensory context. This is of utmost importance to the success of the application. Sometimes, this means that the message must be restated to "come alive" on this medium. This stage in effect involves specialized "editing" of the raw material to transform it into a suitable videotex form.
  - (d) Design:
    - the message content of text must be married with the creativity of graphics.
    - Our designers and text editors work together to create a system that will speak louder than words. They exploit the technology and the subtleties of TELIDON to create graphics that are of value in appearance, appeal and stimulation. INFOMART TELIDON graphics are now regarded as the best in the world.
  - (e) Production:
    - The actual creation of the pages that have been designed is the most tangible of our services. But, because it is integrated with all our other videotex services listed above, the quality control is of a very high standard.

### 3. PROJECT PLAN AND COSTS (cont'd)

#### Videotex Services Management

Martin Lane, Department Director, has an extensive background in business information systems. As Editor for Fintel, a joint venture between the Financial Times and Exchange Telegraph Company in England, he was responsible for the development, design and implementation of a 9,000 page videotex database and in effect was one of the pioneers of videotex/PRESTEL database design and page creation techniques prior to joining INFOMART in early 1980.

Jean Lancee, Manager, Videotex Consulting, has been active in Canadian publishing since 1971 at the University of Toronto Press, and Clarke, Irwin & Company Limited. Since joining INFOMART in January 1980, she has designed a TELIDON editorial style, trained a team of development editors, run a full-scale TELIDON production shop to supply the IDA trial, and now manages the consulting and education groups set up to supply high-level consulting and training to Infomart's clients. Mrs. Lancee holds an M.B.A. from York University and a Mus.Bac. from the University of Toronto.

Susan Collins, Manager, Videotex Design and Development Group, has an extensive background in graphics design. Prior to joining INFOMART, she was Assistant Art Director at MacLeans, Canada's weekly newsmagazine. Since joining INFOMART, she has developed a TELIDON graphics style, trained graphic designers, and produced graphics pages that have been recognized as state-of-the-art throughout the videotex industry.

### 3. PROJECT PLAN AND COSTS (cont'd)

#### PROJECT MANAGEMENT

INFOMART will provide total project management covering all required:

- planning, design and page creation of the proposed Canadian Record Catalogue database,
  - all agreed to database page updating,
  - INFOMART Toronto computer processing and access,
  - BASIS system software development and enhancement,
- all in accordance with this proposal.

CIRPA will be responsible for:

- the development, updating and provision of its standard Record Catalogue Database to be used in the hybrid,
- securing permission from recording companies and other agents to copy (use) their album covers, lead sheets and portraits as TELIDON pages,
- acquiring the 1000 albums, and
- progress monitoring.

INFOMART will set up an INFOMART/CIRPA Project Management Committee, headed by a project manager. The committee will be responsible for the actualization of the project in accordance with this proposal.

The project manager will be responsible for project coordination, project documentation, project reporting, project resource management, fiscal control, progress monitoring, problem detection, problem resolution, problem prevention, problem recovery and day-to-day project monitoring.

### 3. PROJECT PLAN AND COSTS (cont'd)

As at this writing, the proposed INFOMART/CIRPA project management committee tentatively includes the following members:

Alan P. Burke, BASIS Manager, who will act as project manager through to the completion of the project, or later, depending upon circumstances at the time.

Dorothy Tomiuk, Database Administrator, who will act as alternate project manager.

Susan Collins, Manager, Videotex Design and Development Group.

Earl Rosen, President, CIRPA

John Watt, Record Policy Advisor, Department of Communications.

Charles Cohen, Senior Analyst/Programmer, who will act as the systems project leader. He has an M.A. in Physics from Princeton University. His background spans eleven years in systems, with five years spent at the University of Toronto Library Automated Systems, as technical coordinator, including the design and writing of programs for efficient file handling of a 4.5 million record database.

#### 4. BUSINESS RELATIONS

#### 4. BUSINESS RELATIONS

##### COPYRIGHT:

CIRPA is responsible for database content and will negotiate with copyright owners for the rights to display the information, including album cover and lead sheet graphics.

##### SOFTWARE AND DATABASE LICENCING:

INFOMART is concluding a sublicensing agreement with the Battelle Development Corporation which would allow INFOMART to act as a distributing agency internationally for the BASIS software. Battelle management have been very enthusiastic in their support of the need for development of BASIS/TELIDON hybrid technology.

INFOMART wishes to retain ownership and distribution rights for software developed under this proposal but will provide it to third parties under existing or pending BASIS licencing agreements. All BASIS use and development under this proposal are subject to the existing licencing agreement between Battelle and INFOMART.

The ownership of the database is assumed to reside with CIRPA. The CIRPA executive have agreed to make the database available to DOC for demonstration without charge. Use of INFOMART facilities beyond the demonstration will be subject to separate contract.

##### PROCESSING COSTS:

All host computer processing costs for the development of this facility using INFOMART computers will be provided without charge to the project. Graphics page creation will be charged to the project at normal rates.

#### 4. BUSINESS RELATIONS (cont'd)

Preliminary investigation on the part of INFOMART and previous joint INFOMART-DOC discussions have delineated a number of issues/concerns that are still under consideration. These include:

##### A. Rights and Ownership to Created Database Pages

No private enterprise organization can afford to risk underwriting the development of products that in effect can also be marketed by its competition, particularly when said competition enjoys right to said product without having to amortize the burden of initial product development investment. Without the exclusive rights to software, databases and research developed as a result of joint funding, INFOMART could find itself in the position of, in effect, partially underwriting the product development and marketing costs of its competitors.

Concern: That potential INFOMART competitors could acquire rights to otherwise obtain INFOMART developed software, technology, database design, research and videotex database pages.

Suggested Resolution: INFOMART shall have title to all software, hardware, usage data, market research and evaluation results that will be produced as part of the project. CIRPA shall have title to all formatted TELIDON information pages, and shall continue to retain title to and ownership of the standard database, which the CIRPA executive have also agreed to make available to DOC for demonstration purposes at no charge. Use of INFOMART facilities beyond the demonstration will be subject to separate contract. However, the government shall retain the right to use, for internal purposes as defined below, the following information, provided such use would not be detrimental nor prejudicial to the commercial interests of INFOMART and CIRPA:

(i) All information which is in the public domain and which has been formatted into TELIDON pages in the course of the contract; and

(ii) All software which has been developed as a result of this contract. BASIS would be available to the government on a sub-license from INFOMART or Battelle Columbus Laboratories at the then current commercial terms and conditions.

#### 4. BUSINESS RELATIONS (cont'd)

Internal use shall mean storage of such pages and software on government owned and controlled TELIDON databases which are accessible only by government owned and controlled terminals. These terminals include those available for public use at government offices or public places.

This approach is in keeping with the principles of the former IT&C PAIT grant program, as outlined in the following extract from the standard PAIT grant agreement:

"5 (a) Title to all designs, specifications, data, drawings, plans, reports, patterns, models, prototypes, shop practices, and other information (hereinafter collectively called "technical data") produced by the Company in carrying out the development project will vest in and remain the property of the Company.

"5 (b) Title to all equipment, materials and supplies purchased for the purposes of the development project will vest in and remain the property of the Company.

"5 (c) The Company may retain title to all inventions, methods and processes conceived or developed in carrying out the development project and may apply for patents therefor in Canada and other countries.

"5 (d) If the Company elects not to retain title to or utilize any invention conceived or developed in carrying out the development project, the Company will advise the Minister of such election and will, if requested to do so by the Minister, assign the invention to Her Majesty who may apply for a patent therefor in the name of Her Majesty."

The Company and the Crown would each, of course, retain ownership rights to any and all software, information, materials, etc. to which it held ownership rights outside of and/or before the start of the Project, even when and if said assets were used in the Project.

#### 4. BUSINESS RELATIONS (cont'd)

##### B. Confidentiality

This issue is very important to INFOMART and CIRPA. What would be of particular concern in this regard would be the leakage of usage information that serves to identify information and content preferences. That type of information could provide potential competitors with valuable database design inputs and competitive strength.

**Suggested Resolution:** It is proposed that the government, in the person of officially authorized representatives, shall have access to the results and information generated as a direct result of execution of the project activities (but excluding all results and information involved, the rights to which are vested in third parties) and the government shall have the right to use such results and information for its internal needs. The government shall not, however, disclose the following types of information to any third party without the prior written consent of INFOMART and CIRPA which consent shall not, in view of the government's desire to promote TELIDON, be unreasonably withheld by INFOMART and CIRPA provided that such release does not risk being prejudicial to INFOMART's commercial interests in each case:

- market research related results;
- the database content and enhanced services plan and associated background information;
- software developed as a result of the content;
- usage data that identifies page/content preferences.

The government may publish other information on research results at its discretion.

#### 4. BUSINESS RELATIONS (cont'd)

##### C. Liability

CIRPA, as owner of the Canadian Record Catalogue database has responsibility for all database content and services, including any liability implications of inaccurate content, misrepresentation, libel, consequential damages, etc.

CIRPA is already seeking approval from the information and copyright owners for the representation in TELIDON graphics of copyright material associated with the data, including the use of record album covers and lead sheets.

5. CANADIAN INDEPENDENT RECORD PRODUCTION ASSOCIATION

## 5. CANADIAN INDEPENDENT RECORD PRODUCTION ASSOCIATION

The Canadian Record Catalogue is a project of CIRPA (Canadian Independent Record Production Association) working in cooperation with ADISQ (Association du Disque et de l'Industrie du Spectacle Quebecois). The objective is to provide the music and broadcast industries and the general public with a catalogue of Canadian records as a practical tool to the further dissemination of Canadian music.

CIRPA is a national trade association of Canadian-controlled record labels, producers, studios and managers. CIRPA's members account for about 8 - 10% of the record business in Canada, and about 60% of Canadian records. The Canadian Record Catalogue came about because CIRPA recognized that the lack of such a catalogue limited the exposure of Canadian music domestically and abroad. CIRPA chose to work with INFOMART as its service bureau because the BASIS program marketed by INFOMART meets all the criteria required to make the Canadian Record Catalogue a world pioneer as a cultural data bank. The catalogue has been designed in such a way as to expand the database into a full music industry database capable of covering all aspects of recorded and live music. It has been a long-term objective of the Catalogue to be able to provide high quality graphics as part of the database.

From CIRPA's point of view, there are a number of reasons why graphics are an important part of the Canadian Record Catalogue. To the consumer, album graphics play an important role in the decision to purchase a record. Often the album graphics are what attracts the consumer to the record, and in other cases, the album graphics rather than the title are what the consumer remembers when going to buy a record. Having album graphics and artists' pictures in the catalogue will provide an important resource for record retailers and researchers. Another less glamorous, but economically more significant use of graphics is for representation of the sheet music (lead sheets) for the songs in the catalogue. Music publishing is a flourishing industry on a world-wide basis. Performers are always searching out new songs to perform and record. To be able to access a catalogue of Canadian songs electronically will significantly increase the usage of Canadian material around the world. This will benefit Canadian composers, publishers and record labels.

5. CANADIAN INDEPENDENT RECORD PRODUCTION ASSOCIATION (cont'd)

It is CIRPA's objective to have this graphic capacity available for MIDEM in January, 1982. MIDEM is the only commercially significant trade fair for the record industry. Record executives from around the world come to both sell and acquire product. Most Canadian companies attend or are represented at MIDEM, since success in the international marketplace is absolutely necessary for the survival of every Canadian record company. Canada has a tremendous track record of international success in the record industry. The Canadian booth at MIDEM is an active place attracting industry representatives from around the world. The presence of the Canadian Record Catalogue via TELIDON terminals will attract buyers, enhance Canada's reputation as a world leader in the record industry and further the objective of spreading Canadian music to more and more markets.

## 6. INFOMART

## 6. INFOMART

INFOMART is a jointly owned partnership of TORSTAR Corporation and SOUTHAM INC., two of Canada's largest and leading communications companies.

It was established in 1975 to investigate the business potential in the emerging new field of electronic publishing.

At that time the definition of electronic publishing basically encompassed the creation of information in machine readable form that can be accessed by users through electronic channels of communication.

At the time of INFOMART's creation, a number of companies were involved in the creation of databases for public access, with other companies disseminating this information over telephone lines from centrally located computers. Most of this activity was taking place in the United States.

Despite being publicly available, however, this form of information is generally scientific, technical and professionally oriented, and requires a certain degree of expertise on the part of the user attempting to retrieve it. It is only recently being made suitable for the needs of the general public at large by service providers such as The Source and CompuServe.

In the first three years of its development INFOMART acted as the Canadian distributor for one (System Development Corporation), and then a second (New York Times Information Bank) of these U.S. based database distributors. Through these activities INFOMART learned about and gained experience in the marketing of electronically disseminated information. It still performs this role (i.e., provision of database search service) today.

In 1978, however, the company also became interested in a new technology that was emerging rapidly in Great Britain. That technology was then called VIEWDATA. It was the commercial forerunner of a variety of similar new technologies that are emerging worldwide. Each is designed as a system that permits the electronic dissemination of information in conventional human language form, in colour and with graphics, with the disseminated information displayed on conventional television screens in home or office, requiring little expertise or training on the part of the viewer to access that information.

## 6. INFOMART (cont'd)

These new technologies have significant business and mass consumer market implications.

They are now classed generically worldwide under the designation VIDEOTEX, with the term Viewdata now restricted to describing two-way interactive Videotex systems which generally use standard telephone lines as carriers; and the term Teletext restricted to designating one-way, non-interactive systems which use the vertical blanking interval of a TV signal or TV cable as a carrier.

Teletext systems offer viewers a more limited selection of information which they can capture from a repeating stream or broadcast of information that is cycled through the viewer's conventional TV set by the system operator.

### TELIDON Involvement

It was the emergence of the superior Canadian TELIDON technology in 1979 that convinced INFOMART's parent companies to expand the company's mandate to include VIDEOTEX. To this end, in October of that year it was announced that a further \$6 million would be invested in INFOMART and shortly thereafter INFOMART entered into an agreement with the Government of Canada to licence TELIDON technology.

Such a commitment also required a marriage of very special expertise: the commercial development of VIDEOTEX and TELIDON necessitates a fusion of knowledge and skills in information science, editing, computer-communications, data processing, graphics design, database management and mass marketing.

It is this mix of resources, and this level of commitment, that INFOMART and its parents are, by virtue of their unique characters and resources, contributing in support of the missionary development of VIDEOTEX in Canada and the commercial development and success of TELIDON worldwide.

## 6. INFOMART (cont'd)

### INFOMART's Current Business Strategy

INFOMART's business strategy calls for a continuation of major involvements and commitments in both the Videotex and Database Search areas.

INFOMART's present broad objective is to establish a viable electronic publishing business in the following four areas:

- 1) TELIDON system operation. In addition to its Toronto, Winnipeg, and Ottawa centres, INFOMART plans to develop and operate one or more TELIDON computer centres across Canada and possibly abroad. Access is and will continue to be open to any subscriber who has a TELIDON compatible terminal. Any organization that wishes to become an Information Provider may put "pages" on our system.
- 2) Videotex services. INFOMART can provide any individual or organization, wishing to use TELIDON to disseminate information, with assistance to create the desired database; and can design and create any required videotex pages, graphics, relevant software, etc.
- 3) Turnkey systems. INFOMART markets complete packages of hardware, software and consulting services needed to create a TELIDON computer centre and communication network anywhere in the world.
- 4) Database search service. INFOMART continues to market the SDC Search Service of System Development Corporation, whom it has represented since 1975 in Canada and as January, 1981, has implemented its own Toronto-based information storage and retrieval source using TELIDON compatible computers and BASIS - specialized database management software to handle large bibliographic, full text and statistical databases.

## 6. INFOMART (cont'd)

### Current Videotex Involvement

Today INFOMART has emerged as the best resourced, most experienced and most active provider of Videotex services in Canada, and has become recognized as an industry leader worldwide.

Current major company videotex involvments include:

- Major page creation subcontractor to the Bell Telephone "VISTA" videotex trial project, the Manitoba Telephone System's "Project IDA", and the Trans Canada Telephone System / Canadian Government Department of Communications "Project Elie".

- Consultant and page creation subcontractor to Rogers Cablesystems videotex development projects in Oregon, California, Minnesota and Pennsylvania in the U.S.A.

- Design and provision of complete TELIDON videotex turnkey systems, plus page creation consulting services, to the Task Force on Service to the Public of the Canadian Government Department of Supply and Services.

- Design and provision of complete TELIDON videotex turnkey systems, plus page creation consulting services, to the Government of Venezuela.

- Design and provision of complete TELIDON videotex turnkey systems, plus page creation consulting services, to the Standard Telephon und Radio AG in Switzerland.

- Design and operation of GRASSROOTS, North America's first public and commercial TELIDON service, launched in Manitoba in May 1981.

- Design and provision of complete videotex turnkey systems, plus page creation consulting services, to Teleglobe Canada, TIME Inc., and Times-Mirror Videotex Services Inc.

## 6. INFOMART (cont'd)

### Current Database Search Involvement

INFOMART's role in Canada as a provider of conventional database search services continues to expand not only in terms of the number of on-line users but also in the kinds of databases searchable.

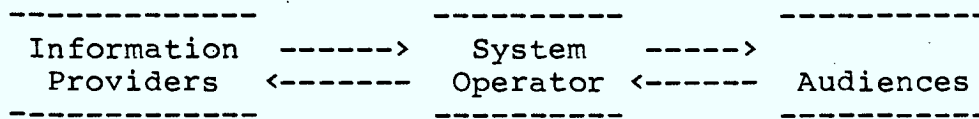
Current company database search involvements include:

- Provision of storage and processing services plus consulting services to many Canadian corporations, associations, and government departments who require nation-wide search services for inhouse-produced databases for their own organizations' use.
- Marketing of SDC Search Service (also called ORBIT) across Canada to libraries, consulting firms, corporations and provincial and federal government departments.
- Exploration of interfaces between TELIDON and full text information storage and retrieval systems such as BASIS and ORBIT.

7. VIDEOTEX AND THE ELECTRONIC PUBLISHING  
MARKETPLACE

## 7. VIDEOTEX AND THE ELECTRONIC PUBLISHING MARKETPLACE

An electronic publishing marketplace is created by a "System Operator" who operates the service ("the System") which is used by the "Information Providers" (the "IPs") as the medium to address their "Audiences". The actual communication network that knits the system operator to the audience is provided by "Common Carriers", in the form of telephone lines, Datapac, TV cable systems, etc.



Information providers control the content and applications which they usually produce and own. Their return is from the sale of information and from the advertising and sale of goods and services through the medium. In Canada, any organization or individual may be an Information Provider. The Canadian Independent Record Production Association, government departments such as Parks Canada, Southam and Torstar are all examples of Information Providers, as indeed can be INFOMART in those situations where it is INFOMART developed and/or "owned" information that is involved.

The System Operators manage and operate the system. Because they own and operate the database computers and software which determine the function of the medium, they are the "Electronic Publishers". The service may be public as a general commercial offering, or private for the exclusive use of a single organization or "closed user group". The System Operators' return is from Information Providers and, in some cases, audiences for their use of the medium. In Canada, any organization may be a System Operator.

INFOMART is a System Operator of both database search services and of videotex services.

The System Operators, Information Providers and audiences depend upon a number of suppliers, particularly equipment manufacturers and communications carriers. Equipment manufacturers supply input systems, computers, terminals, TV sets and personal computers. Communications carriers supply two-way links through telephone or cable systems, or one-way links through broadcast or cable systems.

## 7. VIDEOTEX AND THE ELECTRONIC PUBLISHING MARKETPLACE (cont'd)

### The Potential of Electronic Publishing

Electronic publishing has the potential of becoming a medium as significant in social and economic impact as the print or broadcast media. International Data Corporation forecasts electronic publishing revenues of \$12 billion in North America by 1985, with an annual growth rate in excess of 30%.

There are four reasons why such rapid growth in the electronic publishing industry is being projected by so many sources:

- (a) The cost of computer-communications systems is dropping rapidly. For example, the cost of computer storage is decreasing an average of 40% every two years and is expected to drop at least as quickly throughout the 1980's.
- (b) The convenience, speed and flexibility associated with electronic access to markets make electronic publishing a better means through which to disseminate certain type of information, and to advertise and sell many types of services and products. This is being recognized and acted upon by many different industries, particularly banking, retailing, publishing, direct marketing, insurance and telecommunications. The growth and variety of new experiments and services is dramatic.
- (c) The market acceptance of electronic publishing, as indicated by market research, appears to be high. A multi-client study conducted in 1980 in the United States by the Arbitron Division of Control Data Corporation documents that:
  - Consumer acceptance of interactive videotex for the purposes of teleshopping, information retrieval, entertainment, education, electronic mail and billpaying will be high;
  - Enthusiasm for those applications is highest amongst those who are aware of videotex-type services; and
  - Awareness of videotex is growing more rapidly than predicted earlier.
- (d) The capital needed to generate such rapid growth is starting to be made available particularly in the United States. Many large investments are being made by major corporations and governments to gain a position to participate in the potential of electronic publishing. These investments are evidence that these corporations perceive potential long-range opportunities in electronic publishing, as indeed we do.

## 7. VIDEOTEX AND THE ELECTRONIC PUBLISHING MARKETPLACE (cont'd)

### The Nature of Videotex

Videotex systems allow access, by simple "menu" selection, or by two or three pre-defined indices, to single pages of content.

Videotex databases are, therefore, most suitable for current information and are ideally suited to the needs and practical capabilities of the average, untrained user at home or in business. The key features of videotex technology are: attractive in colour and graphics display, extremely simple operation and very low cost. The simplicity of videotex is particularly significant because it makes possible three capabilities:

- (a) The decentralization of content creation and maintenance across a wide range of Information Providers.
- (b) The use by the general public of unattended terminals in public locations.
- (c) It can allow the general mass consumer simple access to a wide variety of information via his regular home TV set which can be connected on demand to central computers through a local telephone line or cable TV connection.

The key role of videotex is as a potential new mass medium.

Videotex in its maturity will form an electronic web of communication and interaction between mass consumers, business, citizens, and government.

Currently, the leading videotex technologies in the world include the original British system, now renamed PRESTEL, which was created and developed to full commercial status by the British Post Office; ANTIOPE, developed and strongly supported and promoted by the Government of France; CAPTAIN, the experimental Japanese interactive videotex system; and TELIDON, a late starter but generally regarded as the superior system, developed by the Department of Communications of the Government of Canada. TELIDON can be used in both videotex and teletext applications.

## 7. VIDEOTEX AND THE ELECTRONIC PUBLISHING MARKETPLACE (cont'd)

### The International Videotex Marketplace

The international videotex market situation can be summarized as follows:

#### (a) United States

The United States is by far the largest and most important market and it is the decisive battleground. There is no native American videotex system that has reached operational maturity.

To succeed at videotex involves large focused concentrations of capital, labour and management. The British and the French are doing just this with their Prestel and Antiope Systems. They have focused on major marketing proposals in the U.S.A., designed not only to sell their technologies to prospective videotex system operators, but also to influence the outcome of regulatory and technical standards currently under deliberation in that country.

So far, CBS, NCET, a PBS station in Los Angeles and Dissly Research Corp. (a subsidiary of the Courier Journal and Louisville Times Co. of Kentucky), have chose the French system for the teletext tests, with WFLD-TV in Chicago having chosen the British CEEFAX system. There is a TELIDON teletext experiment underway at WETA, a PBS station in Washington, D.C. TELIDON trials are also being planned by TIME, Inc., of New York and Times-Mirror Videotex Services of Los Angeles for late 1981, early 1982. Knight-Ridder is running a major test called VIEWTRON in Coral Gables, Florida using an experimental system developed in conjunction with AT&T. Both AT&T and GTE are known to be considering videotex systems for some future projects, but no announcements have been made. AT&T have, however, indicated that it will use a Presentation Level Protocol that is TELIDON and Antiope compatible.

Specialized time-sharing systems are being used in more than a dozen projects in the United States.

## 7. VIDEOTEX AND THE ELECTRONIC PUBLISHING MARKETPLACE (cont'd)

### (b) Europe

With the exception of France, the major countries are using the British Prestel system in their experiments. There are approximately two dozen public and private Prestel systems in operation in Europe under a variety of tradenames: Bildschirmtext (Germany), Viditel (Holland), Teledata (Norway), DataVision (Sweden), Text TV (Sweden).

Gateways have been instituted between Germany and Holland by way of the Bildschirmtext system, and Aregon is reported to be developing a gateway function for third-party information retrieval systems from Prestel.

However, the public systems that will result from those experiments are open to future evolution that may include TELIDON's superior capabilities and graphics.

We are actively encouraging this approach, using TELIDON systems that can incorporate Prestel databases and TELIDON terminals that can also display Prestel pages.

INFOMART is bidding jointly with Standard Telephon Und Radio AG for the Swiss public system and we have installed a demonstration TELIDON system for STR in Zurich for marketing purposes.

### (c) Other Markets

The British have installed experimental systems in Hong Kong, Italy, Spain and Australia, with the French soon to be installing a prototype in Brazil.

INFOMART has installed a TELIDON Turnkey System for the Government of Venezuela, and is actively promoting the sale of TELIDON Turnkey Systems in Europe and the United States.

## 7. VIDEOTEX AND THE ELECTRONIC PUBLISHING MARKETPLACE (cont'd)

### The Nature of Database Searching

Database searching systems allow access by a wide variety of index methods to single document records or arrays of data for special processing later.

These systems are therefore appropriate for archival information and large collections of data and documents where "everything" on a subject is required for research purposes. The users, therefore, tend to be generally intermediaries such as librarians, information scientists, gatekeepers and other professionals with some training in the handling and dissemination of information. The key features of database searching systems are: fulltext and keyword searching, sophisticated numerical data handling, organization and indexing, large databases (ranging in size from 10,000 to more than several hundred thousand records), user-defined programming functions, and hardcopy output.

The power of database searching is highly complementary to videotex, making possible a number of capabilities:

- (a) The centralized, duplication-free maintenance of large databases, files, morgues and libraries of information containing historical and little-used information and data for access on an as-required basis. Via soon-to-be-developed gateways to videotex systems, this information becomes available farther and wider, more easily, and cheaply.
- (b) The provision of powerful access procedures such as Boolean logic and associative retrieval to produce highly selective information outputs and displays in order to enhance the menu and tree structure approaches of videotex.
- (c) The availability of wide-ranging and non-videotex information files on database search systems such as Info Globe (from the Globe and Mail), the Source and CompuServe to round out the coverage of information and services provided by videotex System Operators.
- (d) The user is an active participant and can instantly adopt his request to the reality of what is actually in the database.

## 7. VIDEOTEX AND THE ELECTRONIC PUBLISHING MARKETPLACE (cont'd)

### The International Database Searching Marketplace

Although online databases were available from the mid-1960's, these early databases were generally in-house or otherwise not openly available. They included the large limited-access, on-line database systems built under contract to the U.S. Government by Lockheed (e.g., the NASA-RECON system) and by SDC (e.g., the National Library of Medicine's AIM-TWX system).

It is fair to say that no sizeable public access systems were available until about 1972. Growth thereafter was rapid, with over 135 system operators now in the marketplace providing access to approximately 770 databases, containing some 65 million document references. Strictly-numeric databases systems and those system operators and service bureau companies routinely providing private database services such as INFOMART would expand these figures greatly.

The BASIS database searching system is now installed worldwide in over 50 sites, with major clients such as INFOMART, Pergamon-Infoline (London), Control Data Corporation and Battelle Columbus Laboratories, the developer of BASIS leading the way in its application and use. INFOMART will likely play a major role in the evolution of BASIS to accommodate videotex facilities.

## APPENDICES

# BATTELLE'S BASIS

INNOVATION IN DATA MANAGEMENT

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# BASIS

**BASIS** is a Data Management System developed and distributed by Battelle Laboratories. Since BASIS has been designed modularly, it can readily support your unique needs. BASIS is a portable system, allowing for changes in hardware with very little effect upon the data bases already created using BASIS. And BASIS is available on both large mainframe computers and minicomputers.

**BASIS** is designed for those who really need it. A self-contained system, BASIS requires no programming background to create your data bases. A powerful Data Definition Language eliminates the need for additional computer programs, making it possible to have your application up and running within a couple of days.

**BASIS** is versatile. BASIS currently supports both textual and numeric data bases. It has been used for standard library, personnel, and bibliographical data bases, as well as those dealing with aircraft safety, cancer research, and mental health.

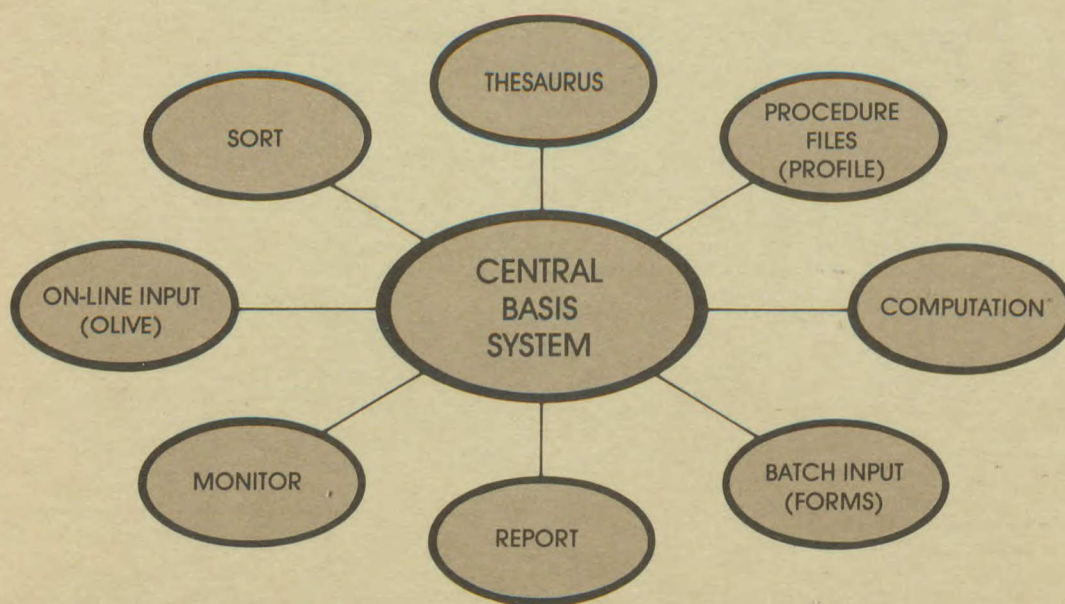
**BASIS** is a user-friendly interface to on-line data bases. The BASIS Query Language makes inquiry and retrieval of information a simple matter, even for those with no computer background. A few of the features

included in the Query Language are help functions, proximity and range searching, index browsing, and catalogued searches.

**BASIS** is highly functional. Do you need to retrieve information in a flexible, totally unstructured manner? BASIS can do it. Is there more than one word that typically describes an item? Tell BASIS. Do you frequently deal with more than one language? Let BASIS do the translating. Do you need to mathematically manipulate specific data? BASIS can do it for you. Must you produce the same search, creating an updated monthly report? Tell BASIS how, only once.

**BASIS** is secure. Four types of data base security are available to BASIS users. In addition, access controls for the modification of BASIS data bases can be defined.

**BASIS** is a mature product. BASIS was initially developed in the late 1960's and used internally at Battelle before being released in 1973. The most recent version, released in 1979, is a highly refined product. And Battelle intends to keep it that way. As a not-for-profit organization, Battelle's reinvestment of BASIS revenues into the ongoing development of BASIS assures its users that BASIS will remain a state-of-the-art Data Management System.



# BASIS Modules Summary

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## **Central BASIS System** allows you to:

- ... interface with data bases via a user-friendly Query Language.
- ... use an unstructured approach to perform searches and analyses.
- ... support both textual and numeric data bases.
- ... use several print/display/list options.

## **Batch Input (Forms)** allows you to:

- ... load large volumes of data without writing input programs.
- ... validate data without writing validation programs.
- ... update data bases using a variety of input formats.
- ... hold invalid data until edit errors can be resolved.

## **Report** allows you to:

- ... perform on-line and off-line report definition and production.
- ... apply computational and arithmetic functions to numeric data.
- ... interface to SPSS and other software packages.
- ... read and create non-BASIS related sequential files.

## **Monitor** allows you to:

- ... capture detailed information on the usage of data bases.
- ... capture basic accounting data.
- ... identify data base utilization by individual user.
- ... provide statistical reports for the data base administrator.

## **On-Line Input (Olive)** allows you to:

- ... perform on-line input and modification of data.
- ... validate data based upon your specifications.
- ... create a holding file of updated data.
- ... be prompted for data input.

## **Sort** allows you to:

- ... sort on multiple fields.
- ... sort in ascending or descending sequence.
- ... sort on partial fields.
- ... create a new data set with the result of the sort.

## **Thesaurus** allows you to:

- ... standardize indexing vocabulary.
- ... enter common search terms and have them switched to preferred terms.
- ... converse with BASIS and perform searches in another language (i.e., French).
- ... have both on-line and multiformat hardcopy access to the thesaurus information.

## **Procedure Files (Profile)** allows you to:

- ... interrupt a BASIS session at any time and complete it later.
- ... save search procedures used repeatedly.
- ... selectively disseminate information.
- ... associate different procedures with specific users.

## **Computation** allows you to:

- ... obtain descriptive statistics on your data.
- ... perform linear regressions.
- ... generate histograms and plots.
- ... apply arithmetic functions to arrays.

# What Else?

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## **Comprehensive Documentation**

The BASIS package includes the User's Reference, Data Definition Language, Report Reference, Thesaurus, Training, Utilities, and BASLIB Reference Manuals.

## **Training Seminar**

An intensive 4-day Training Seminar is conducted by BASIS personnel quarterly at Battelle-Columbus. The presentations are prepared and conducted by the creators of BASIS.

## **Source Code**

The BASIS Source Code is provided at the time of installation. Source Code is provided to facilitate maintenance and modifications to the software.

## **Analyst Support**

Both installation and instructional support is provided by BASIS personnel. They will review your software/hardware configuration, install the BASIS modules, perform a system checkout, and help you define at least one data base. The BASIS staff also provides data base analysis support.

## **Maintenance**

Maintenance is provided as part of the purchase price for the duration of the contract period. Following the contract period, various maintenance agreements are available.

## **Hardware Availability**

BASIS is currently available on the IBM 370 and 303X series, the CDC 6000 and CYBER series, the DEC 10, DEC 20, and DEC 11/780 VAX minicomputer, and the UNIVAC 1100 series.

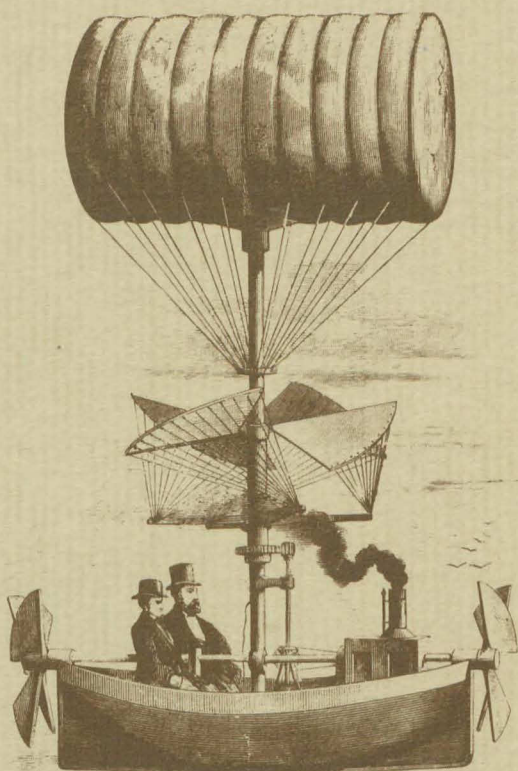
## **Multiple Copies**

Additional copies of BASIS, to be used at the same installation, are priced at 40% per copy of the same module on the same hardware and at 60% per copy for different hardware.

## **BASIS Users' Group**

Many of the BASIS Users have recently formed an organization which allows them to share each other's individual BASIS expertise and techniques. And the feedback from this group will guide Battelle in its constant endeavor to make BASIS the best, most user-responsive product it can be.

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**FOR ADDITIONAL INFORMATION CONTACT:**

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BASIS Coordinator  
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Tokyo 100-91  
Japan

TOKYO (03) 2121

## About Battelle-Columbus

The Columbus Division of Battelle Memorial Institute comprises the original research center of an international organization devoted to research and development.

Through its sponsored research and development, Battelle-Columbus serves the needs of industry and government. Studies range from subjects on the frontiers of science, through the immediate problems of industry, to the development of materials and systems for defense, which may have industrial applications in future decades. Among the major research and development areas are the computer sciences, energy, environmental quality, resource management, technical economics, social and behavioral sciences, health sciences, engineering and manufacturing technology, materials sciences, transportation, and national security. Current research volume at the Columbus Division exceeds \$100 million annually.

Battelle has other major research centers in Frankfurt, Germany; Geneva, Switzerland; and Richland, Washington.



**Battelle**

Columbus Laboratories

505 King Avenue  
Columbus, Ohio 43201



## WHAT IS BASIS?

### DATA MANAGEMENT SYSTEM

### HISTORY

- Initially developed at Battelle-Columbus Laboratories in the late 1960's
- Fourth version of BASIS released in 1979
- Installations in the U.S., Canada, Europe, and the Far East
- Hundreds of applications including medicine, defense, engineering, personnel, library sciences, and other areas

### BASIS FEATURES

- Multiple indexing options available for every data element
- Variable length data elements and records supported through a text compression algorithm
- Inverted index or sequential list searching through an easy-to-learn query language
- Query language provided with the standard central system software at no extra cost
- Combined text and numeric data retrieval
- Index browsing and scanning
- Entire data base can be re-indexed without modifying the data base records

### USER SUPPORT

- Available on CDC, UNIVAC, IBM, and DEC hardware
- Intensive one week training seminars provided periodically
- Source code and comprehensive system documentation provided to user sites

### FOR ADDITIONAL INFORMATION CONTACT:

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505 King Ave.  
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(614) 424-4062

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(022) 43 98 31

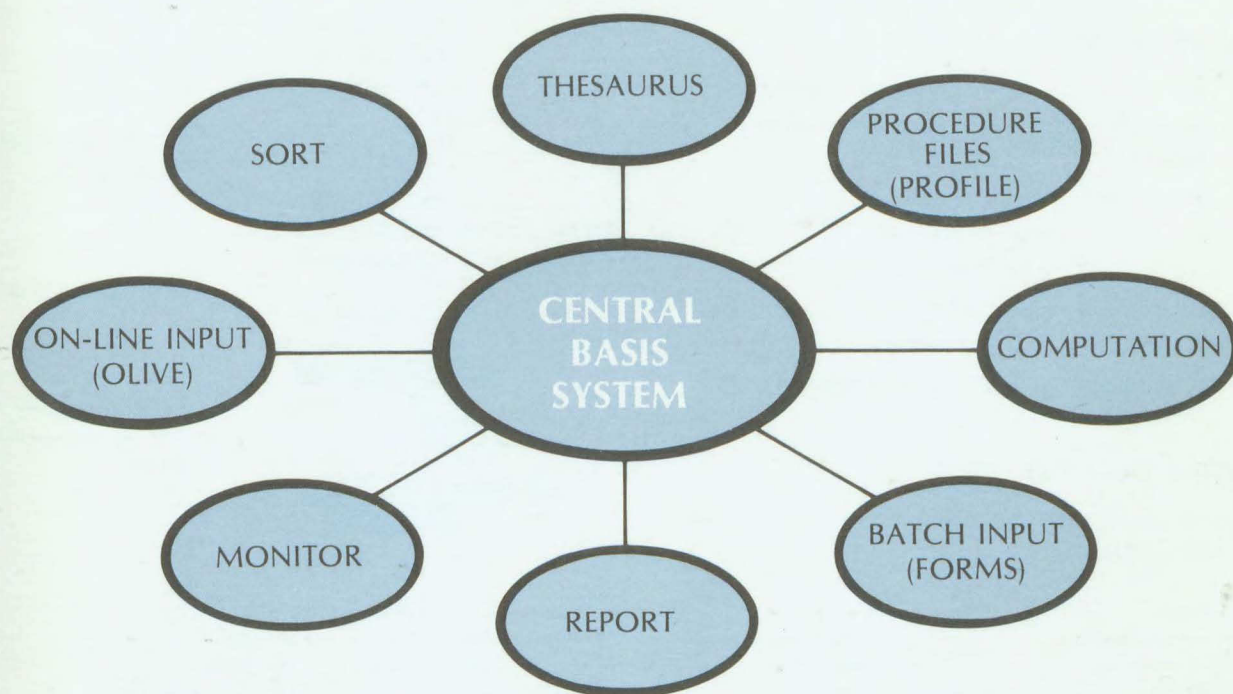
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DATA MANAGEMENT SYSTEM



## AN OVERVIEW OF THE SYSTEM COMPONENTS



### WHAT KINDS OF NEEDS DO **YOU** HAVE?

- The need to have a system up and running on **your** computer quickly
- The need to be able to search very large data bases efficiently
- The need for vocabulary control in your searches
- The need for integrated computational capabilities
- The need to provide a system that is easy for your users to learn
- The need for a system flexible enough to fit **your** application rather than you fitting your application to the system
- The need for a system that can be utilized with a variety of applications

## WHAT IS BASIS?

In its simplest form BASIS is a data management system. What sets it apart from other systems are the many user oriented features that have been built in as "standard equipment". For example, BASIS is:

- ...available on several mainframes including IBM, CDC, DEC, and UNIVAC
- ...available on minicomputers such as the DEC VAX 11/780
- ...multi-lingual (data base interaction in several languages)
- ...able to handle both alphabetic and numeric data with equal ease
- ...a cost-effective way of handling massive amounts of information

## BASIS PROVIDES

- ...full ANSI standard thesaurus capabilities
- ...an ability to capture a user's session for replay
- ...an on-line report writer
- ...an on-line input processor
- ...batch loading of data bases
- ...on-line sorting capabilities
- ...a computational capability
- ...an ability to monitor user sessions

## WHAT DO I DO NEXT?

If you would like more information on BASIS, please contact:

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## WHAT DOES BASIS LOOK LIKE TO THE USER?

BASIS was designed with the user in mind. Easily created data bases are just as easily accessed with a user language that takes little time to master. Reproduced below is a sample user interaction (the user's entries are highlighted). In it we are trying to find all the countries in North America larger than 1,000,000 square miles.

```
BASIS
ENTER YOUR REQUEST
1/ FIND LOC:NORTH
* 0 1/ LOC:NORTH
2/ LOOK LOC:NORTH
```

Search for term "NORTH"  
No items found  
Look at adjacent terms since  
"NORTH" does not exist as  
term

```
ITEMS.    TERMS
A      34  LOC:EUROPE
B       7  LOC:FAR EAST
C      17  LOC:MIDDLE EAST
```

\*\*\*\*\* YOUR TERM \*\*\*\*\*

```
D       3  LOC:NORTH AMERICA
E       7  LOC:OCEANIA
F      12  LOC:SOUTH AMERICA
```

AHA! It's under "NORTH AMERICA"

MORE TERMS ARE AVAILABLE

PICK LETTERS TO COMBINE

```
2/ D
3 ITEMS SAVED AS SET 2
CONTINUE PICKS OR REQUESTS
```

Ask for "NORTH AMERICA"

```
3/ FIND SIZE:GT1000000
* 7 3/ SIZE:GT 1000000
4/ 2 AND 3
```

Look at countries larger than  
1,000,000 square miles  
> 1m sq miles and in North  
America

2 ITEMS SAVED AS SET 4

```
5/ DISPLAY NAME SIZE+
DISPLAY...POP62 LOC
```

ITEM 1

|                    |               |
|--------------------|---------------|
| NAME OF COUNTRY    | CANADA        |
| SIZE (SQ. MILES)   | 3851787       |
| POPULATION IN 1962 | 18928000      |
| LOCATION           | NORTH AMERICA |

ITEM 2

|                    |               |
|--------------------|---------------|
| NAME OF COUNTRY    | UNITED STATES |
| SIZE (SQ. MILES)   | 3540939       |
| POPULATION IN 1962 | 191334000     |
| LOCATION           | NORTH AMERICA |

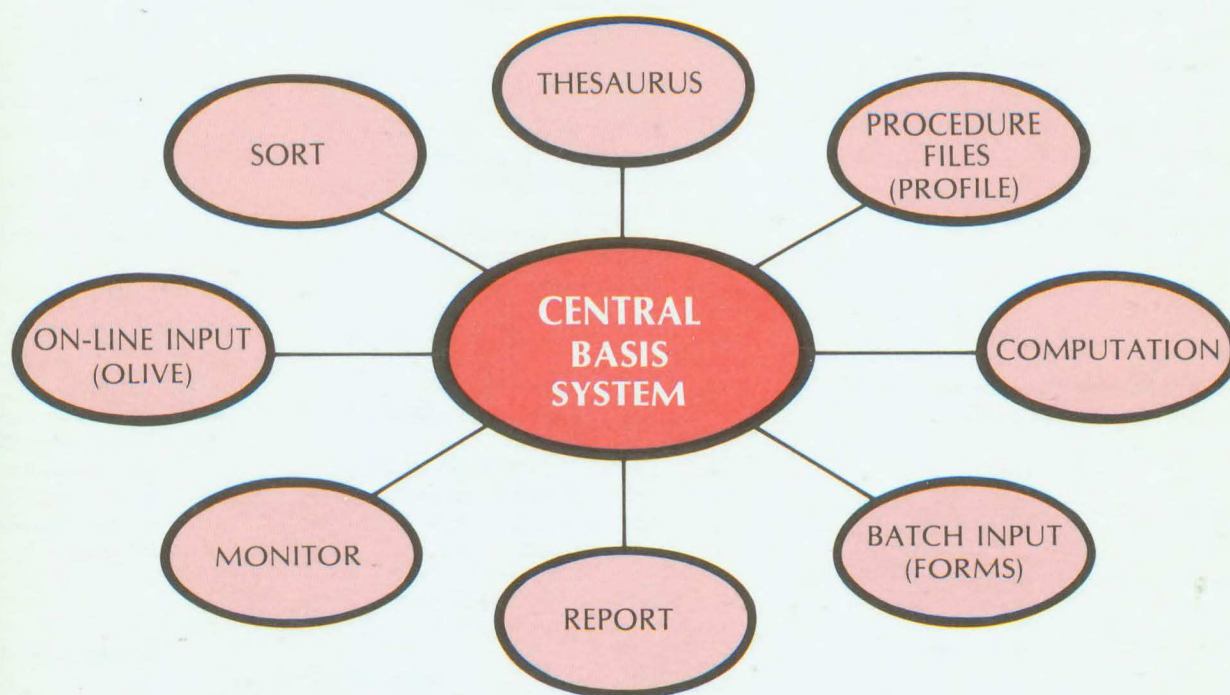
```
5/ QUIT
```

# BASIS

DATA MANAGEMENT SYSTEM



## THE CENTRAL BASIS SYSTEM



### WHAT RETRIEVAL NEEDS DO YOU HAVE?

- The need for a low-cost, efficient data management system from a leader in the field
- The need for a reliable, easy-to-use system
- The need to plan for system expansion in a careful, responsible manner
- The need to have a system up and running on **your** computer quickly
- The need to support data bases of almost any size and complexity
- The need for a system that is flexible enough to handle most user applications

## WHAT DOES THE CENTRAL SYSTEM LOOK LIKE?

BASIS can perform searches either through the use of an inverted index or through the use of the actual data records. Although the first is the most efficient, the second provides the user with a great deal of flexibility. Other features of BASIS include . . .

- ...the ability to enter search terms in a fast, efficient manner
- ...the ability to search for numeric ranges of specific variables
- ...the ability to look at adjacent terms to overcome "floundering" in a data base
- ...the ability to scan a data base using prefix searches
- ...the ability to perform a sequential search
- ...the ability to map related fields together in the data base
- ...the ability to coordinate searches across or within fields
- ...the ability to redefine your "universe" in terms of subsets of the overall document set
- ...the ability to perform hierarchial searches
- ...several printout/display/list options

## WHAT DO I DO NEXT?

If you would like more information on any of the BASIS components, please contact:

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(614) 424-4062

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## WHAT DOES THE CENTRAL SYSTEM LOOK LIKE TO THE USER?

Reproduced below are selected uses of the principal BASIS features—stem searching, range searching, displaying term lists from the index, listing previous search lines, displaying and printing document sets, etc. Other features, such as sequentially searching a document set are also available.

### ENTER YOUR REQUEST

1/ FIND NAME:SMITH\* AND AGE:16/20 AND STATE:+  
...OH OR STATE:TX

\* 40 1/ NAME:SMITH (39 TERMS COMBINED)  
\* 658 2/ AGE:16/20  
\* 1898 3/ STATE:OH  
\* 6 4/ STATE:TX  
\* 3 5/ NAME:SMITH\* AND AGE:16/20 AND+  
...STATE:OH OR STATE:TX

6/ LOOK CITY:CLEVEL\*

.ITEMS. TERMS

A 37 CITY:CLEVELAND  
B 8 CITY:CLEVELAND HEIGHTS  
C 1 CITY:CLEVEL

END OF TERMS WITH YOUR STEM  
PICK LETTERS TO COMBINE

6/ LOOK CITY:CLEVEL

.ITEMS. TERMS

A 3 CITY:CLARKSTON  
B 4 CITY:CLAWSON  
\*\*\*\*\* YOUR TERM \*\*\*\*\*  
C 37 CITY:CLEVELAND  
D 8 CITY:CLEVELAND HEIGHTS

MORE TERMS ARE AVAILABLE

PICK LETTERS TO COMBINE

6/ LOOK (11-15) CITY:CLEVEL\*

.ITEMS. TERMS

A 2 CITY:COLUMBIA STATION  
B 1 CITY:COLUMBIANA  
C 480 CITY:COLUMBUS  
D 4 CITY:CONCORD  
E 1 CITY:CONNEAUT

MORE TERMS ARE AVAILABLE

PICK LETTERS TO COMBINE

6/ LIST

.ITEMS. LINE REQUEST  
\* 40 1/ NAME:SMITH ( 39 TERMS COMBINED)  
\* 658 2/ AGE:16/20  
\* 1898 3/ STATE:OH  
\* 6 4/ STATE:TX  
\* 3 5 NAME:SMITH\* AND AGE:16/20 AND+  
...STATE:OH OR STATE:TX

6/ PRINT=4,NAME,CITY FOR ALL

ORDER NUMBER 79046-093628-CWEST-001-001  
WITH 6 OF 6 ITEMS

WILL BE PRINTED OFF-LINE

6/ DISPLAY NAME FOR ALL

SMITH, BERNIE  
SMITH, TOM  
SMITH, WILLIAM

6/ QUIT

PLEASE ENTER YOUR MAILING ADDRESS TO LABEL  
YOUR PRINTS

SEPARATE EACH LINE WITH A COLON (:)

ADDRESS ... JOHN SMITH:BATTELLE LABS

JOHN SMITH

BATTELLE LABS

CORRECT ADDRESS (YES:NO)?

/ YES

ORDER NUMBER 790406-093628-CWEST-001 ROUTED (1 PRINT)).

GOODBYE

Can do stem searching on field, range searching with combination of logical operators

Can display term lists from the data base index—this is an example of a stem search which gives every term which begins with the root given

Adjacent terms listed—terms located on either side of the term requested

Browse list—begins with the first term having a root given and continues through the index. In this case, however, we specified only the display of items 11-15.

Display the search resume far

Request an off-line printout

Show the NAME field for each document

End the session

Obtain mailing address printouts were requested

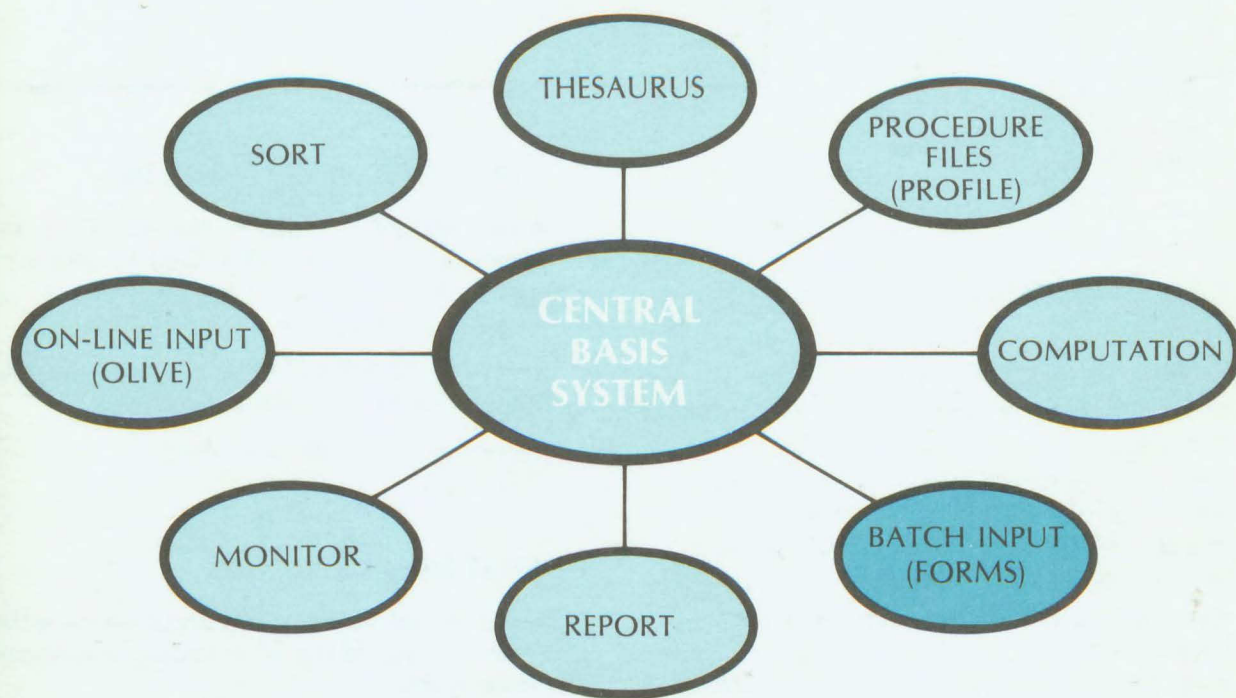
Verify the address



DATA MANAGEMENT SYSTEM



## BATCH INPUT (FORMS)



### WHAT DATA BASE LOADING/UPDATING NEEDS DO YOU HAVE?

- The need to load large volumes of data without the necessity of writing input programs
- The need to edit any field in a data base record without writing edit programs
- The need to update data bases using a variety of different input formats
- The need to keep invalid records in a hold file until edit errors can be resolved

## HOW DOES FORMS WORK?

The following example represents the Fixed Format input option of FORMS. First, the data definition language (DDL) description of the input format is presented. This defines the fixed positions of the data fields in the input records. Next, sample data is presented as eighty character record images. Finally, the results of the update are discussed.

### FORM1 DDL DESCRIPTION

```
FORMS.DESCRPTION;  
FORM.NAME="FORM1";  
RECORD.TYPE=RDINSQ;  
RECORDS.PER.BLOCK=40;  
RECORD.LENGTH=80;  
FORM.TYPE=FIXED;  
NUMBER.OF.RECORDS=2;  
DELETE.FLAG=$;  
DATA(1)=1(2:10),2(11:20),3(21:30),  
AC(1,1),ACC.NR(2:10);  
DATA(2)=4(1:40),5(41:80);
```

### WHAT DOES FORMS DO?

FORMS provides the BASIS user with a variety of benefits. Among them are:

- the ability to replace user programmed input processors
- the ability to create new documents, modify existing documents, or delete documents
- the ability to describe many data layouts in the data description language
- the ability to choose between three general data formats ...
  - FREE.FORM.A which permits a variable data format
  - FIXED in which fields are fixed from record to record
  - STANDARD in which a variable number of records is permitted

## COMMENTS

Each transaction is specified as 2 data records. The accession number and field 1 are extracted from columns 2 through 10 of the first record—1(2:10) and ACC.NR(2:10). Fields 2 and 3 and an action code are also on the first record; record 2 contains fields 4 and 5.

### FORM1 SAMPLE DATA

|    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | ... | 8 |   |   |   |   |
|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|
| 1A |   |   |   |   |   |   |   |   |   | 1 | 0 | 0 | 4 |   | L | I | T | T | L | E |     | A | B | N | E | R |
| 2C | O | M | I | C |   |   |   |   |   | S | T | R | I | P |   | C | H | A | R | A | C   | T | E | R |   |   |
| 3C |   |   |   |   |   |   |   |   |   | 1 | 0 | 0 | 5 |   |   |   |   |   |   |   |     |   |   |   |   |   |
| 4  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |
| 5D |   |   |   |   |   |   |   |   |   | 1 | 0 | 0 | 6 |   |   |   |   |   |   |   |     |   |   |   |   |   |
| 6  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |

### FORM1 UPDATE DESCRIPTION

A new record is added to the data base with identification number 1004; field 1 is also set to 1004, field 2 to LITTLE, field 3 to ABNER, and field 4 to COMIC STRIP CHARACTER.

Record number 1005 has field 2 deleted, and all other fields in it remain untouched.

Record number 1006 is deleted.

### WHAT DO I DO NEXT?

If you would like more information on either FORMS or any of the other BASIS components, please contact:

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Japan

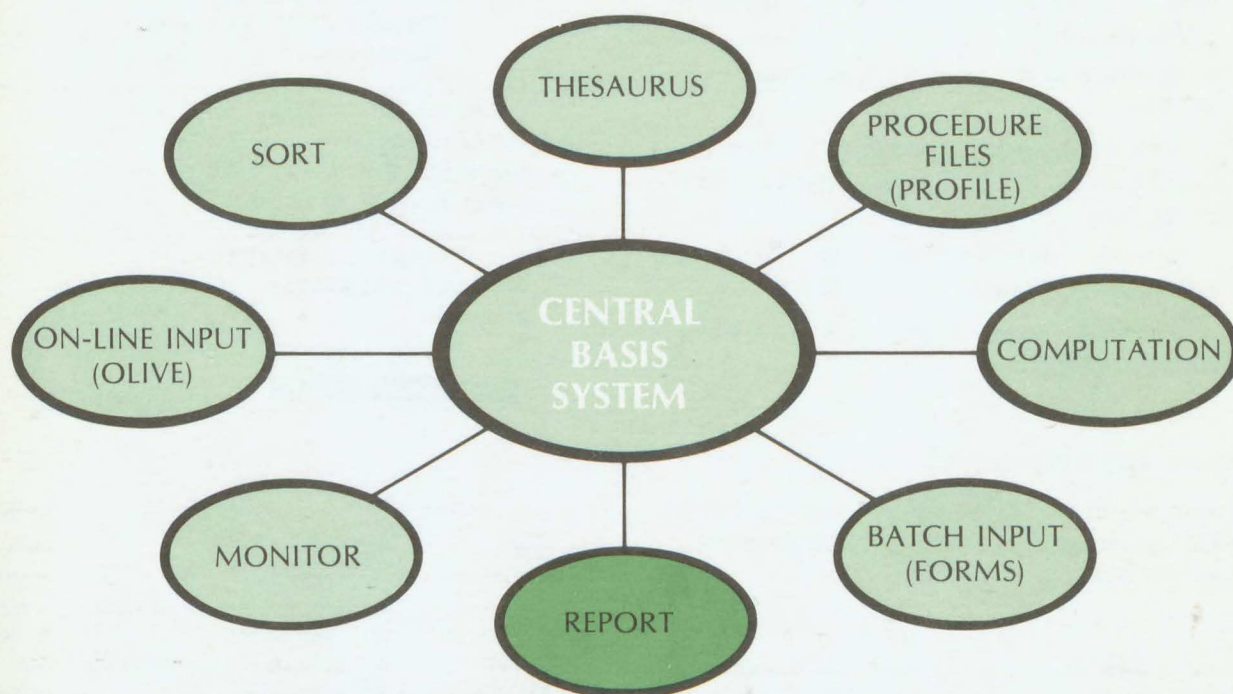
TOKYO (03) 2121

# BASIS

DATA MANAGEMENT SYSTEM



## REPORT



### WHAT REPORT REQUIREMENTS DO YOU HAVE?

- The need to permit on-line and off-line definition and production of reports
- The need to evaluate computational and arithmetic functions over sets of records
- The need to save reports for later use
- The need to read and write non-BASIS related sequential files

## WHAT DOES REPORT DO?

With data bases typically responding to the needs of many categories of users, the importance of a flexible and concise formatting capability has become more evident. BASIS fulfills these needs with its REPORT module. This can...

- ...provide an easy method to extract and manipulate BASIS data base records
- ...replace many user written application programs
- ...produce tabular displays as well as accommodate computational processing of data
- ...process and display data from standard sequential files
- ...provide the capability to merge or derive data to generate transactions for updating BASIS data bases
- ...interface to other software packages such as SPSS
- ...include powerful expression handling for manipulation of arithmetic, logical, and string data
- ...provide directives for the creating, editing, and listing of stored reports
- ...handle page headers and trailers automatically

## WHAT DO I DO NEXT?

If you would like more information on either REPORT or any of the other BASIS components, please contact:

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Japan

TOKYO (03) 2121

## HOW DOES REPORT WORK?

In the following example the source code for a sample REPORT is displayed. Next, the output from a record search is formatted utilizing REPORT.

```
BASIS
ENTER YOUR REQUEST
1/FIND DOB:GT 450101
* 9 1/DOB:GT 450101
2/REPORT SHOW EXAMPLE1

USER FILE
"EXAMPLE1"
AUTHOR=GREBUS
DATE=790624 TIME=160413
100=BEGIN
110=SKIP(.NEWPAGE.)
120=PUT("NAME" AS < X(15)>;
      "DEPARTMENT" AS < X(30)>;
      "START DATE" AS < X(12)>)
130=SKIP(1)
140=REPEAT.A
150=GET(RECORD)
160=BREAK.A IF (END.OF.SET)
170=PUT(NAME AS< X(15)>;
      DEPT AS < X(30)>;
      START AS < DATE.3<)
180=UNTIL.A(FOREVER)
190=END

ENTER REPORT DIRECTIVE
/EXECUTE EXAMPLE1
```

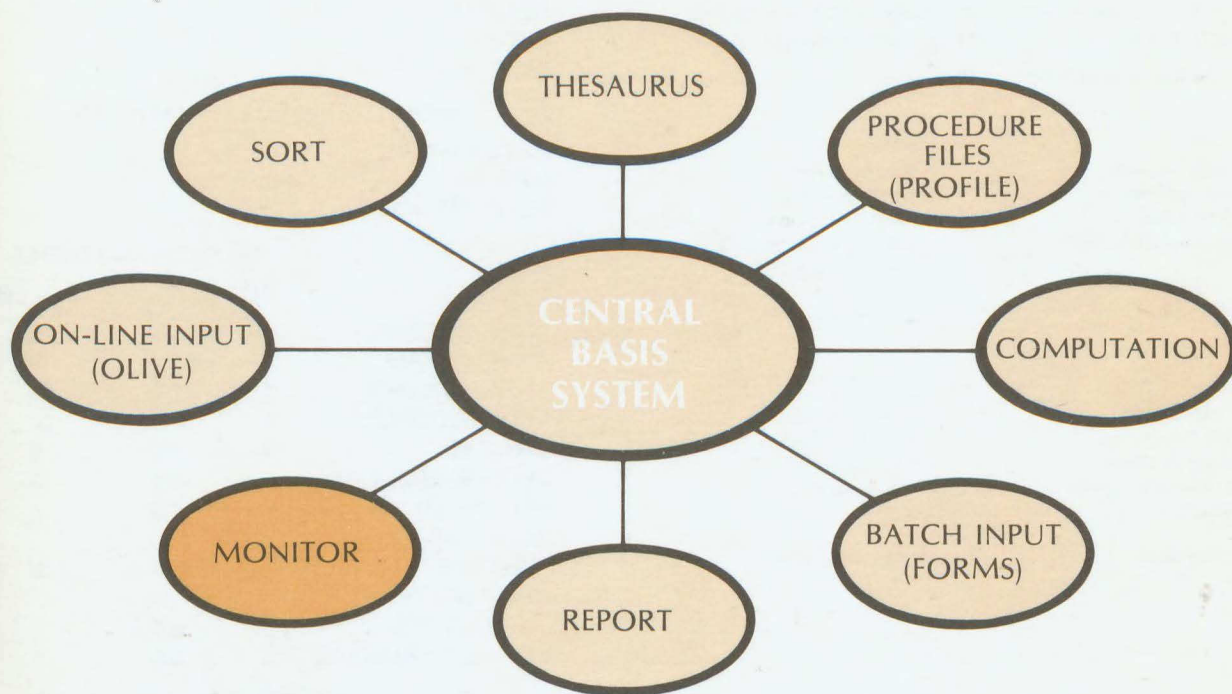
|           | NAME | DEPARTMENT              | START DATE |
|-----------|------|-------------------------|------------|
| KING      | 300  | MARKETING               | 30/10/68   |
| BIONIC    | 123  | PERSONNEL               | 01/01/77   |
| ACKLES    | 284  | SYSTEMS—SOFTWARE DESIGN | 21/05/76   |
| EASTGROVE | 123  | PERSONNEL               | 06/09/73   |
| GLENN     | 284  | SYSTEMS—SOFTWARE DESIGN | 04/12/70   |
| JOHNSTON  | 300  | MARKETING               | 14/03/69   |
| MATCHBOOK | 300  | MARKETING               | 05/11/72   |
| KARRY     | 300  | MARKETING               | 15/11/60   |
| PENNY     | 284  | SYSTEMS—SOFTWARE DESIGN | 04/08/74   |

# BASIS

DATA MANAGEMENT SYSTEM



## MONITOR



### WHAT DATA BASE MONITORING NEEDS DO YOU HAVE?

- The need to capture detailed information on the usage of data bases
- The need to capture basic accounting data
- The need to identify data base utilization by individual user

## WHAT DOES MONITOR DO?

Particular applications require the auditing/monitoring of data base use. BASIS provides a flexible monitoring capability for the data base administrator to compile statistical reports of BASIS data base utilization. MONITOR reports consist of . . .

- . . .the commands, their frequencies, and average frequencies with respect to total sessions
- . . .summarized statistics of data base use including retrieval and overall use parameters
- . . .the data base, user ID, and search term for each record retrieval
- . . .detailed statistics for specifically identified data bases and/or users

## WHAT DO I DO NEXT?

If you would like more information on either MONITOR or any of the other BASIS components, please contact:

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Japan

TOKYO (03) 2121

## HOW DOES MONITOR WORK?

In the following example report the summary statistics for one data base which has been queried by two users is presented.

### BASIS MONITOR RESULTS SUMMARY OF DATA BASE USE

#### DOCUMENT SET RETRIEVAL SEARCH TERMS

| TEXT OF TERM | DATA BASE | USER ID | PROFILE |
|--------------|-----------|---------|---------|
| LOC: EUROPE  | EARTH     | JONES   | N       |
| LOC: EUROPE  | EARTH     | CLARK   | N       |

#### STEM SELECTION

| TEXT OF TERM   | DATA BASE | USER ID | PROFILE |
|----------------|-----------|---------|---------|
| LOC: N AMERICA | EARTH     | CLARK   | N       |

#### COMMAND USAGE

| COMMAND    | FREQUENCY | AVE. | FREQUENCY |
|------------|-----------|------|-----------|
| LIST (ALL) | 1         | 0.5  |           |
| LIST       | 1         | 0.0  |           |
| QUIT       | 2         | 1.0  |           |

#### MONITOR SUMMARY STATISTICS

| DATA BASE      | EARTH |
|----------------|-------|
| USER ID        | ALL   |
| TOTAL SESSIONS | 2     |

#### RETRIEVAL STATISTICS

|                           | TOTAL | AVERAGE | % USE |
|---------------------------|-------|---------|-------|
| SEARCH TERMS              | 2     | 1.0     | 50    |
| RANGE TERMS               | 0     | 0.0     | 0     |
| STEM REQUESTS             | 1     | 0.5     | 25    |
| STEM SELECTIONS           | 1     | 0.5     | 25    |
| STEM*ALL                  | 0     | 0.0     | 0     |
| BROWSE REQUESTS           | 0     | 0.0     | 0     |
| BROWSE SELECTIONS         | 0     | 0.0     | 0     |
| ADJACENT TERMS REQUESTS   | 0     | 0.0     | 0     |
| ADJACENT TERMS SELECTIONS | 0     | 0.0     | 0     |
| BOOLEAN SEARCHES          | 0     | 0.0     | 0     |

#### OVERALL USE

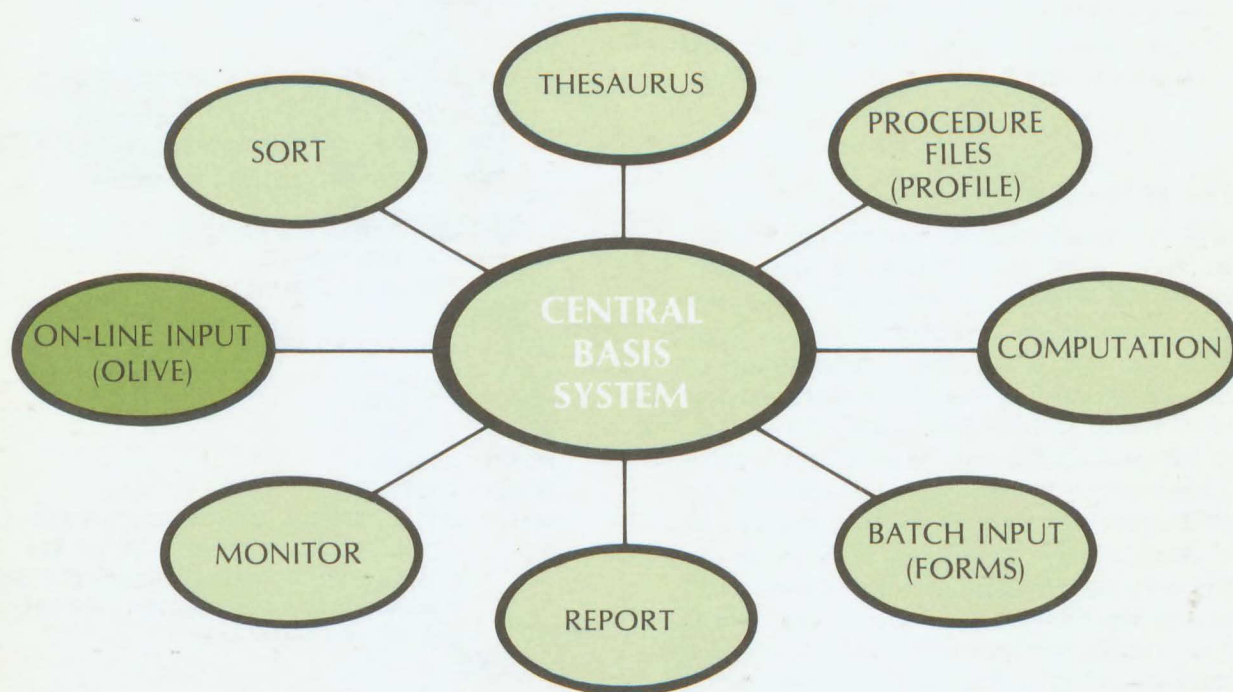
|                       | TOTAL | AVERAGE | % USE |
|-----------------------|-------|---------|-------|
| COMMANDS              | 3     | 1.5     | 42    |
| SEARCH REQUESTS       | 1     | 0.5     | 14    |
| SEARCH RETRIEVALS     | 3     | 1.5     |       |
| PROFILE INTER-ACTIONS | 0     | 0.0     | 0     |
| INTERACTIONS          | 7     | 3.5     |       |
| CP TIME (SECONDS)     | 5     | 2.5     |       |

# BASIS

DATA MANAGEMENT SYSTEM



## ON-LINE INPUT (OLIVE)



### WHAT ON-LINE INPUT NEEDS DO YOU HAVE?

- The need to perform on-line input of data and modifications of records in data bases
- The need to eliminate expensive software used for loading data bases and editing data
- The need to validate data as it is entered based on validation rules specified in the data definition language (DDL)
- The need to create a holding file of update transactions; data base updated in batch mode

## WHAT DOES OLIVE DO?

OLIVE provides many unique capabilities for inputting and modifying records to BASIS data bases. They include ...

- ...the ability to create, correct, and delete records in an on-line environment
- ...the flexibility to enter data in free form or in response to automatic prompts
- ...the capability to copy data from one record to another
- ...the ability to validate fields based on checks described in the data base definition
- ...a built-in text editor for changing the data in the data base records
- ...the flexibility to generate a command macro which can be used repeatedly
- ...the screening of records for duplicates based on the contents of data fields
- ...the capability to enter and then hold records for future release to the data base

## HOW IS OLIVE USED?

OLIVE is a BASIS module used for On-Line Input Verification and Editing of data base records. All activity is conducted by the user from a terminal on a record by record basis. When the user is creating a new record or modifying an existing record, the current data is said to reside in "the workspace". All interaction between OLIVE and the data base records is processed in this workspace. Access to the data base records through OLIVE is invoked by the user's explicit commands to fetch an existing document or to prepare a new document. The user may then set or modify document field values. Finally, the user tells OLIVE to create a transaction which will update the data base or hold the document "as is" for future modification (without affecting the existing data base).

## WHAT DO I DO NEXT?

If you would like more information on either OLIVE or any of the other BASIS components, please contact:

### U.S.A.

Battelle Columbus Labs  
BASIS Coordinator  
505 King Ave.  
Columbus, Ohio 43201

(614) 424-4062

### U.S.A.

Battelle Columbus Labs  
Washington Office  
BASIS Coordinator  
8330 Old Court House Road  
Vienna, Virginia 22180

(703) 790-8980

### EUROPE

Battelle Geneva  
BASIS Coordinator  
7, route de Drize  
1227 Carouge-Geneva  
Switzerland

(022) 43 98 31

### JAPAN

Mitsubishi Corp.  
BASIS Coordinator  
C.P.O. Box 22  
Tokyo 100-91  
Japan

TOKYO (03) 2121

## HOW DOES OLIVE WORK?

In the following example OLIVE prompts the user to enter data for all fields defined for the document except those which may already contain data. After data has been entered modification is made to the SIZE field. Finally, the fields entered and updated are displayed.

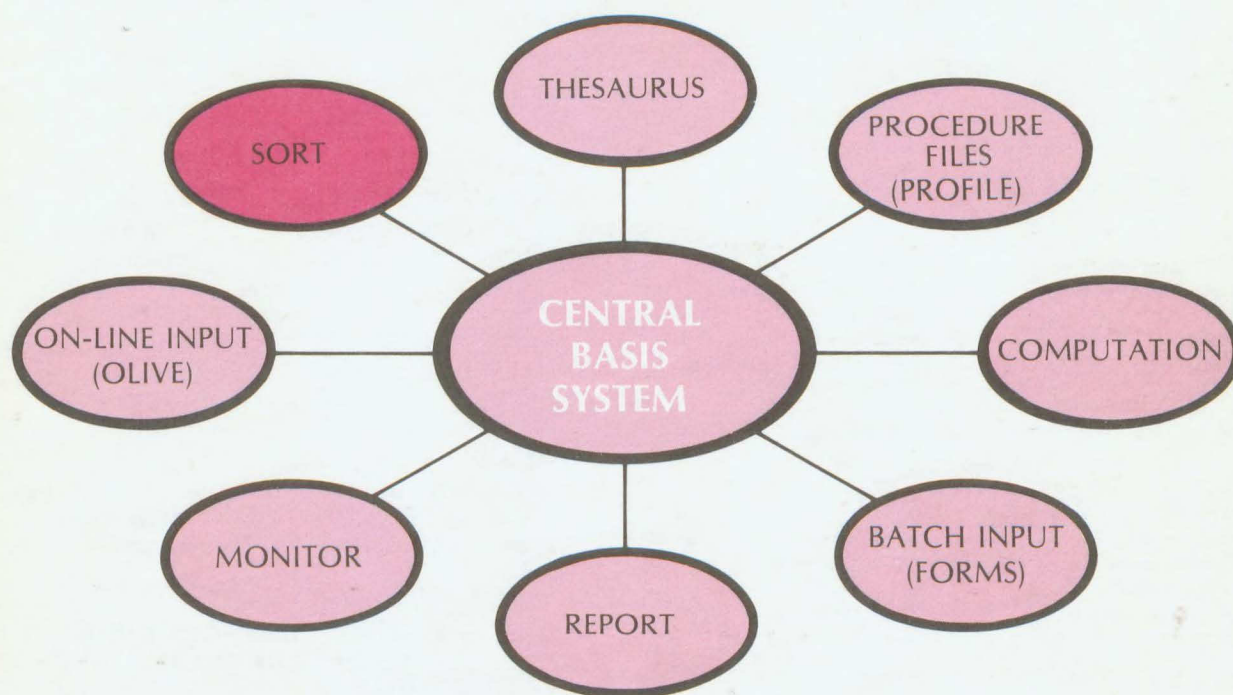
```
BASIS
ENTER YOUR REQUEST
1/ OLIVE
ENTER NEXT OLIVE COMMAND
/MAKE 100205
ENTER NEXT OLIVE COMMAND
/PROMPT
NAME? ALBANIA
LOC? EUROPE
SIZE? LLL00
POP77? 2615000
POP62? 1711000
NAT? ALBANIA IS A MOUNTAINOUS STATE,+
... LARGELY OVER 300 FEET ABOVE SEA+
... LEVEL WITH A NARROW MARSHY COASTAL+
... PLAIN CROSSED BY SEVERAL RIVERS.
ENTER NEXT OLIVE COMMAND
/AT SIZE "L" CHANGE "1" ALL
CHANGES PERFORMED - 3
ENTER NEXT OLIVE COMMAND
/SHOW
USER ENTERED DOCUMENT, KEY - 100205
NAME 1 ALBANIA
LOC 2 EUROPE
SIZE 3 11100
POP77 4 2615000
POP62 5 1711000
NAT 6 ALBANIA IS A MOUNTAINOUS STATE,
. 7 LARGELY OVER 300 FEET ABOVE SEA
. 8 LEVEL WITH A NARROW MARSHY COASTAL
. 9 PLAIN CROSSED BY SEVERAL RIVERS.
ENTER NEXT OLIVE COMMAND
/BASIS
```

# BASIS

DATA MANAGEMENT SYSTEM



## SORT



### WHAT SORT REQUIREMENTS DO YOU HAVE?

- The need to sort on multiple fields
- The need to sort in ascending or descending sequence
- The need to sort on partial fields
- The need to drop records from the sort when the main sort field is missing

## WHAT DOES SORT DO?

Due to the dynamic data requirements of BASIS users and the need to present the results of document set searches in variable sequences, an on-line SORT capability was developed. SORT allows the user to ...

- ...sort on a document set defined by any previous line number in the search
- ...create a new document set with the final result of the sort
- ...define up to 12 sort keys, from major to minor
- ...sort on partial fields and drop records not having the main sort key
- ...sort on subfields, a range of subfields, or all the subfields for a given field.

## WHAT DO I DO NEXT?

If you would like more information on either SORT or any of the other BASIS components, please contact:

### U.S.A.

Battelle Columbus Labs  
BASIS Coordinator  
505 King Ave.  
Columbus, Ohio 43201

(614) 424-4062

### EUROPE

Battelle Geneva  
BASIS Coordinator  
7, route de Drize  
1227 Carouge-Geneva  
Switzerland

(022) 43 98 31

### U.S.A.

Battelle Columbus Labs  
Washington Office  
BASIS Coordinator  
8330 Old Court House Road  
Vienna, Virginia 22180

(703) 790-8980

### JAPAN

Mitsubishi Corp.  
BASIS Coordinator  
C.P.O. Box 22  
Tokyo 100-91  
Japan

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## HOW DOES SORT WORK?

The following SORT examples are based on a document set which contains the names of countries which start with the letters "CA". First, the document set is sorted by LOC (Location)-major and NAME-minor as sort keys. Next, the document set is sorted in descending sequence by NAME.

### BASIS

#### ENTER YOUR REQUEST

```
1/ FIND NAME:CA*
* 4 1/NAME:CA(4 TERMS COMBINED)
2/ SORT LOC NAME
* 4 2/NAME:CA(4 TERMS COMBINED)
    SORT=LOC NAME
3/ DISPLAY LOC NAME POP77
```

#### ITEM 1

|                    |          |
|--------------------|----------|
| LOCATION           | AFRICA   |
| NAME OF COUNTRY    | CAMEROON |
| POPULATION IN 1977 | 6670000  |

#### ITEM 2

|                    |            |
|--------------------|------------|
| LOCATION           | AFRICA     |
| NAME OF COUNTRY    | CAPE VERDE |
| POPULATION IN 1977 | 300000     |

#### ITEM 3

|                    |               |
|--------------------|---------------|
| LOCATION           | NORTH AMERICA |
| NAME OF COUNTRY    | CANADA        |
| POPULATION IN 1977 | 23306000      |

#### ITEM 4

|                    |                |
|--------------------|----------------|
| LOCATION           | SOUTHEAST ASIA |
| NAME OF COUNTRY    | CAMBODIA       |
| POPULATION IN 1977 | 8600000        |

```
3/ SORT LINE=1 NAME/D
    4 3/NAME:CA (4 TERMS COMBINED)
        SORT=LINE=1 NAME/D
```

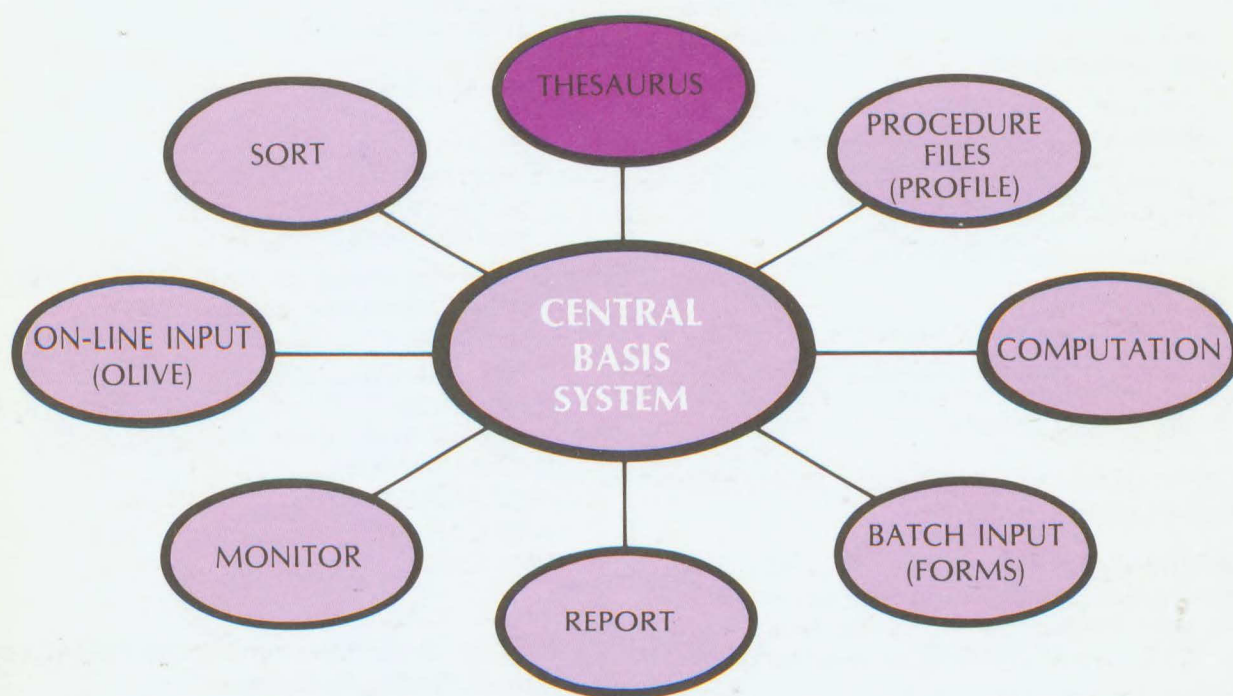
#### 4/ DISPLAY NAME

|        |                 |            |
|--------|-----------------|------------|
| ITEM 1 | NAME OF COUNTRY | CAPE VERDE |
| ITEM 2 | NAME OF COUNTRY | CANADA     |
| ITEM 3 | NAME OF COUNTRY | CAMEROON   |
| ITEM 4 | NAME OF COUNTRY | CAMBODIA   |



DATA MANAGEMENT SYSTEM

## THESAURUS



### WHAT VOCABULARY CONTROL NEEDS DO YOU HAVE?

- The need to standardize indexing vocabulary for better retrieval performance
- The need to allow casual users to enter common search terms and have them switched to preferred terms
- The need to allow multi-lingual users to converse with BASIS and perform searches in their own language
- The need to provide authority lists for validating input data
- The need for both on-line and multi-format hardcopy access to the thesaurus information

## WHAT DOES THESAURUS DO?

The BASIS THESAURUS subsystem provides full ANSI standard THESAURUS capability. It provides many features to make maintenance of the THESAURUS as simple as possible. These features allow you to...

- ...create or update in batch or interactive mode

- ...perform relationship reciprocation automatically

- ...delete a lead term and have the necessary actions taken automatically to ensure that this term no longer appears as a related term to any others

- ...delete a related term and also its reciprocal relationship

- ...create index entries which will allow retrieval terms to be switched to preferred terms automatically

- ...browse the THESAURUS on-line or receive hard copy output in flexible formats

- ...create KWIC/KWOC indexes to the THESAURUS

- ...create a display of terms based on subject categorization

- ...perform automatic upposting. Whenever a THESAURUS term is used as an index term, selected Broader Terms will also be used to index the document

## WHEN DOES VOCABULARY CONTROL TAKE PLACE?

The THESAURUS package is used to control the indexing vocabulary of records entered into a data base. A document containing the descriptor "CAR" would normally be indexed under "CAR". In the example to the right, the THESAURUS will switch the index term "CAR" to "AUTOMOBILES". The document is now indexed under AUTOMOBILES and through upposting, to TRANSPORTATION. If the user attempts to retrieve using "CARS" the search automatically switches to the preferred term "AUTOMOBILES". The search vocabulary is totally controlled with terms being accepted, rejected or switched to preferred terms.

## FOR ADDITIONAL INFORMATION CONTACT:

### U.S.A.

Battelle Columbus Labs  
BASIS Coordinator  
505 King Ave.  
Columbus, Ohio 43201

(614) 424-4062

### U.S.A.

Battelle Columbus Labs  
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8330 Old Court House Road  
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### EUROPE

Battelle Geneva  
BASIS Coordinator  
7, route de Drize  
1227 Carouge-Geneva  
Switzerland

(022) 43 98 31

### JAPAN

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C.P.O. Box 22  
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Japan

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## HOW IS THE THESAURUS ORGANIZED?

We can see from this example how terms are interrelated in a THESAURUS. Broader Terms (BT) and Narrower Terms (NT) are reciprocal relationships. By utilizing the (USE) relationship preferred terms can be merged into the index file to provide automatic term switching at retrieval time. Here are the THESAURUS relationships defined for this example...

### AIRLINES

- BT TRANSPORTATION

### AUTOMOBILE

- USE AUTOMOBILES

### AUTOMOBILES

- UF AUTOMOBILE

- UF CAR

- UF CARS

- BT TRANSPORTATION

### CAR

- USE AUTOMOBILES

### CARS

- USE AUTOMOBILES

### TRANSPORTATION

- NT AIRLINES

- NT AUTOMOBILES

To find documents on CARS/AUTOMOBILES without THESAURUS enter:

FIND AUTOMOBILE OR AUTOMOBILES  
OR CAR OR CARS

With THESAURUS any of the following is equivalent to the above entry:

FIND AUTOMOBILE  
FIND AUTOMOBILES  
FIND CAR  
FIND CARS

To find documents on TRANSPORTATION without THESAURUS enter:

FIND AUTOMOBILE OR AUTOMOBILES  
OR CAR OR CARS OR AIRLINES

To find with THESAURUS enter:

FIND TRANSPORTATION

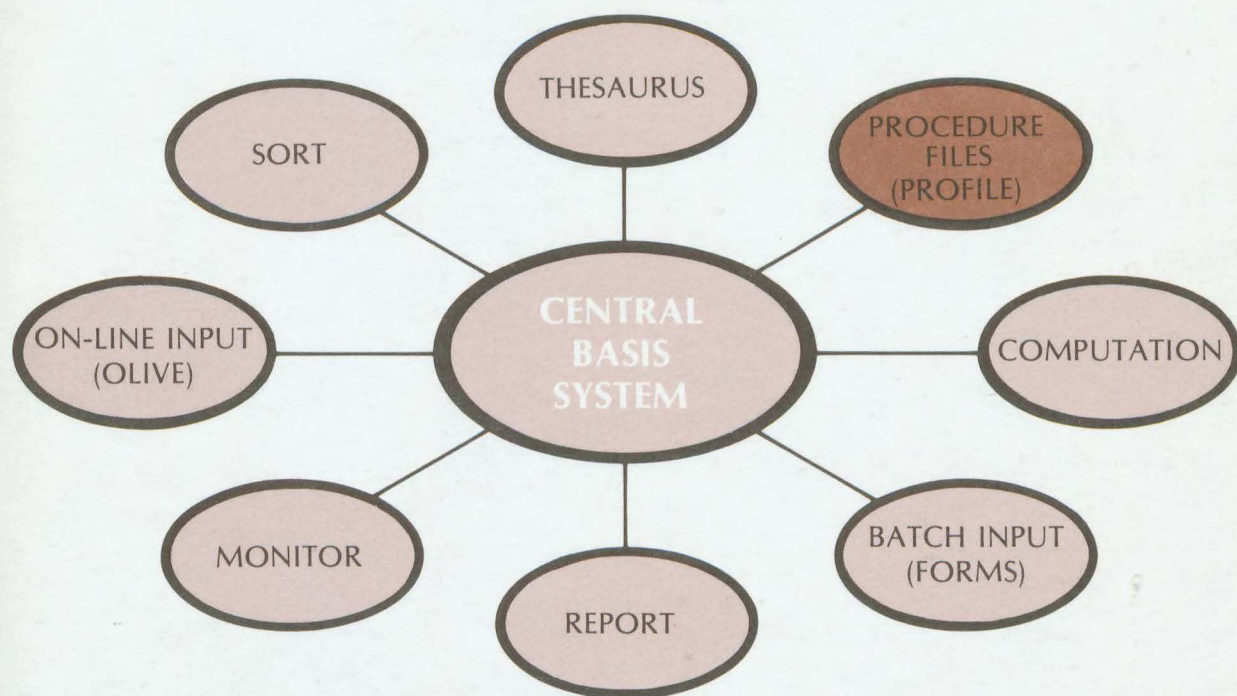
With the aid of the THESAURUS the user need not be cognizant of the actual indexing vocabulary. Several common lead-in terms can automatically direct the search to the preferred term. The THESAURUS is particularly useful in improving search recall when employing free text indexing methods.



DATA MANAGEMENT SYSTEM



## PROCEDURE FILES (PROFILE)



### WHAT PROCEDURAL NEEDS DO **YOU** HAVE?

- The need to interrupt a session at any time and complete it later
- The need to save search procedures used repeatedly
- The need to selectively disseminate information
- The need for more control over what users need to enter
- The need to associate different procedures with different users

## WHAT DOES PROFILE LOOK LIKE?

Because of the recurring nature of many functions performed within some BASIS modules, the system provides a capability called PROFILE. This can . . .

- ..allow users to save search statements, display requests, computational expressions, logic statements and other repetitive user text
- ..be used in the batch or interactive mode
- ..be easily modified by users
- ..be used to save a user's session for later completion
- ..accept parameter substitution
- ..allow users to set up hierarchies of procedures where one procedure may execute other procedures
- ..be transparent to the regular BASIS user.

## HOW DOES PROFILE WORK?

In the following example a PROFILE is set up. The user must enter a location, such as "EUROPE" and a size. All the countries larger than that size, but still in that location, will be retrieved.

## WHAT DO I DO NEXT?

If you would like more information on either PROFILE or any of the other BASIS components, please contact:

U.S.A.  
Battelle Columbus Labs  
BASIS Coordinator  
505 King Ave.  
Columbus, Ohio 43201

(614) 424-4062

EUROPE  
Battelle Geneva  
BASIS Coordinator  
7, route de Drize  
1227 Carouge-Geneva  
Switzerland

(022) 43 98 31

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8330 Old Court House Road  
Vienna, Virginia 22180

(703) 790-8980

JAPAN  
Mitsubishi Corp.  
BASIS Coordinator  
C.P.O. Box 22  
Tokyo 100-91  
Japan

TOKYO (03) 2121

## ENTER YOUR REQUEST

```
1/ PROFILE CREATE
1/ FIND LOC:EUROPE
*      34      1/ LOC:EUROPE
2/ FIND SIZE:GT 40972
*      102      2/ SIZE:GT 40972
3/ (1 AND 2)
*      15 ITEMS SAVED AS SET 3
4/ /SAVE EUROPE GT 40972
"EUROPE GT 40972"
SAVED WITH 3 LINES OF TEXT
4/ /EXECUTE EUROPE GT 40972
4/ FIND LOC:EUROPE
*      34      4/ LOC:EUROPE
5/ FIND SIZE:GT 40972
*      102      5/ SIZE:GT 40972
6/ (4 AND 5)
*      15 ITEMS SAVED AS SET 6
7/ /MAKE EUROPE SIZE
END ADD WITH =
100 =FIND LOC:EUROPE
110 =FIND SIZE:GT [SIZE]
120 =
=>EXIT
7/ /EUROPE SIZE SATISFY+
SATISFY... [SIZE]="156573"
7/ FIND LOC:EUROPE
*      34      7/ LOC:EUROPE
8/ FIND SIZE GT 156573
*      54      8/ SIZE:GT 156573
9/ QUIT
GOODBYE
```

Begin to create a profile  
Items in the data base that are  
located in Europe  
Items in the data base that have a  
size greater than 40,972 sq. miles  
Items that have both characteristics

Save the profile

Execute the profile

Make another profile

"SIZE" is a variable parameter

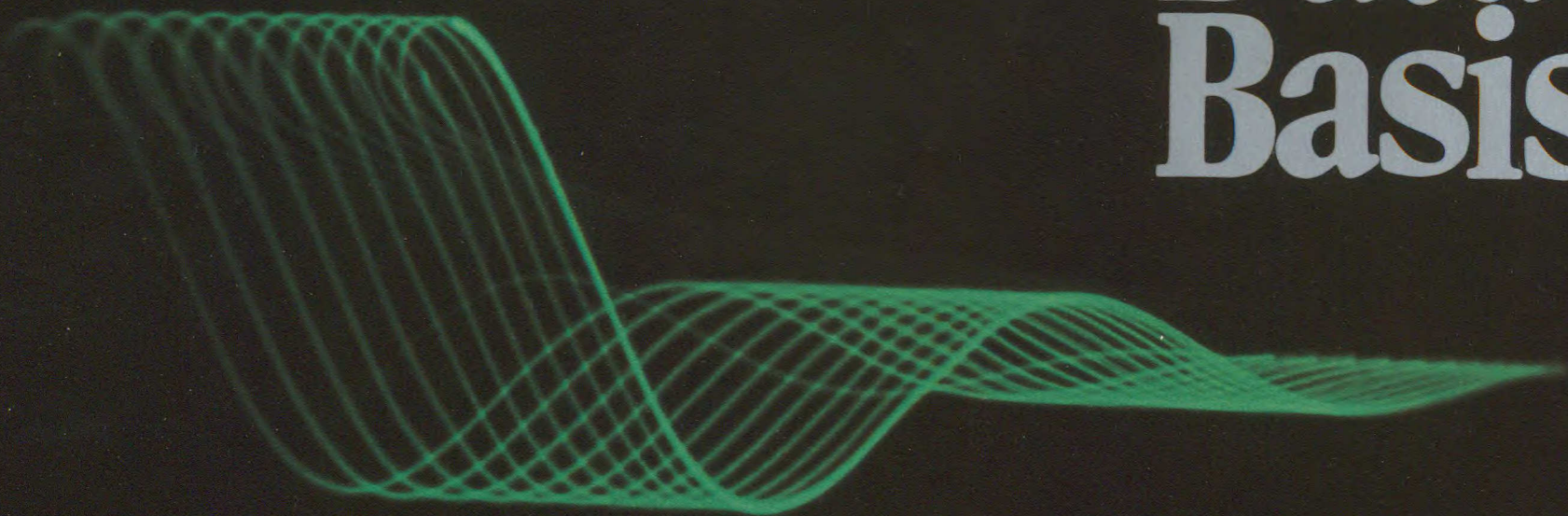
Execute this new profile

End the session

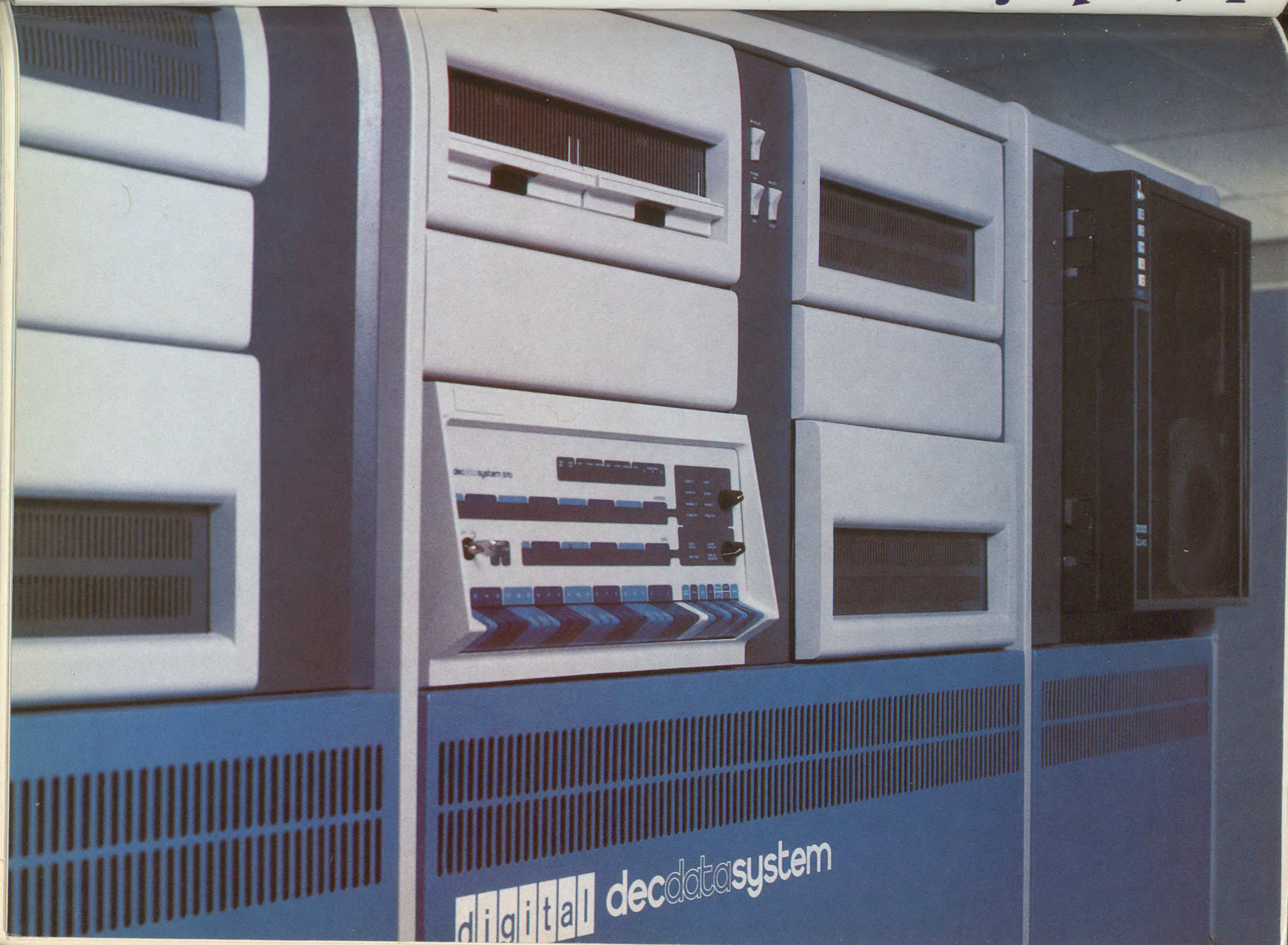
## COMMENTS ON THE EXAMPLE

PROFILE can become extremely complex, and because of that we have tried to display a very simple case of its use. We could have, for instance, nested procedures to several levels had we desired to do so. In addition, we could have chosen an example that required a great number of substitutions of a mathematical nature. Our intent, however, was to show an example that would cover a wide range of applications and yet be easy for the user to understand. Please feel free to ask us about more complex examples. This is a very powerful feature of the BASIS language. Its uses are widespread and handle a number of user applications.

# Data Basis



Infomart



digital decdata system

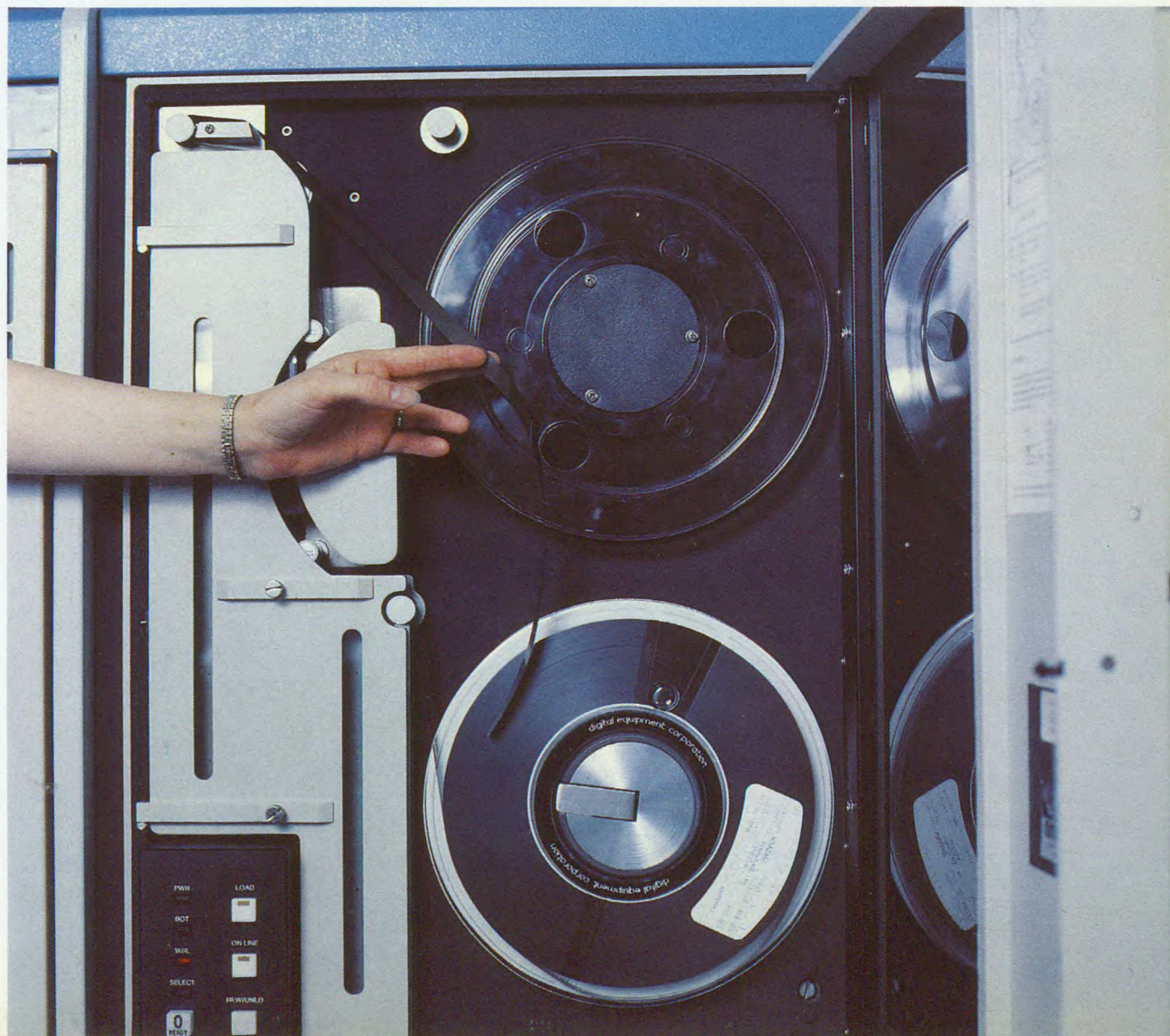
# Introducing Infomart's Private File Service

In recent years, productivity in the work place has been threatened by an ever increasing flood of facts and figures. In order to keep up-to-date on this vast quantity of information, many organizations now make use of commercial data bases and online information retrieval systems to help them collect, analyze and disseminate information.

The effectiveness of these systems has made it possible to start thinking of information management in an entirely new way and has led to the demand for online systems that can be used to create and manage private files.

At Infomart, we are dedicated to meeting the changing needs of the information user by providing state of the art computer communications technology. Our commercial data base search service makes available a continually up-dated store of business, scientific and technical information and has a proven record when it comes to providing you with the information you want, when you want it.

Now, we are pleased to offer a new service to the information community – Infomart's Private File Service.



# What is the Private File Service?

The Private File Service provides an efficient on-line method of handling the textual, bibliographic, factual or statistical information your organization produces or collects.

Whether you intend to start from scratch and build a new data base or already have your information in machine-readable form, the Private File Service can get your application up and running with remarkable speed and ease.

The data records that you enter into the system are indexed by relevant words, phrases and numerics to provide for fast and efficient retrieval. Using simple commands, you are able to rapidly locate, manipulate and display any information you need.



# What are its applications?

If your work involves records management, library management, file administration, or document control, you will find the benefits of the Private File Service invaluable.

Business organizations of all sizes are able to store and retrieve memos, reports and business plans, and to keep track of information related to marketing and product development. Government organizations and educational institutions are provided with online management of published documents, directories, book and serial holdings, or even entire library catalogues.

But these are just a few examples of the applications we can handle. Any information that is vital to your day to day operation is a potential application for Infomart's Private File Service.

# What are the system features?

The Private File Service makes use of a reliable and user-friendly interface called BASIS. Over the years, BASIS has consistently satisfied users' demands for a powerful, efficient and flexible system.

Compressed record format results in efficient and cost-effective storage of massive amounts of information while the inverted index file structure ensures excellent response time.

The BASIS search facility provides a high degree of power and flexibility. Information can be located via the inverted index or by scanning actual records. You can search through one or more fields for one or more values, search for all words with a specified prefix, search on numeric ranges, limit your search to a specified portion of your file, and so on.



# Is it easy to use?

If you are not familiar with all these terms, don't worry. You don't have to be an expert in online information retrieval in order to use the system effectively.

You use straightforward natural language commands to tell BASIS what you want to do. For example, when searching for information, you enter FIND and then define your search using terminology familiar to your application.

In addition, many help functions are available so that if at any time you are unsure of how to proceed, you can simply enter a ? to obtain further information on a specific command or the file you are using.

# Is it flexible enough to fit my requirements?

The requirements of any application are likely to change from day to day. The Private File Service can provide you with a tailor-made and cost-effective system that accommodates these varying needs.

## PROFILE

allows you to interrupt a session at any time in order to complete it later, or to save search procedures used repeatedly.

## SORT

allows you to sort the results of a particular search in ascending or descending order by a specified field.

## REPORT

allows you to format the results of any search in order to produce online or offline reports. REPORT also lets you interface with SPSS and other software packages.

## COMPUTATION

allows you to obtain descriptive statistics, perform linear regressions, and generate histograms and plots.

You use the central BASIS system to get access to your file, to perform searches, and to display the results of a search. In addition, the central system gives you access to any of the following complementary modules:

## OLIVE

allows you to enter and modify records, in either prompt or free form mode, at your terminal.

## FORMS

facilitates the batch loading and validation of input records.

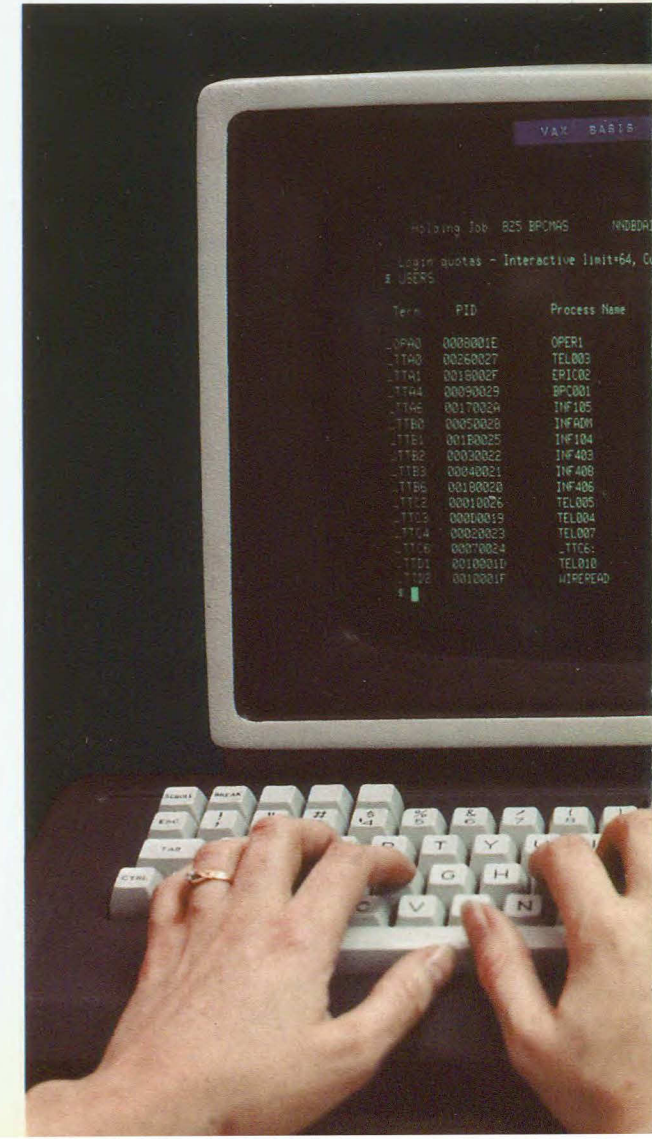
## THESAURUS

allows standardization of indexing vocabulary so that common search terms are automatically switched to preferred terms. Also facilitates the use of more than one language.

## MONITOR

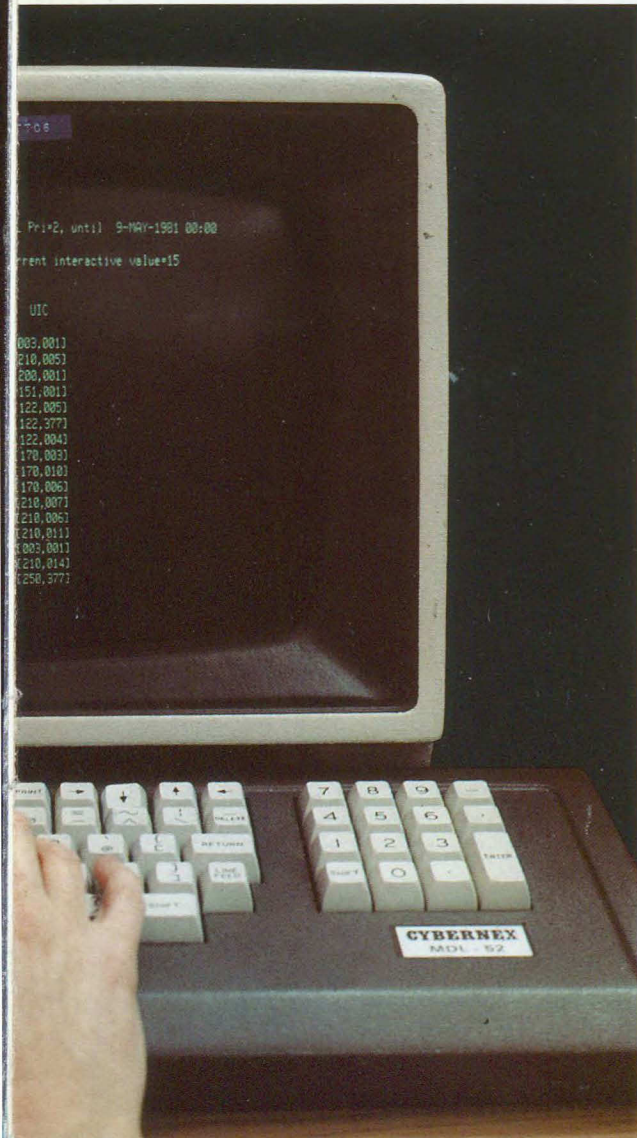
enables the capture of basic accounting information and provides the data base administrator with statistical reports on data base usage.

These modules can be thought of as useful tools – you call on them when you want to perform certain tasks and ignore them when you don't.



# What about file security?

---



BASIS and the VAX/VMS operating system provide a firm and flexible base for controlling access to your private files.

Login requests are validated by VMS under protection of unique user identifiers and associated passwords. In addition, you have the option of specifying that further password validation be required for entry to your particular BASIS application. The standard VMS access control facilities allow the establishment of closed user groups, preventing unauthorized access to your files by users outside of the group.

The security description features of BASIS allow you to define access authorizations individually by user, preventing unauthorized access to whole files, individual records within the files, and fields within the records. You may also specify the update modes available to individual users, ranging from read only access to full control, including deletion of old records. For example, you can specify that certain users may only add new records while others may also modify old ones.

Infomart staff are prepared to discuss these and other privacy related issues with your data base administrator in order to tailor the BASIS environment to your needs.

# What consulting services does Infomart provide?

---

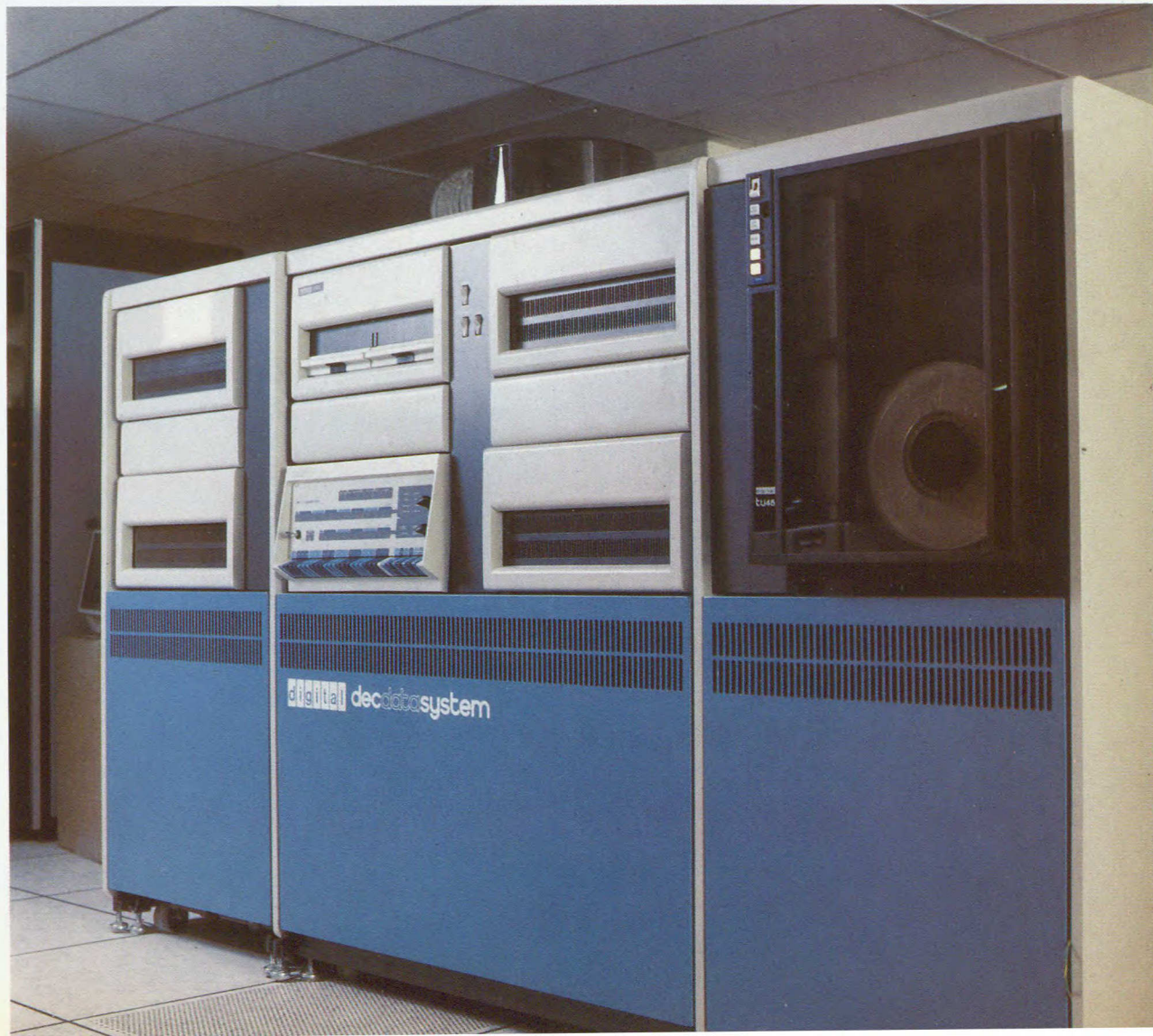
Infomart's consulting services are on hand to help you with all aspects of private file development. And because we have representatives in all major cities, we're accessible when you need us – during implementation and later, if questions arise.

The Private File Service is backed by our solid experience in information handling combined with the knowledge and expertise of our staff. Our team of information specialists and top software professionals can provide you with an analysis of your overall information needs and get your retrieval system up and running almost right away.

In fact, letting us do the job is probably a more cost-effective choice than relying on in-house facilities.

Specifically, our consulting services can assist you with the entry, validation, formatting, and maintenance of online information, as well as document control and data base administration.

In addition, we can help with the construction of prototype or demonstration files, provide user training, and develop application-related documentation.



# Private File Service – an impressive list of benefits

---

**FUNCTIONAL** the Private File Service provides you with a functional tailor-made system that meets your varying needs. You can enter records in batch mode or at your terminal, save search procedures, produce sophisticated reports, perform computations, and much more.

**EASY-TO-USE** no programming experience is necessary to use the system effectively. All operations are performed using straightforward commands and online help is readily available.

**POWERFUL** you are able to locate the information you need quickly and easily using a variety of powerful search techniques (e.g., range, prefix, proximity, universe, hierarchical, etc.).

**EFFICIENT** the inverted index file structure enables extremely efficient searching and permits data base growth without affecting response time.

**FLEXIBLE** regardless of the type of information you work with, the Private File Service can help. Textual and numeric data are managed with equal ease and the system can handle records, fields and sub-fields of variable or fixed length.

**DATA SECURITY** your private file is protected by the combined access control facilities of BASIS and the VAX/VMS operating system. You define who may access your files and exactly what actions they are authorized to perform.

**DATA INTEGRITY** excellent capabilities are provided for the editing, verification and validation of input – ensuring the integrity of your data.

**NETWORK ACCESS** the availability of a communications network means that all branches of your organization, regardless of location, are working with consistent and up-to-date information.

**CONSULTING** our consulting team is on hand to help with all aspects of private file development and will provide user training as well as assistance with documentation.

**COST-EFFECTIVE** efficient storage of online information combined with the many features listed above, means that Infomart can offer the most cost-effective private file service available today.

# Infomart

---

You can obtain more information on  
PRIVATE FILE SERVICE by contacting:

Data Base Marketing Group  
INFOMART  
122 St. Patrick Street  
Toronto, Ontario  
M5T 2X8  
416/598-4000

141 Laurier Avenue West  
Suite 300  
Ottawa, Ontario  
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