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CANADIAN DATABASE INDUSTRY PERSPECTIVES

REPORT

by Harry Campbell

Terms of Reference

An overview of the evolution and trends of Canadian content in databases. The existing gaps and market opportunities for meeting Canadian user needs. A summary of the policy options being discussed in countries such as Japan, China and Norway that could be of interest to Canada as background information to policy formation.

March 1, 1988
(Revised March 28, 1988)

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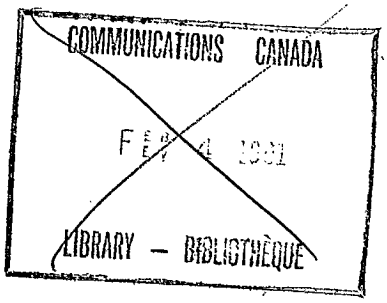

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CANADIAN DATABASE INDUSTRY PERSPECTIVES

INTRODUCTION

This report consists of three sections, following the terms of reference, but it is intended to be read as a whole, since the basic question which it attempts to discuss, namely, the nature of the Canadian Database Industry, must be looked at from the combined aspects of domestic producers, domestic users and foreign and domestic producers and users. Although the perspective that has been chosen is that of Canada, Scandinavia, Japan and China, the reader is expected to be aware of the dominant role played by the USA and USA multinational concerns in the international database industry.

This report does not intend to make recommendations but is only intended to provide background information.

A further point that should be borne in mind is that the user of the products of the worldwide database industry has many choices and styles of product to choose from, just as the user of an intellectual work has choices in meeting his needs. As this industry expands with each decade, the Canadian user can expect vastly increased choices in the years ahead. The report is written from this perspective, since database publishing is still in its infancy, and the full intellectual role of machine readable information resources is only gradually being understood.

DEFINITIONS OF DATABASE CHARACTERISTICS DESCRIBED IN THIS REPORT

Public Database Producer

The person or organization responsible for producing and updating the database. If the base is not updated, the person or organization responsible for initial creation of the database.

Public Database Vendor

The person or organization responsible for making available the information in the database through some method of consultation to public users.

Canadian owned

A producer or vendor for which the place of financial control and the place of incorporation of the business headquarters (if incorporated) is located solely in Canada.

Non-Canadian owned

Same as above but where the financial headquarters of a Canadian affiliate is not located in Canada.

Canadian Content Rating Category

Annual updating of a database containing:

Category 1	less than 5%	Canadian Content
Category 2	5% to 29%	Canadian Content
Category 3	30% to 79%	Canadian Content
Category 4	More than 80%	Canadian Content

Rating is as given in the Espial Canadian Base Directory, 1987, and Supplement, 1988. Reference should be made to these publications for Canadian content of the 316 databases considered in this report.

Subject Classification of Databases

The subject divisions for the databases described in this report are based on the schedule and assigned subject area classifications employed in the Espial Canadian Base Directory 1987, and Supplement, 1988.

Language Used in the Databases

English: Database for which 80% or more of its contents is in English.

French: Database for which 80% or more of its contents is in French.

Bilingual English/French:

(i) Databases in either the French or English language which either are separate or combined and in which the contents of the database is made available in English and French.

(ii) Databases which include both French and English materials in the language in which the material was originally published, but which do not translate the material in its entirety.

Designation of the Year of Organization of a Database

(i) Pre-1985: Bases that appear in the published Espial Canadian Base Directory, 1987 Edition.

(ii) 1985 and after: Bases which are listed in the Espial Canadian Base Directory 1988 Supplement which are known to have appeared in 1985 or after.

PRINCIPAL SOURCES OF INFORMATION

Reference has been made to The Espial Canadian Database Directory, 1987 and its Supplement, 1988. In addition to this key source, the following sources of the current situation have been utilized:

- Proceedings of the Nordiskt Databas 88 Conference, Stockholm, Jan 25-27, 1988.
- Proceedings of the 1st and 2nd Beijing International Symposia on Computerized Information Retrieval, 1985 and 1987. Beijing China.
- Armstrong, C.J. and J.A. Large, Manual of Online Search Strategies. Gower, 1988. ISBN 0 566 050587.
- Canada Online: Using Business Information. Sheraton Centre, Toronto, Nov 9-11, 1987.
- Particularly useful discussions on policy in countries abroad were held with:

U.K.:	David R. Worlock, Chairman, Marketing Development Working Party, Confederation of Information Communication Industries, London.
Japan:	Koichi Koizumi, Database Promotion Centre, Tokyo; Takanasu Miyakawa, President, Japan Data Industry Association, Tokyo.
Scandinavia:	Elisabet Mickos, SCANNET, Helsinki.
EEC:	Roland Haber, ECHO, EEC, Luxembourg.

1. RECENT EVOLUTION OF PUBLIC CANADIAN CONTENT DATABASES - 1988

The first Canadian private databases appeared in the 1950's and public availability appeared soon after. By the mid 1960's there were many public services using computer databases (e.g. Statistics Canada). By the 1970's and the advent of improved data production services, the commercial industry in Canada was launched and the first major government public service was that of CISTI, started in 1973.

Financial databases made their appearance by 1975 and databases from France, the United Kingdom, and Japan were in use by 1979. Canadian content of databases was recorded in the first Espial Data Base Directory in 1979. There were 68 bases at that date, several of them having both French and English versions.

The following indicates in summary form the percentage increase by subject areas of Canadian content databases recently added to those already in existence prior to 1986.

TABLE 1 - Number of Canadian Content Databases and Growth by Subject Category

	GENERAL		LAW/ GOVERNMENT		BUSINESS/ FINANCE		SCIENCE/ TECHNOLOGY		OTHER SOCIAL SCIENCES		ALL SUBJECTS	
YEAR	#	%	#	%	#	%	#	%	#	%	#	%
pre-1985	39	68.4	47	56.6	46	73.0	62	82.7	37	97.4	231	73.1
added in 1985 or after	18	31.6	36	43.4	17	27.0	13	17.3	1	2.6	85	26.9
1988	57	100.0	83	100.0	63	100.0	75	100.0	38	100.0	316	100.0
growth as a % of pre-85		46.2		76.6		37.0		21.0		2.7		36.8

During the three-year period from 1985 to 1987 there was an increase of 36.8% overall. Growth has been most significant in the subjects of law, government, business, finance and general subjects such as newspaper, indexes, and directory databases. It has been less significant in science, technology and other social science subjects.

The growth has been brought about by the needs of users in the marketplace and the desire of conventional Canadian publishers to meet these needs by exploiting new technologies in electronic publishing. Electronic publishing in Canada as a branch of the publishing industry is less than ten years old. The electronic publishing industry is not yet well organized and does not have professional support in marketing and database promotion. Thus the use of both earlier and newer databases is not great. One observer of the U.S. database industry observed in 1987 that most new databases used fewer than 200 hours per quarter for the first year and generate less than $25,000 per quarter. As the number of databases increases, the revenue pie has to be cut into more slices.[1]

1.1 Languages of Public Canadian Content Databases - 1988

The following indicates the languages used by currently available Canadian content databases according to subject categories. English is used by 88.3% of the databases and French by 33.5%. However a significant number of "mixed" or variously bilingual French/English databases are included in these percentages.

TABLE 2 - Number of Databases by Language and Subject Area

	GENERAL		LAW/ GOVERNMENT		BUSINESS/ FINANCE		SCIENCE/ TECHNOLOGY		OTHER SOCIAL SCIENCES		ALL SUBJECTS	
LANGUAGE	#	%	#	%	#	%	#	%	#	%	#	%
English	32	56.1	60	72.3	40	63.5	55	73.3	23	60.5	210	66.5
French	15	26.3	9	10.8	0	0.0	7	9.3	6	15.8	37	11.7
English/French	10	17.5	14	16.9	23	36.5	13	17.3	9	23.7	69	21.8
Total	57	100.0	83	100.0	63	100.0	75	100.0	38	100.0	316	100.0
English & English/French	42	73.7	74	89.2	63	100.0	68	90.7	32	84.2	279	88.3
French & English/French	25	43.9	23	27.7	23	36.5	20	26.7	15	39.5	106	33.5
Total (Subject)	57	100.0	83	100.0	63	100.0	75	100.0	38	100.0	316	100.0

[1] Martha Williams cited in Martin Slofstva, "On-line databases: winners are few," Computing Canada, June 25, 1987.

A Bilingual English/French database, as distinct from separate English or French bases, is generally the result of including materials in both languages, where the material in one language is not translated into the other. In some cases the subject access is in both or either languages. The increase of Bilingual English/French databases has been less than English only and French only databases. There have also been important variations as to the numbers of such bases as between the various subject areas. The slight number in science/technology should be noted.

TABLE 3A - Ownership of Public Canadian Databases by Subject Area - 1988

SUBJECT AREA	CANADIAN OWNERSHIP			NON-CANADIAN OWNERSHIP			TOTAL
	NON-GOVT	GOVT	TOTAL	NON-GOVT	GOVT	TOTAL	
General	44	9	53	4	0	4	57
Law/Government	58	24	82	1	0	1	83
Business/Finance	27	21	48	15	0	15	63
Science/Technology	9	23	32	30	13	43	75
Other Social Sciences	7	20	27	8	3	11	38
All Subjects	145	97	242	58	16	74	316

TABLE 3B - Ownership of Public Canadian Databases in Percentage Terms by Subject Area - 1988

SUBJECT AREA	CANADIAN OWNERSHIP			NON-CANADIAN OWNERSHIP			TOTAL
	NON-GOVT	GOVT	TOTAL	NON-GOVT	GOVT	TOTAL	
General	77.2	15.8	93.0	7.0	0.0	7.0	100.0
Law/Government	69.9	28.9	98.8	1.2	0.0	1.2	100.0
Business/Finance	42.8	33.3	76.1	23.9	0.0	23.9	100.0
Science/Technology	12.0	30.7	42.7	40.0	17.3	57.3	100.0
Other Social Sciences	18.5	52.6	71.1	21.0	7.9	28.9	100.0
All Subjects	45.9	30.7	76.6	18.4	5.1	23.4	100.0

It might be noted that in science and technology there are six United Nations agencies and the OECD included in the above figures, and three United Nations agencies in other social sciences.

Canadian governments who produce databases include both Provincial and Federal, but the bulk of government producers in Canada are agencies of the Federal government.

TABLE 4A - Vendor Offerings of Public Canadian Content Databases by Ownership of Agency - 1988

SUBJECT AREA	DATABASES	VENDOR OFFERINGS	CANADIAN OWNERSHIP			NON-CANADIAN OWNERSHIP		
			NON-GOVT	GOVT	TOTAL	NON-GOVT	GOVT	TOTAL
General	57	94	75	11	86	8	0	8
Law/Government	83	88	84	1	85	3	0	3
Business/Finance	63	89	52	1	53	36	0	36
Science/Technology	75	143	54	30	84	55	4	59
Other Social Sciences	38	96	42	18	60	36	0	36
All Subjects	316	510	307	61	368	138	4	142

TABLE 4B - Vendor Offerings of Public Canadian Content Databases by Ownership of Agency (in Percentage Terms) - 1988

SUBJECT AREA	DATABASES (#)	VENDOR OFFERINGS (#)	CANADIAN OWNERSHIP (%)			NON-CANADIAN OWNERSHIP (%)			VENDOR OFFERINGS (%)
			NON-GOVT	GOVT	TOTAL	NON-GOVT	GOVT	TOTAL	
General	57	94	79.8	11.7	91.5	8.5	0.0	8.5	100.0
Law/Government	83	88	95.2	1.2	96.4	3.6	0.0	3.6	100.0
Business/Finance	63	89	58.4	1.1	59.6	40.4	0.0	40.4	100.0
Science/Technology	75	143	37.7	21.0	58.7	38.5	2.8	41.3	100.0
Other Social Sciences	38	96	43.7	18.8	62.5	37.5	0.0	37.5	100.0
All Subjects	316	510	60.1	12.0	72.1	27.1	0.8	27.9	100.0

It might be noted that non-Canadian vendors offer nearly 40% of the database offerings in the subjects of science and technology, business and finance and other social sciences. This has the effect of securing foreign distribution for these bases. However, from Table 3 it can be seen that non-Canadian vendors and producers own or distribute 57% of Canadian content databases in science and technology and 28% in other social sciences. They own about 24% of the business and financial databases. Thus Canadian access to the material must be purchased from foreign (mainly USA) suppliers.

1.2 Trends in Public Canadian Content Database Production

From Tables 3 and 4 above it can be seen that there are important variations in ownership of database production and vending as well as between subject areas. The following deals separately with five major subject categories of databases described in this report.

1.2.1 General Subjects

This includes databases in the following categories:

National and Regional sources
Union lists of printed and other materials
Newspapers
Periodical and Report Indexes
Directories

There are at present 57 databases in these categories with 94 vendor outlets. 31.6% of the bases have been added since 1985, with the greatest growth in directories and full text newspapers. This category has the highest (77.2%) Canadian non-governmental ownership and the lowest governmental ownership (15.8%). It also has the smallest (7%) foreign ownership. The situation with vendor offerings is similar:

TABLE 5 - Percentage of Vendor Offerings by Ownership

OWNERSHIP	%
Canadian Non-governmental	79.8
Canadian Governmental	11.7
Foreign Non-governmental	8.5
Foreign Governmental	0.0
Total	100.0

1.2.2 Science and Technology

In contrast to category 1 above, the situation of ownership and vendor offerings is almost the reverse in the area of science and technology. There are 75 databases offered by 143 vendor outlets. 57.3% of all of the databases which have some Canadian content are produced outside of Canada. 30.7% are produced by Federal and Provincial governmental agencies in Canada. 12% are produced in the Canadian non-governmental sector.

Recent major growth in the number of new databases has been in Business, Law and General Categories. This should not be interpreted to mean that there are no recent Canadian-owned science and technical databases being produced. There are many but they are not made publicly available for various reasons.

This situation with regard to the ownership of Canadian science and technical databases (including patents) means that in most instances the Canadian user is dependent on foreign-owned sources for access to Canadian scientific and technical information in machine readable form.

1.2.3 Business and Finance

In this category there are 63 databases with 27% created in 1985 or later. 76.1% are from Canada and 23.9% are from non-Canadian producers. They are offered through 89 vendor opportunities, 40.4% of which are non-Canadian. In the fields of construction, commodities, economic forecasting, management, banking, petroleum industry, agriculture, etc., there are many major databases with Canadian content which are only available from foreign database owners and suppliers.

The Canadian databases compared to those produced abroad are on the whole of less strategic significance for long range use. They deal mainly with short range events and trends.

1.2.4 Law and Government

This is the area in which Canadian content databases are virtually all produced and offered by Canadian agencies. 95.2% of the vendor offers are owned by Canadian non-governmental agencies and 1.2% by government. This is the best example of participation by the private sector in the Canadian database industry. There is some doubt as to the amount of the financial return on these bases. They do not constitute the largest part of annual current revenues. Many of the clients are governmental agencies and justice institutions.

1.2.5 Other Social Sciences

This category covers materials in the following subjects:

Statistics	History
Labour	Development
Education	Sport
Environment	Psychology (etc.)

There are 38 Canadian content databases of which 71.1% are Canadian owned and produced. The 28.9% non-Canadian owned databases are available in Canada through both Canadian and foreign vendors (40% of these vendors are from abroad). This is the same situation as with science and technical databases. In such fields as education, non-Québec Canadian history, environmental emergency treatment, Canadian sport, Canadian social science abstracts, to name a few, the only major database vendors and several producers are from outside Canada.

2. USER NEEDS IN CANADA FOR ONLINE DATABASES WITH CANADIAN CONTENT - 1988

From Section 1, an idea has been gained of some of the strengths and weaknesses of the present Canadian database industry. Section 2 will follow this up with an analysis of some specific areas where database use may be developed. At the present time there is not a systematic survey available of future market needs for Canadian content databases. Such a task is one which might be addressed by an industry wide group or trade association. It is also assumed that Canadian governments as part of the producer/distributer/user sectors will share in providing input to such an association.

Key questions that must be raised are the following. Is there a market for the database with Canadian content alone? Should the database be Canadian plus other material content - which would expand its usefulness beyond Canada, and provide added revenue? There is need in Canada for an analysis of the marketplace for Canadian content databases from a readiness to purchase point of view.

This question should be borne in mind in light of the earlier statement in Section 1 that every new database simply reduces the market share of the others, unless the market is greatly expanded. Thus, some basic view of the Canadian database market is needed in order to decide if added bases will attract sufficient revenue to justify their production.

Every database vendor in Canada has a particular view of the Canadian market. The following is a model that may be used at least for discussion purposes. Detailed information on the pattern and estimate of amounts of use by each type of user organization might be secured with the cooperation of the user groups concerned.

TABLE 6 - Estimated Current Users and Market Revenue in Canada

TYPE OF USER ORGANIZATION	ESTIMATED NO OF PASSWORDS	ESTIMATED ANNUAL AVERAGE REVENUE GENERATED ($mil)
Large business/mfg. firms	500	7.5
Small/medium business/mfg. firms	300	4.5
Universities, Colleges	600	9.0
Research & Development agencies in all fields, including Associations	300	2.0
Govt Services, Departments	700	4.9
Libraries	800	3.2
Other	800	4.0
Total	4000	35.1

On the basis of each password serving the needs of 4 - 6 users, the total user population is estimated (in the above model) at 16,000 - 24,000 persons. This must be adjusted by language (English - 80%; French - 20%). To discuss future development of new databases in Canada, it would first be necessary to refine more exactly the expected market for the database from the above universe, taking into account the number of unserved users (in some cases as high as 100% of the entire population group).

A second basic fact that must be borne in mind is the present share of the market held by existing database vendors (as well as the actual revenues). Once again, each vendor has a unique perspective on this. Table 7 is a representative view that covers at least the main vendors and includes present-day smaller distributors.

TABLE 7 - Estimated Percentage Share of Total Annual Canadian Revenues by Some of the Main Database Vendors and Producers of Canadian Content Databases

OWNERSHIP	VENDOR/PRODUCER	%	OWNERSHIP	VENDOR/PRODUCER	%
Foreign	Dialog	17	Canadian	Canada Systems Group	6
	Utlas *	15		CISTI: CAN/OLE	6
	I.P. Sharp *	15		Conference Board of Canada	4
	BRS	4		iNet (Bell)	2
	Mead Data Central	3		IST Informateque	4
				DRI (Canada)	2
				Info Globe	5
				Info Mart	2
				QL Systems	4
	Sub-total	54		Sub-total	35
Other Foreign			Other Canadian	Dun and Bradstreet	
				FP Online	
				FRI	
				Canada Law Book	
				Centrale des Bibliotheques	
				National Library	
				Informetrica	
				Other	
	Sub-total	4		Sub-total	7
	Total	58		Total	42

* These two agencies, formerly entirely Canadian, now are part of multinational firms

Since the industry in Canada does not provide the information in Table 7, there might be some advantage in having the above estimates circulated for comment to the main users.

2.1 Who are the future users?

If Tables 6 and 7 summarize something of the present situation, it is clear that future users should if possible be in new market populations, as well as being added to the existing categories. In the following, various groups of new users (and added users) will be discussed. They are arranged in the categories now commonly used in the USA for online market analysis.

2.1.1 Scholarly and educational users

This category covers educational institutions at all levels, including scholarly research, educational administration, the adult education market (home and institutional), the high school market (home and institutional), etc.

Examples of new types of services which might meet user needs in this area are:

A) Full text electronic journals

This is a growing industry abroad. It is related to electronic mail and bulletin boards. To be used there must be widespread keyboard and computer literacy and data communications literacy must be acquired.

B) Directories; Encyclopedias; Compendia

Canada publishes standard print reference works in many subject fields. There is growing experience in Canada in the publishing industry in the updating of Canadian reference publication by electronic means.

C) Canadian Biography

One of the main uses of online news is to acquire biographical information on Canadians. A valuable source that may someday be provided is biographical information, and the consolidation of current biographical data.

D) Online Translation

One of the major operations to be carried out when undertaking Foreign Language/English Machine Translation is the input of the original source text to be translated. This is a relatively costly procedure. Consequently, it is a major attraction that data retrieved from online electronic databases can be used as source texts with Machine Translation systems.

There is at present a burgeoning market for Machine Translation systems in Japan, and at the same time the European Common Market and USA agencies are vigorously attempting to make foreign language information available in greater abundance in the Western hemisphere. Thus the combination of Online Search/Machine Translation would appear to be an important contribution towards the increased accessibility of foreign language information in the West.

E) Counselling and Occupational Guidance

Certain batch systems now operate in Canada on a 10 day response delay basis to provide course information. These have some drawbacks since the course opening may be closed by the time the enquirer receives the information. Such services online can be packaged to serve many user markets. Other educational users of online services can be listed. A start has been made in some provinces to provide online information services to students and teachers.

2.1.2 Financial and Economic Industry Users

Since the recognition that the functions of Management Information Systems in business were misunderstood and oversold in the 1970's, there has been more attention paid to the importance of external information on business and government decision-making.

Management information system development requires management's attention to information systems in a fashion quite unlike that required before.[2]

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[2] Michael E.D. Koenig, "The convergence of computers and telecommunications: Information management implications." Information Management Review 1 (3), 1986, 23-33.

The databases that are needed here are:

a) General news and the business and management literature;
b) Company-specific data;
c) Financial data;
d) Marketing information;
e) Technology, particularly patents;
f) Demographic information.

Some of these will be looked at separately below. However, in Canada there are few bases designed to serve management decision making. The existing bases are USA oriented and are designed for USA managers.

Areas in which strong Canadian financial and economic databases do not exist are:

a) Future industry analysis
b) Political risk assessment for Canadian industries
c) Strategic planning

There is a need to integrate the traditional company data-technology tracking and management alternative database types for the above tasks. Good databases of this new type would have likely applications outside Canada. Newsletters were often considered the answer to such purposes. Few originate in Canada. There are also no Canadian government and business analysis reports other than compilations produced for example when Canadian government or company budgets are released. It should be noted that this type of database is available on CD-ROM abroad (e.g. Datext's CORPORATE DATABASE).

2.1.3 Marketing Information

Canadian marketing users are accustomed to making use of USA databases such as:

AMI (Advertising and marketing intelligence);
ADTRACK;
INFOMAT BUSINESS DATABASE (Prodicasts);
MARS (Predicasts);
TRINET; and
Others.

There are few corresponding Canadian databases, and in fact, most advertising programs in industry are linked directly to USA products. Much advertising is simply a translation of terms for Canadian audiences. The case of marketing database development in Canada could be studied to determine if in fact Canadian content databases are required.

There are many marketing problems for small businesses in Canada which are different from those faced by US firms. Such problems could be a useful focus for emerging Canadian government database development policy.

2.1.4 Legal Users

The need for attention to the creation and use of legal databases in Canada was the focus of the Canadian Law Information Council (CLIC), established in Ottawa by governmental and professional agencies in 1973. The mandate of the Council included the task of developing and supporting research generally on computer applications of law in Canada. For 15 years the Council has pursued a course of establishing databases and promoting user familiarity with them in Canada.

The following extract from the 1985-86 Annual Report of the Council indicates the approach which it is taking to the use of databases:

> "Canada, like much of the Western World, has recently witnessed exponential growth in the production and dissemination of legal information. Trying to do thorough research among the huge volumes of statutes, regulations, law reports and secondary materials has become a time-consuming and expensive proposition. By encouraging the use of computers to store, retrieve and organize this information, CLIC is contributing to a more cost-effective and reliable legal research environment."
>
> "CLIC started examining the computer's potential as a legal research tool in 1978, evaluating existing systems and databases, and using these as a basis for further development. Fifteen computer-assisted legal research centres were created in law schools across the country; and training and assistance were provided for practitioners wishing to use computer research, or to automate their offices. Now that computer-assisted legal research (CALR) has gained wide acceptance, demands for improved services are growing. The selection of material must be expanded; uniform standards for databases developed; operating procedures simplified; and the potential for duplication or incompatibility between systems avoided. These strategies are implemented through a variety of programmes."

Other legal online services in the private sector are very active in Canada, and QL Systems is the foremost commercial producer and vendor of legal and legal-related information.

2.1.5. Patents and Trade Marks

The important role of patent searches in information work has always given this area separate recognition. In Canada some work was done to develop a CD-ROM database of Canadian patent specifications. There is at the moment no complete Canadian patent online database.

Canadian patents must be found in the following foreign databases, among others.

TABLE 8 - Selected Canadian Patent References Available

DATABASE	VENDOR	PRODUCER	CANADIAN PATENTS INCLUDED SINCE -
World Patent INDEX	DIALOG ORBIT	Derwent	1963
INPADOC		International Patent Documentation Centre	1970
EDOC	Questel	Institute national de la propriete industrielle	1970
APIPAT	ORBIT STN	American Petroleum Institute	1964
CA Search	STN DIALOG ORBIT BRS Data-Star	Chemical Abstracts Service	1967

There is no database for earlier Canadian patents, which go back to the 19th Century. Other patent databases which contain USA and occasionally Canadian patents are CLAIMS: 1950-, USPATENTS: 1970-, LEXPAT: 1975-, PATDATA: 1975-, COMPUTERPAT: 1942-.

A special area of interest is patent drawings. These are available in some foreign online databases, for example in Japan, but not for Canada.

Canada is a member of WIPO, the World Intellectual Property Organization of the United Nations, and has access to all international data on patent information by this means.

A patent litigation database for Canada is the CANADIAN PATENT REPORTER, produced by Canada Law Book, Inc. Many subject databases for patents exist, for example COMPUTERPAT, INIS, ETC.

2.1.6 News Database Users

There are fewer than 30 Canadian newspapers with full or partial text databases available. Users in Canada do not have access to much current Canadian information as it appears, and practically none of the older information other than through microfilm.

Larger Canadian news bases, such as CBCA, are using specialized news databases, such as CFR (Canadian Foreign Relations) to expand their coverage.

Vernacular language Canadian news databases should be investigated (Italian, German, Japanese, Chinese, etc.) to serve the markets for this information in both Canada and outside.

2.1.7 Government and Government Watch Users

Table 1 indicated the 76.5% increase in Canadian government and legal databases in the period 1985-88. A feature such as PERSONAL SEARCH attempts to make the information on government more available by reformatting. This market strategy can be expected to continue, and new bases, such as TR1/TR2 (Tax Reform White Paper) and BUDGET DATABASE have been created to serve the watchers of provincial jurisdictions, for example.

2.1.8 Credit Information

The extension of these to mortgage and loan data will be likely. Real estate information has not been completely tapped in Canada, but is available from the computerized tax assessment rolls now becoming more universally available.

Use of credit databases is fraught with problems. How much reliance a user can place on recommended credit amounts is a matter of some debate. An article in the Financial Times in 1986 compared several credit status databases and found that for the same company amounts recommended for

credit granting ranged on a scale of one to nine.[3] Time does not permit fuller evaluation of this field in Canada in this report.

2.1.9 Product Information and Directory Users

The information on products, and on sources of products, is a very large sector for future development. There are many examples of product databases abroad for which no Canadian counterpart exists. A systematic study of these, beyond the scope of this report, would yield significant results, e.g.:

Electronic Yellow Pages
Art Auction Records
Automobile Ownerships
etc.

2.1.10 Travel Information Users

This market area can be broken down by type of travel, and by destinations. Further categories are also advisable. For each of these, separate (or combined) databases are making their appearance. Typical of the developments in Canada that are on hand are TRAVELNET, (Bell Information Systems) offered through iNET.

More specialized travel information, including international travel resources, are to be expected. Time does not permit fuller evaluation of this field in this report.

2.1.11 Consumer Information Resources

Typical demands in this sector will come from such areas as:

Housing and food products
Lodging and food services (restaurants)
Entertainment
Health information needs
Retail services in all areas, etc.

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[3] "Consumer Test of Credit Checking and Company Information Agencies." Financial Times, 8 April 1986, 16.

2.2 Summary of Existing Gaps and Opportunities in Canada to Meet User Needs

From the above it is clear that a vast range of possibilities exist in the electronic publishing industry in Canada to satisfy users' needs. Not all of the above types of services may appear for some time.

There are two user groups that might be studied in more depth. They are;

1. Educational institutions at all levels; and
2. Independent information searchers (information brokers).

The area of language preference is particularly important. In a country that has become increasingly multi-lingual, and where there are important linguistic sectors requiring access to information in languages other than English or French (native peoples, heritage education, foreign trading venture partners, etc.), the role of database provision of information in these other languages must be considered.

Software programs have already provided the possibility of search capabilities in German, Greek, Chinese, Japanese, etc. to Canadian databases.

2.3 Establishment of a Canadian Database Promotion Centre

In order to bring together the various groups of Canadian content database producers and assure them some opportunities of increasing the size of their markets, it is proposed that the establishment of a Canadian Database Promotion Centre should be considered along the lines of a similar centre organized in Japan in 1984.

Included among the principal activities of the Japanese centre are the provision of financial assistance to help offset the high costs of database construction and to support R&D projects on hardware and software technologies designed to improve the functions and performance of databases. This assistance went to 132 recipients in 1985 - to private firms and/or government-related organizations - on the basis of how vital the database or R&D project involved is to the national economy.

Another major activity is the furnishing of clearing house information services. The Database Promotion Centre provides interested parties with information on the contents of databases available in Japan, as well as the types of data not yet contained in the databases, but which are available in conventional formats from government offices or agencies, research institutes, universities and private firms.

Studies and surveys of existing and soon-to-be completed databases and the various problems concerning their operation are conducted on a regular basis. One subject in which the Centre is particularly interested is the question of ownership rights regarding databases and the information contained in them.

Other activities of the Centre include educational programs aimed at increasing the general understanding and utilization of databases in Japan, plus formal training programs on database retrieval techniques. Information exchange programs are being established with other countries around the world for the free flow of information concerning the existence and accessibility of databases. These exchange programs will also be utilized to encourage the creation of international databases that can be constructed on a cooperative basis.

A white paper on Japan's database policy was published by the Centre in 1986. Further programmes at the Centre are described in Section 3.

3. THE INTERNATIONAL SCENE: Selected National Governmental and Non-governmental Database Options of Interest to Canada as Background to Information Policy

This matter is being summarized in the following way:

A) A brief outline of present development in the following selected countries:

Norway, Sweden, Denmark, Finland;
Japan; and
People's Republic of China.

B) Recent information policy proposals of the EEC.

This Section is seen in relation to the conclusion and evidence presented in Sections 1 and 2, namely, the possible interest to Canada's database industry of the above countries' international policies.

A) BRIEF OUTLINE OF PRESENT POLICIES AND OPTIONS IN SELECTED COUNTRIES

Since there is an extensive published literature and hundreds of periodical articles describing the online database policies of the selected countries, I will not attempt to do more than refer to a few key matters. In the case of Japan and China, further readings are suggested.

The areas abroad which were selected are all ones in which there is currently extensive development of the database industry. Each area is of course different, but all are possible users of Canadian content databases, either now or in the future (in the case particularly of China).

The various areas present competitive strategies in a world dominated by USA information initiatives, and each area has had to adopt its own solutions to using foreign information while stimulating a domestic database industry.

For these two reasons, some examination of what is being carried out or planned in these areas may be of interest.

3.1- The Nordic Countries

As part of the European online industry, the Nordic countries (Norway, Sweden, Denmark, Finland) in 1986 enjoyed a small part of the $1,240 million European total revenue.[4] Their database resources are distributed as follows:

TABLE 9 - Growth of Nordic Databases by Subject: 1985-1987

	1985		1987	
SUBJECT	number	%	number	%
General	29	14.0	42	13.2
Business	41	19.8	66	20.7
Law/Govt Statistics	50	24.2	61	19.1
Other Social Science	29	14.0	66	20.7
Science/Tech Medicine	58	28.0	84	26.3
Total	207	100.0	319	100.0

Revenues generated for the four Nordic countries in 1986 have been estimated as follows:

Sweden	$20.2 million
Denmark	$ 9.8 million
Norway	$ 9.8 million
Finland	$ 9.8 million

Excluding financial database services, revenues are estimated at a total of $26 million US. These countries are similar to Canada in that they are producing a significant number of public databases each year. Where they differ is in the fact that the Nordic countries have a coordinated policy with regard to the exchange and marketing of databases. What makes them of interest to Canada is that they have had to develop policies to safeguard the

[4] Link European Survey, 1987.

exploitation of their own information by foreign database producers and the subsequent need to buy it back again. They have done this by setting up strong national information policy arrangements, creating small but efficient central database promotion and use offices. In some cases these are associated with the EEC DIANE Network. Most importantly, they have cooperated with each other on such projects as SCANNET, now a coordinating body for the non-governmental services which publishes an English language bulletin "Scannet Today", and NORDINFO which has carried out an important project on producing an intelligent interface to Nordic information systems.[5]

A key role in each of these countries is played by their respective Federations of Industry. The Swedish and Danish Federation of Industry have active policies to develop databases adapted to the needs of Swedish and Danish industry. The Technical Research Centre of Finland carries out projects to apply knowledge-based techniques and computer linguistics to new interface designs (Project KISIR).

Scandinavian, and for that matter, general European experience indicates that the user needs human-based help and support. This leads to the development in these countries of national online user support centres and the gradual standardization of host services and databases, so that there are fewer user problems to be solved.

A further example of cooperative undertaking is the EUSIDIC Public Data Networks: 1987 Survey Results, an annual, non-governmental agency report which monitors users experiences in securing information by means of a sample of 5000 data calls each year. Detailed profiles of 200 users are provided. These measures help to evaluate the performance of the European online information providers to European public data networks, and give database marketers and producers some assistance in deciding their improvements and changes in their products.

An important matter to take into account is that only 7.2% of the 207 Scandinavian content databases were owned by producers outside the four countries and the majority of these producers were in the EEC. There were many cooperative databases produced by members of the four countries between themselves. There are now CD-ROM databases in Scandinavia such as telephone directories, lists of Scandinavian periodicals, etc. The high yearly increase of Scandinavian databases shows that these countries can cultivate a small market cooperatively.

Government policies in each of the four countries are designed to make this possible. At the recent Nordiskt Databas 88 Conference in Stockholm, January 25-27, 1988 sponsored by the Swedish Telecommunication Administration, the Federation of Swedish Industries, the Danish Delegation for Scientific and

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[5] Hansen, Ingeborg, "IANI solves the incompatibility problem," DATABAS 88, Stockholm, Jan 26, 1988.

Technical Information, The Nordic Council for Scientific and Technical Information, The Danish Telecommunications Administration and the General Directorate of Post and Telecommunications of Finland, there was emphasis on both the domestic and foreign industries, including the industry in the USA, the EEC and Japan. More than a dozen booths at the exhibits showed CD-ROM databases. Fifteen booths were occupied by information brokers of Scandinavia and 9 booths dealt with patent information. There were a total of 55 booths in the exhibits, more than 30 product displays and 5 seminars for marketing databases and related matters. The UK had a combined booth of 18 database producers, including both governmental and private producers. The EEC had an important representation. USA vendors were represented in a modest fashion (by STN, DIALOG, BRS, etc.). By far the most active group was that associated with the NORDINFO Program of the Nordic Council. Their combined display covered over 200 databases.

Among the many topics referred to during speakers presentations, there were frequent references to the portability of Nordic databases, and to the fact that MEDLINE and DIALOG are the principal vendors in Scandinavia from abroad, and that 35 out of 1000 persons in Sweden are now PC users. It was pointed out that the audience behind the PCs are looking for a new style and content of service.

The Nordic countries now produce 300 out of the 1200 European databases, yet have only 8% of the European (EEC) population. There was much discussion of what Scandinavian database marketers could learn from abroad and the efforts of government subsidy. It was emphasized by several speakers that information industry market financial assessments and forecasts may not be correct, and that some independent assessments are required.

Because of the importance of the IANI Project, a summary of it follows.[6]

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[6]Further information on this project can be secured from Espial productions Limited, Toronto, Ontario.

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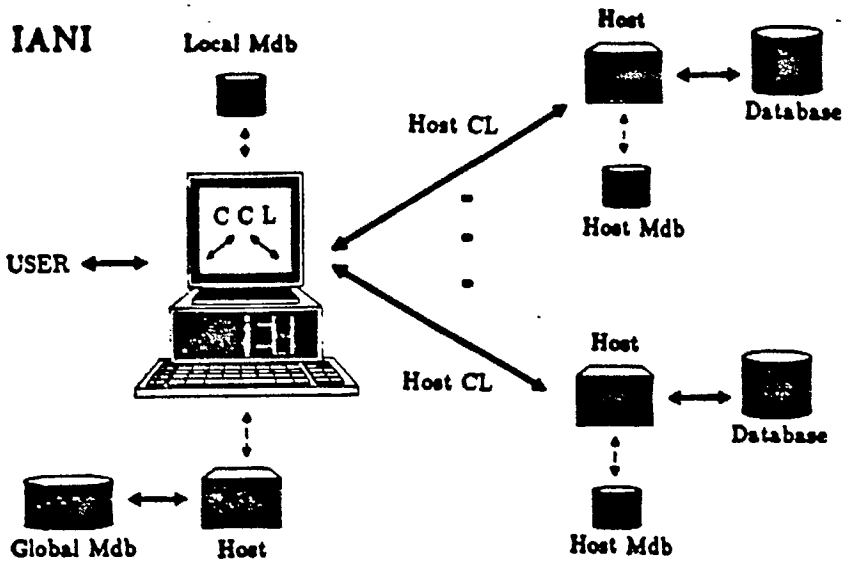
Intelligent Access to Nordic Information Systems



IANI – Intelligent Access to Nordic Information Systems

IANI is an intelligent interface developed for Nordinfo (The Nordic Council for information and research libraries) by CRI assisted by Brodd (The Consultancy and Development Dept. of the Norwegian School of Library and Information Science).

The aim of the project is to develop an interface which will give easy and uniform access to different databases on different hosts for users with different levels of experience in online searching.

The result of the project will be a prototype which will work on a personal computer compatible with IBM/AT.

The interface will in the prototype phase give access to selected bibliographic, factual and fulltext databases on 3–4 Nordic hosts: The Computer dept. of the Office of the National Librarian (Denmark), The Libris Office of the Royal Library, (Sweden) and The State Computer Centre (Finland).

The interface will provide automatic logon/logoff procedure and identical search procedures to all participating hosts. The user may choose different access levels based on either menues or commands.

The interface will formulate a correct search statement in CCL (Common Command Language) on the basis of the user statement and, further, translate the CCL–statement into a validated host command before transmission to the host computer.

The interface may access non–IANI hosts with automatic logon/logoff procedure, but continuing in the host command language via a transparent facility.

The interface will contain extensive help facilities throughout the IANI session and help the user with selection of search terms and databases. Selection of databases will be based on a simplified UDC–scheme combined with the keywords from the Scannet and Euronet database guides.

The help functions will be provided through a metadatabase located partly at the PC, partly at one of the hosts. Information will be downloaded to the PC–metadatabase from a host during the first session with that particular host. Update of this information will take place automatically during follow–up sessions.

The prototype will include simple facilities for document ordering and accounting. It is intended to expand these facilities in a follow–up project.

The prototype will be delivered to Nordinfo in June 1988.

As a result of the project Nordinfo has published the report on "Language requirements for the intelligent interface facility" and has recommended the IANI–subset of CCL as standard for databases supported by Nordinfo.

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PROGRAM

Måndag 25 januari 1988

NORDISKT DATABAS 88

Stockholmsmässan, Älvsjö 25—27 januari 1988

Nordens största fackmässa för databaser och videotex. Ett unikt tillfälle för användare och leverantörer. Konferenser, utbildning, utställning, produktpresentationer m m.

The largest Nordic Trade Fair for databases and videotex. A unique marketplace for users and suppliers. Conferences, Mini-courses, Exhibition, Product Presentation etc.

Arrangörer:
Televerket
Sveriges Industriförbund
DFI (Delegationen för vetenskaplig och teknisk informationsförsörjning)
NORDINFO (Nordiska samarbetsorganet för vetenskaplig information)
DDT (De danske televirksomheder)
PTV (Post- och Telegrafstyrelsen, Finland)

Organizers:
The Swedish Telecommunications Administration
The Federation of Swedish Industries
The Delegation for Scientific and Technical Information
The Nordic Council for Scientific Information and Research Libraries
The Danish Telecommunication Administrations
General Directorate of Post and Telecommunications

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PROGRAM

Måndag 25 januari 1988

8.00 *Registrering*

1 Norden och informationssamhället — Sal K1/K2

9.30 Högtidligt öppnande – **Databas 88, den nordiska marknaden**
Stig Johansson, marknadsdirektör, Televerket, Sverige

9.45 Visdomssamhälle eller kommunikation till döds?
Bengt-Arne Vedin, professor KTH, Sverige.

10.25 *Kaffe*

10.45 **Debatt med utfrågning**
Debattledare **Herbert Söderström,** konsult, Sverige
Panel: **Lone Dybkjær,** Folketinget, Danmark
Jan Freese, vVd, Industriförbundet, Sverige
Reino Lantto, chefred, Startel, Finland
Kerstin Rehbinder, ordförande, TLS, Sverige
Sissel Overlie, avdelingsleder, Norsk Senter for Informatikk
Tony Hagström, generaldir, Televerket, Sverige
samt representanter för övriga nordiska teleförvaltningar.

12.15 *Lunch*

2 Databaser en inventering — Sal K2

Blockledare **Winnie Hemborg**

13.45 Det finns mer än du tror
Winnie Hemborg, Televerkets Databastjänst, Sverige

14.15 Videotex – ett annat sätt att se på databaser
Mogens Johne, KTAS, Danmark

14.45 Kvalitetsaspektet i databaser
Johs Christian Johansen, POLINFO, Danmark

15.15 Varför videotex när det finns TTY-databaser?
Kaj Ålenius, Svenska Telebild AB

15.45 *Kaffe*

3 Nyheter på databasområdet — Sal K1

Blockledare **Lilianna Kanafarski,** REFLINE IDC-KTHB, Svenge

13.45 Nyheder på databasemarkedet
Vagn Isaksen, Dansk DIANE Center, Danmark

14.15 Utveckling och trender
Maria Vahlgren Wall, Update Scandinavia, Sverige

14.45 Videotex – en enkel definition
Kari Myllys, Startel, Finland

15.05 Enkelheten är ingen begränsning
Ulf Bergman, Dextel Teledata AB, Sverige

15.25 Videotex in Europe – an overview
Roland Haber, ECHO, Luxemburg

15.55 *Kaffe*

4 Existerar marknaden? I så fall, hur ser den ut? — Sal B11

Blockledare **B G Wennersten,** konsult, skribent, Sverige

13.45 Market forecasts and why they were wrong. What are the real requirements?
Barry Mahon, coordinator, European Information Market Development Group, Luxemburg

14.25 Are there too many actors on the market? Which are the likely growth sectors? Analysis, market statistics.
David Worlock, Electronic Publishing Services, England

15.05 Är PC:n nyckeln som öppnar marknaden? Finns det en allterminal i sikte?
Ulf Jonströmer, AU-System, Sverige

16.00 *Kaffe*

5 Databaser med myndighetsinformation — Sal K1

Blockledare **Lise-Lotte Lindskog,** Philips, Sverige

16.30 Nordisk översikt.
Lars Klasén, DAFA Data AB, Sverige

16.50 Faktisk og økonomisk sikkerhet, kommunikasjonsintegritet og personvern
Jon Bing, professor, Universitetet i Oslo, Norge

17.20 Vem ska betala offentliga databaser?
Gertrud Hallvig, Statskontoret, Sverige

6 Databaser i hemmet? — Sal K2

Blockledare **B G Wennersten,** konsult, skribent, Sverige

16.30 Vad kan vi lära av Frankrike?
Giséle Åsplund, Kvinnor & Ekonomi, Sverige

16.50 Homebanking idag og forventninger til fremtiden.
Niels Gellert, Handelsbanken, København, Danmark

17.15 Behöver vi ändra beteende och i så fall vilka blir föregångarna?
Lasse Svanberg, Svenska Filminstitutet, Sverige

18.00 *Cocktail i utställningen*

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PROGRAM

Tisdag 26 januari 1988

7 Nätverken, tjänsterna, "gateways" — Sal K2

9.00 Intelligent kommunikation – en oversigt over etablerede "gateway" – løsninger.
Ulla Retlev, UNI-C, Danmark

9.25 Vi reder ut begreppen (VAN mm)
Steffen Willumsen, JTAS, Danmark

9.50 Att ansluta datorer till videotex
Ronni Hansson, Televerket, Sverige

10.20 *Kaffe*

10.40 Advanced front-ends and gateways for online database searching a state of art review
Eero Sormunen, VTT, Finland

11.10 IANI solves the Incompatibility Problem – NORDINFO:s intelligent interface project.
Inge Berg Hansen, CRI, Danmark

11.35 Använd kontorsväxeln som dataväxel för databassökning
Jan Silwer, Televerket, Sverige

12.00 *Lunch*

8 Workshop – PC som verktyg — Sal B11

Presentation 15 min/land, diskussion, sammanfattning

9.00–12.00 Vågar jag köpa en lågpris-PC? Kräv mer av din PC-leverantör! Loading-up, down, side, back, front, in, out
Pia M. Jensen, Novo Industri A S, Danmark (inledning)
Helge Clausen, Statsbiblioteket, Danmark (ordförande)
Bo Inerfeldt, konsult, Sverige
Allan Kiviaho, Uusi Suomi Oy, Finland
Katarzyna de Brisis, BRODD, Norge

12.00 *Lunch*

9 Databaser inom olika ämnesområden – användning — Sal K11

9.00 Ekonomi/Marknad
Anders Carlberg, Update Scandinavia, Sverige (inledning)
John Zimmermann, Industrirådet, Danmark

10.20 *Kaffe*

10.40 Banker/Försäkring
Anneli Lindberg, Företagsmarknad, Götabanken (inledn.)
Adam Gierta, Bona-Wäsby egendom, Sverige
Annelie Sundin, Svenska Handelsbanken, Sverige

12.00 *Lunch*

13.15 Resebranschen
Åke Sundelin, SRF Resevision AB, Sverige (inledn.)
Anders Grahn, Motala Resebyrå, Sverige
Mona Berggren, SJ Resebyrå, Sverige

10 — Sal K16/17

9.00 Kemibranschen
Lilianna Kanafarski, REFLINE, IDC-KTHB, Sverige (inledn.)
Anita Meurling, Uppsala Universitet, Sverige
Arja-Riitta Haarala, Tammerfors Tekniska Högskola, Finland

10.20 *Kaffe*

10.40 Bioteknik/Medicin
Elisabeth Kjellander, MIC vid Karolinska Institutets bibliotek och informationscentral, Sverige (inledn.)
Inge Justesen, Grindstedts Products A/S, Danmark
Kari Halldal, Universitetsbiblioteket, Norge

12.00 *Lunch*

13.15 Industriteknik
Marjolaine Thulin, Patent Information AB, Sverige (inledn.)
Kirsten Rene, Radiometer A/S, Danmark
Lise-Lotte Lindskog, Philips, Sverige

11 Hur realisera en affärsidé? — Sal K2

13.15 AgroVision
Per Olsson, Resco i Malmö AB, Sverige

13.35 Commars Gruppen AB
Ingemar Gleissman, Commars Gruppen AB, Sverige

12 Databaser inom icke latinska alfabet — Sal B11

13.30 Japanska databaser, finns de?
Jon Sigurdson, Forskn. politiska Institutet, Sverige

14.00 Hur använder jag japanska databaser?
Esko Aho, Aho & Meguro, Finland

14.25 Databaser i de socialistiska länderna.
Sauli Laitinen, Statens tekniska forskningscentral, Finland

14.50 *Kaffe*

13 Börja söka! — Sal K2

15.15 Introduktion till databassökning. Hur kommer jag igång med databassökning? Vilken utrustning och programvara behövs? Hur hittar jag rätt databaser och hur skaffar jag password? Vad är onlinebeställning? Utbildning och kurser? Vad kostar det att söka?
Ingrid Chambert
Televerkets Databastjänst, Sverige

15.35 **Lars Jonsson,** Televerket, Uppsala, Sverige

14 Marknadsföring av databaser och informationstjänster — Sal K1

15.05 Is the technique ready for the market?
From idea to product.
Barton J Goldenberg, ISM, USA

15.35 Nobody can afford "learning by doing"
Market research/analyses are needed.
Margaret Wilkinson, Pergamon Orbit Infoline, England

16.05 De framgångsrika gjorde så här
Jan Hederén, Östgöta Correspondenten

15 CD-ROM vad är det? — Sal K1

16.45 An introduction to CD-ROM and the market
Julie B Schwerin, president, INFOTECH, USA

17.30 Varför välja CD-ROM istället för Online?
Ib Topholm, KRAKS Forlag A/S, Danmark

18.00 *Fria aktiviteter*

20.00 *Middag på Börsen.*
Show: Jan Malmsjö

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PROGRAM

Onsdag 27 januari 1988

16 Internationell politik – hinder eller hjälp? Sal B11

Blockledare **Lennart Scharff,** 3U, Danmark

9.00 European Information Policies. Differences/similarities.
John Gray, Consultant, England

9.30 European Information Strategies – plans, achievements and diversions
Inge Berg Hansen, CRI, Danmark

10.00 Vem ska göra vad i Norden?
P. G. Holmlöv, Handelshögskolan och Televerket, Sverige

10.30 *Kaffe*

10.50 Kan industrin ha en egen strategi?
Roland Linderoth, Volvo Data AB, Sverige

17 Databaser och ADB, integrera mera? Sal K2

9.00 IRM – much ado about nothing?
Pirkko Aalto, Imatran Voima OY, Finland

9.30 Riksdagen (praktikfall)
Carl-Gerhard Ulfhjelm, Sveriges Riksdag

10.00 IRM – Information Resource Management og Online: et praktisk eksempel
Vilhelm Wanscher, Unisys, Danmark

10.30 *Kaffe*

10.50 Vägen till kunskapsföretag – med databaser?
Sirkka Westberg, Sällmunds AB, Sverige

11.20 FFV Ordnance (praktikfall)
Annethe Norberg, FFV Ordnance, Sverige

11.50 Videotex – ett sätt att låta fler nå interna databaser?
Niels Ralund, Belle Systems A. S, Danmark

12.10 Integrerad användning – en kostnadsjämförelse
Sten Staxler, Teleplan Informationssystem, Sverige

12.40 *Lunch*

18 Går det att visa nyttan med information? Sal B11

11.30 Derfor vil brugerne ikke have de informationer som databaserne tilbyder!
Torben Hest, konsult, Danmark

11.50 How to use databases creatively during the new product or business development process.
Olli Eloranta, S.A.M.I. Innovation Oy, Finland

12.10 Kommunikationskløften mellem udbyderne og brugerne.
John Steenfeldt-Jensen, Infoconsult A/S, Danmark

12.30 *Lunch*

19 Den nordiska marknaden och dess databaser Sal K11

11.30–12.30 Översikt. Firmainformation, krediter. Produkt- och marknadsinformation.
Elisabet Mickos, Nordinfo/Scannet, Finland
Ralph Strömfelt, RS Information Management AB, Sverige

12.30 *Lunch*

20 Vad gör organisationerna? Sal K2

14.00 Vilken organisation gör vad i databasbranschen
Malin Edström, Stockholms Datorcentral, QZ, Sverige

14.30–15.30 Utfrågning av representanter för organisationerna
Herbert Söderström, konsult, Sverige

Organisationer: TLS, REFLINE, Videotexföreningen, Televerkets Databastjänst, Norsk DIANE Senter, Dansk DIANE Center.

15.30 *Kaffe*

21 Upphovsrätt, nyttjanderätt av databaser Sal K11

13.45 Databasernas juridik
Peter Seipel, IRI, Stockholms Universitet, Sverige

14.20 Legal Strategic Planning for International Markets
Herbert Burkert, GMD, Västtyskland

15.00 The public rights and copyrights in relation to online information
Harry Collier, Learned Information Ltd, England

15.30 *Kaffe*

22 Löser artificiell intelligens sökproblemen?

14.00 Expertsystem är inte bara en databas?
Roland Hjerppe, Linköpings universitet, Sverige

14.30 Kunstig intelligens og standardiseringsproblemene
Ole Husby, BIBSYS, Norge

15.00 Udviklingen af KIRA: KIWI Information Retrieval Assistant
Henrik Legind Larsen, Dansk Datamatik Center, Danmark

15.30 *Kaffe*

23 Användarvänlighet – Leverantörerna mot väggen (Paneldebatt) Sal K1/K2

15.50 Inledning: Kritisk genomgång av begreppet med exempel på användarovänlighet samt användarvänlighet
Lennart Scharff, 3U, Danmark

16.05–17.00 Debattledare:
Herbert Söderström, konsult, Sverige

Panel: **Henry Broms,** Helsingfors Handelshögskola, Finland
Göran Tamm, DataArkiv AB, Sverige
Per B. Kristensen, Norsk Hydro, Norge
Hans-Erik Nicolaysen, K.T.A.S, Danmark
Thomas Wolff, Elanders Videotex AB, Sverige

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3.2 Japan

Mention has been made in Section 2 of the work of the Database Promotion Centre in Japan.[7] The importance of such a centre cannot be overemphasized. The following materials provide a brief introduction to the Japanese database industry today. Because of the limits of space and time for this Section 3, a bibliography for further consultation on Japanese database developments is provided.

Owing to the greatly increased demand for Japanese information in the West, an international conference on Japanese information was held by the British Library Japanese Information Service in September 1987 at the University of Warwick, UK. About 200 specialists in Japanese or general information from 16 countries attended, and the present demand, supply and problems regarding Japanese information were clearly identified in the papers and discussions.

Today over 21,000 periodicals are published in Japan, and of these 5,344 are counted as academic and 9,569 as scientific and technical. Only 7% of them are published in English, and only 10.5% contain Western titles and/or abstracts along with the Japanese text. For obtaining patent or utility model rights, over 600,000 applications are now filed annually in Japan. There is some indication that up to half of these applications are not followed by full patents.

3.2.1 Japanese Databases

There are more than 300 commercially distributed domestic databases in Japan, and of these 25-30 are accessible from abroad. The most important of these for North American use include the following (all of them are almost entirely in Japanese):

3.2.1.1 Japan MARC (machine-readable catalogue of new books) compiled by the National Diet Library and offered through the Dialine databank; three private MARC databases compiled and offered by large Tokyo booksellers; Japan's national academic and research library union catalogue compiled by the National Centre for Science Information System (NACSYS); the JOIS databank (JICST Online Information System) with several domestic bibliographic databases on science, technology and medicine, compiled and offered by the Japan Information Centre of Science and Technology (JICST); the PATOLIS databank (Patent Online Information System) with several files on patents, utility models, designs, trade marks and related fields, produced and offered by the Japan Patent Information Organization (JAPIO); and the NEEDS databank (Nikkei Economic Electronic Databank System) with several

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[7] Address of Centre: 7F World Trade Centre Building, 2-4-1 Hamamatsu-cho Minato-ku, Tokyo. (Tel) 03-459-8581.

economic, financial and market data files, produced and offered by Nihon Keizai Shimbun (The Japan Economic Journal). JOIS PATOLIS and NEEDS are available online in Canada, JOIS and NEEDS are available partially in English.

3.2.1.2 The Japan Information Centre of Science and Technology (JICST) JICST is the dominant producer and vendor of scientific and technical information services in japan, including abstract journals and databases. A government-financed organization under the Science and Technology Agency, it was established in 1957 and has 10 branch offices in Japan and one in Paris.

JICST produces about 525,000 scientific and technical abstracts per year, selected by 100 JICST information specialists and prepared by over 5000 outside subject specialists around Japan. It currently abstracts about 6200 foreign and 5700 domestic journals, 750 series of conference proceedings and about 28000 technical reports each year. The abstracts are offered in abstracts journals, several Japanese databases, and an English-language online database.

3.2.1.3 Japan Patent Information Organization (JAPIO)
JAPIO was formed in 1985 by merging the old Japan Patent Information Centre (JAPATIC) and the information service activities of the Japan Institute of Invention and Innovation (JIII). An independent organization closely cooperating with the Japanese Patent Office, it runs the PATOLIS database which is also available abroad through packet-switching networks, although only in Japanese. Part of the contents, about 60% of the unexamined patent applications (kokai) filed by Japanese applicants, is available in English as the JAPIO database in the ORBIT system.

3.2.1.4 Nikkei Economic Electronic Databank System (NEEDS)
The database service department of Japan's dominant economic newspaper, Nihon Keizai Shimbun, NEEDS runs a global databank network with central computers in Tokyo and nodes in London, Zurich and North American. Users are offered access to its Japanese and English files either via these nodes or over the international packet-switching networks. The files contain economic newspaper and magazine articles, financial and stock exchange information, company details and market facts. NEEDS is represented in the U.S. by the branch office of Mitsui and Co, Toronto.

3.2.1.5 COSMOS

The Teikoku Databank markets three online databases:

COSMOS 1 which contains the latest financial data on 80,000 companies throughout Japan. The data is compiled from the financial statement published by the companies themselves and can be accessed by key headings such as corporation, sales, number of employees, etc.

COSMOS 2 which contains corporate data on 680,000 companies throughout Japan, based on annual tax returns. The data includes credit ratings and more than 20 other items such as capital, sales, fiscal year results, etc.

COSMOS 3 which contains personal data on 500,000 corporate executives throughout Japan.

3.2.1.6 HINET

There are seven accessible databases:

1. Techno-Search which contains references to articles drawn from 5 major Japanese technical publications (Chemical Industry, Japan Industrial News, Information Industry News, Daily Industrial News, and Electronics News) and is updated daily with a total of 4,800 references monthly. This database is searched through the use of terminology established in the JICST Thesaurus. This service extends from January, 1981 onwards.

2. Title-Search which contains references drawn from 900 major technical magazines which are published monthly in Japan. It is updated monthly with a total of 6,100 references per month. This database is searched using Free Terms from the titles of the reports. This service extends from September, 1982 onwards.

3. Nikkei Sangyo Shinbun [Nikkei Industrial News] Articles Database which contains full text of articles appearing in this important publication. The Nikkei Sangyo Shimbun is one of the leading industrial newspapers in Japan, and is published by the Japan Economic Journal. This database is updated weekly and can be searched using Free Terms found in the NIKKEI Thesaurus. This service extends from 1985 onwards.

4. Asahi Shimbun News Articles Database which contains full text of articles (apart from sports and those articles appearing in local editions) appearing in the morning edition of this leading Japanese daily. The Asahi Shimbun is one of Japan's oldest and largest newspapers with a total daily circulation for morning and evening editions of over 12.1 million copies (1985 figure). This service extends from January, 1985.

5. Yomiuri Shimbun News Articles Database which contains full text of articles and news concerning general matters appearing in the morning edition of this major Japanese newspaper. This newspaper was originally launched in 1874 and is one of Japan's largest, with a total daily circulation for morning and evening editions of over 13.6 million copies (1985 figure). This service extends from September, 1986 onwards.

6. Market Search which contains market research-related information for the whole of Japan on all Japanese industries. This information has been collected and processed by the JMA (Japan Management Association) Research Institute Inc. This service extends from 1985 onwards.

7. JETRO ACE Database which contains national and international information compiled by the Japan External Trade Organization. It covers trends in trade and statistics on the basis of both nations and items.

3.2.2 Policies for Promoting Databases in Japan [8]

3.2.2.1 Database Related Policies of the Ministry of International Trade and Industry (MITI)

The following over-all measures for the promotion of databases were proposed for 1987:

1. Promotion of the production of important databases
Industry, government and universities will cooperate in the production of databases in the fields of high technology, energy and security.

2. Tax measures related to corporate database producers
Ten percent of the sales of databases produced by corporations will be set aside for the cost of developing databases.

3. Support for production of databases in private sectors
The Japan Development Bank will provide financial assistance in the form of low-interest loans to database companies.

4. Production of public databases and the expansion of supply of governmental data to the private sectors.
The production of public databases necessary for the promotion of international trade and industry will continue. These databases

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[8] Database Services in Japan. The Outline of Database White Paper 1987 (prepared by Database Promotion Centre). Tokyo, 1987, pp. 13-16.

and governmental data such as statistics will increasingly be made available to the private sector.

5. Surveys on databases and the supply of information.

6. Improvement of the Database Directory
A Database Directory will be compiled on the basis of the "Database Directory System" established in 1982. The Database Directory itself will also be made available in a machine-readable format.

7. Research and development of inter-operable database systems
A seven-year period of research and development on the major project "Inter-operable Database Systems" was started in 1986.

8. Standardization of database technology
Since 1985, the Database Standardization Survey Committee of the Japan Electronic Industry Development Association (JEIDA) has made studies on standardization.

3.2.2.2 Database Related Policies of Management and Coordination Agency

As part of the general reorganization in the management and utilization of computers by government organizations, the Management and Coordination Agency of the Japanese Government is studying the efficient utilization of the data stored on magnetic tapes owned by the various government ministries and agencies, and on the preparation of databases. These are being promoted as follows:

1. The development of databases for the common use by the government agencies and ministries: the following systems are available to government agencies and ministries:
a) Laws and ordinances retrieval system
b) Precedent retrieval system
c) Cabinet information retrieval system
d) Law and ordinance revisions retrieval system
e) Diet meeting minutes retrieval system

2. The preparation of a system and functions for promotion of the mutual utilization of information stored on magnetic tapes by government agencies and ministries.

3. The enactment and revision of policies for the preparation and promotion of databases by various agencies and ministries.

3.2.2.3 Database Related Policies of the Ministry of Education, Science and Culture

1. The national government must be mainly responsible for the production of databases such as the Chemical Abstracts Service and MEDLARS which need large organizations.

2. The national government must provide financial support for the production of databases with scientific and educational value.

3. Support for databases must be provided by the Japan National Centre for Science Information Systems, university data processing centres, etc.

3.2.3.4 Database Related Policies of The Agency of Science and Technology of Japan

Japan Information Centre of Science and Technology (JICST) is expanding its literature databases and improving its online database services. A description of these has been provided previously.

There have been some foreign capital interests in acquiring Japanese content databases. As one example, University Microfilms International (UMI) of the USA established in 1986 a Japanese Technical Information Service (JTIS) for abstracting about 600 Japanese technical journals. The abstracts are available in print and as the Japan Technology File on DIALOG.

3.2.3 Further Reading

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3.3 The People's Republic of China

The database industry in the People's Republic of China is in its first decade of development, as in other third world countries. The difference with China, in comparison with Japan, the USA, Europe and Scandinavia is that as a socialist country, it does not intend to develop a wholly commercialized database industry. It will, however, trade in database information under regulations that will safeguard the contents of proprietary Chinese data.

Wang Tingjiong, director of the China Society for Scientific and Technical Information and of the Institute for Scientific and Technical Information of China (ISTIC), the leading national organization for the intake of foreign scientific information, stated in December 1987 that at that time China had more than 50 terminals across the country (15 in Beijing) linked with international databases. The terminals are located in 30 cities in China where they serve a network of users.

Terminals have also been dedicated to internal Chinese character database development by such organizations as the Beijing Document Service, the Academy of Science and its many branches, the Institute of Computing Technology Application of Guangdong Province, the State Commission of Machine Industry, the Shanghai Institute for Scientific and Technical Information and the Chongqing branch of ISTIC. Many of the 43 ministerial information institutes and their branches (Ministries of Post and Telecommunications, Finance, Water Resources and Electric Power, Chinese Academy of Medicine, etc.) also have functioning online services.

There are about 300 national and 3000 regional clearing houses of information in various subjects, most established after the first National Information Working Conference of 1958. In the 30 years that have elapsed, a number of telecommunication-linked information networks have emerged. None are available to the public. All are controlled within the structure of the government organization.

A recent example is that of the Defence Science and Industry Database service. It contains 17 sub-bases related to 5 million documents held in 20 cities. The terminal linkage of this network is among the most advanced in China. Another example is NINEA, the National Information Network of Export Oriented Agriculture, formed under the Scientific Documentation and Information Centre of the Chinese Academy of Agriculture Science, Beijing. A further example is the database on Chinese patents, begun in 1985 by the new Chinese Patent Office. This is available abroad in English.

3.3.1 Policies on Computer Databases

China has stated that by the year 2000 it hopes to have reached the technical level that more developed countries had reached in the 1980's. However, as far as computer technology and the training of computer staff is concerned, it will have reached the level of the mid-1980's by 1995. It will by that date have completed the immense task of training more than a million computer service technicians required by the country and will have produced 2 million terminals with a Chinese-Japanese-Korean keyboard. All these terminals will be destined for essential services. There are now over 50 micro-computer production lines and 20 computer external device lines in China.
China has begun to investigate CD-ROM storage technologies since these are suited to the problem of dissemination of databases where the communication infrastructure is faulty. However, real nation-wide database production and use will probably not occur before 2010.

3.3.2 Policies on Database Internal Use

Since only 40 Chinese character major public content databases have been established to date in China for operational use (although many hundreds more are in the experimental stages), there is little to go on regarding the areas in which databases will be systematically developed. However it is clear that all will be linked to production, including newspaper and periodical publishing and printing operations. The computer laser Chinese typesetting system perfected in 1985 at Beijing University which now functions in 32 centres in China has reduced production costs by 50% in individual installations and when used nationwide, will greatly improve the country's 11,000 printing and publishing organizations. Few online databases produced from such sources will reach an international exchange standard for the next 10 years, or will be interactive with Chinese character terminals except in China. However they will be available worldwide by the year 2000.

The Bank of China is the largest user and producer of financial database materials, all for internal purposes. Stock market data has already begun to make its appearance for internal use.

It must be appreciated that all databases in China will be for restricted use and not for public commercial exploitation or financial profit. This fundamental difference in database policy must be borne in mind in all discussions of database development and use in China. Exceptions may be made for Hong Kong and Taiwan databases when they are incorporated into those produced by the PRC. By that date the character of the databases now existing in those two centres may have changed.

3.3.3 Policies on External Database Use

No clear statements of policy on use of external databases have been made. China is buying very few bases wholesale and is not yet establishing joint ventures in the database industry, as it is doing in all other industries. The best clue as to policy can be seen in how all educational communication services are being handled (fax, instructional television, audiovisual publishing, etc.) These are not being made into worldwide public commercial offerings. The control of content is an overriding feature of the Chinese communications industry.

The largest influences on database development in China will come from Japan and the USA, which will provide most of the software through joint ventures. Countries such as Norway, France and the FRG are providing electronic computer-based information installations free of charge to the Chinese as test benches. The European data services are more active in their use of both Chinese and vernacular Japanese databases than the USA. The USSR, which runs the world's largest databases, is a popular model for the Chinese database organizers, as well as the USA.

More than 3000 computer and database specialists from China have visited the USA since 1971. About 400 have visited Canada. There is an intense interest in the US strategies of database use. However, China does not intend to adopt current American methods and systems since it is fully aware that many of these methods are obsolete.

3.3.4 Relation of Canada to China in Database development

Several Canadian government agencies, such as IRDC, CISTI, the Department of Communications, etc., have sent missions to China for training and demonstration purposes. Many organizations in China have visited Canadian commercial and academic database institutions. The technology transfer thus attempted has been fragmented for various reasons. Not the least important is the almost absolute present lack of commercial opportunity in China for even the most simple online database creation and use. It is doubtful if this will change in any significant way for at least four or five years. However by the mid-1990's there will be more maturity of database production and management.

An International Conference on Computer Processing of Chinese and Oriental Languages (ICCPCOL'88) is to be held in Toronto, August 29-September 1. This provides an opportunity for interested Canadian database specialists to see Chinese language developments.

The ICCPCOL'88 is organized to serve as an international forum for researchers, system developers and users of computer and information systems which process Chinese, Japanese, Korean and other Oriental languages. The theme of this conference is the application of leading

edge technologies and new knowledge to process information. Recent advances and developments in methodology, software and hardware, and expert knowledge will be emphasized.

In an effort to keep current with the state-of-the-art technologies and applications in Computer Processing of Chinese and Oriental Languages, the ICCPCOL'88 has expanded its technical program to include an exhibition of hardware and software from manufacturers and research institutes.

3.3.5 Reading List

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BEIJING-GUANGDONG CHINESE COMPUTER CENTER

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Beijing-Guangdong Chinese Computer Center

Beijing Guangdong Chinese Computer Center (BGC) is a research and development center jointly organized by the Institute of computing Technology of Chinese Academy of Sciences, the Computing Center of the Ministry of Finance and the Institute of Computing Tehnology Application of Guangdong Province.

BGC well organized its business ranging from research, development and production to application, marketing and servicing. BGC gives full play to the superiorities of each part of its organizers, aiming at making contributions to domestic made computers and Chinese language computers.

BGC manages its business with modern way and advanced techniques, wining the reputation of high efficiency and good economical benefits.

BGC has an experienced research and development team of about one hundred research fellows, senior engineers and engineers specialized on system analysis, system design, system implementation and application softwares. BGC engages some 20 computer experts, scholars and professors as consultants.

BGC has an attached production line including electrical assembling, mechanical assembling, trouble shooting, system testing and quality control. BGC is interested in making technique exchanges with foreign countries and importing advanced equipments and technologies.

BGC concentrates its efforts in designing and producing of GF20 Series of Chinese microcomputers including GF20/11A model I, model II and model III, GF20/11C. GF20/11B distributed microcomputers, GF20 local area networks, intelligent printer controllers, intelligent Chinese language terminals, GF20/12 office Chinese microcomputers etc. GF20/11A has won the First Prize of Science and Technology Achievements of Guangdong Province and the First Prize of the First National Microcomputer Application Exhibition in China. GF20/11A with the traditional Chinese medical dragnosis software was on the show of Tsukuba International Science and Technology Exposition in Japan during March to September in 1985, attracting the attentions of personalities of various circles.

BGC is doing excellent work in assisting and promoting computer applications in various fields, such as finance, taxes, oil, medical services and commercial departments etc. GF20 Series Chinese microcomputers are widely used in financial departments and tax bureaus of each province and big cities except Taiwan in China. There are more than 50 GF20/11As installed in Daqing oil Fields.

Features of GF20 Series Microcomputers

1. GF20/11A Chinese Microcomputer System
- •Chinese and English fully compatible version of CP/M operating system
- •1MB main memory
- •10MB or 20MB Winchester Disc
- •Versatile Chinese character processing functions.
  - -Several Chinese character encoding methods, user definable and selectable to speed or ease Chinese character input
  - -User friendly Chinese screen editor
  - -16×16 and 24×24 dot matrix for National Standard Chinese character basic sets resided in main memory to speed output
- •Many CP/M supported utilities and application programs, e.g. Chinese version of dBASE-II .

2. GF20/11B Functionally Distributed Multi-user

Chinese microcomputer system
- •One, Center Station
  - -CPU: Intel 80186
  - -main memory: 512KB-1MB
  - -hard disc: 40MB-80MB
  - -floppy disc: 640KB
  - -One serial and 4 parallel ports and one laser printer interface
  - -Distributed operating system
- •Up to 16 User Computers (IBM PC Compatible)
  - -CPU: Intel 8088 or 80186 or 80286
  - -main memory: 256KB to 2MB
  - -hard disc: 0-20MB
  - -floppy disc: 0-640KB
  - -MSDOS

3. GF20/11C Chinese Microcomputer System
- •256KB RAM
- •256KB Masked ROM for 16×16 dot matrix of National Standard Chinese character basic sets.
- •IBM PC compatible bus
- •GF20/11A software compatible
- •Data file conversion program for GF20/11A and IBM PC

4. GF20 Chinese Character Terminal
- •Fully compatible Chinese and English mode
- •256KB RAM
- •256KB Masked ROM for Chinese character generator
- •Capable of being attached to many kinds of computers

5. GF20 intelligent Chinese character printer controller
- •CPU: Z80A
- •RAM buffer: 64KB for spoolling
- •Masked ROM: 576KB for Chinese character generator of 24×24 dot Matrix
- •Capable of being connected in between many kinds of computers and printers.

6. GF20/11A Microcomputer Local Area Network
- •Versatile network service
  - -electronic mail
  - -terminal conversation
  - -file transfer
  - -remote job entry
- •Transmission rate: 1 Mbit/sec.
- •Up to 255 stations

7. Chinese character cards for IBM PC or PC/XT
- •Three display modes: Chinese, English and Graphic
- •One frame containing
  - 80×25 English characters or
  - 40×26 Chinese characters or
  - 640×480 dots.
- •Masked ROM: 256KB for Chinese character generator of 16×16 dot matrix

8. Software
- •GCRS: a Chinese character spread sheet of three dimensions
  - -GF20/11A version
  - -IBM PC version
- •CTBASE-a combination of dBASE-II and GCRS for GF20/11A
- •Selling and stock management
- •Personnel archives management
- •Wage and salory management
- •Chinese word processing
- •Programs for diagnosis and treatment of various diseases by Chinese medicine

B) RECENT INFORMATION POLICY PROPOSALS OF THE EEC

COMMISSION OF THE EUROPEAN COMMUNITIES

REVISED VERSION

COM(87) 360 final/2
Brussels, 2 September 1987

Communication from the Commission
together with a draft decision
concerning

THE ESTABLISHMENT AT COMMUNITY LEVEL OF A POLICY AND A PLAN OF PRIORITY ACTIONS FOR THE DEVELOPMENT OF AN INFORMATION SERVICES MARKET

COM(87) 360 final/2

I. INTRODUCTION: EUROPE AND THE DEVELOPMENT OF INFORMATION SERVICES

The rapid development of new technologies, the trend towards specialisation in the manufacturing and service industries, the growth of trade and international activity have all contributed to an almost exponential increase in the volume of information which is now necessary for economic and social activity.

It is estimated that the volume of new information disseminated each year now exceeds the totality of knowledge accumulated since antiquity up until the beginning of the present century.

In order to tackle this information explosion it has become indispensable to bring in the new technologies (micro-electronics, informatics and computer communications). These new technologies are, however, upsetting the traditional equilibrium of the information economy.

1. The main changes in the information economy

Information has become both a variegated set of activities and a raw material which is essential at all levels of economic activity. The same information may be transmitted via different, coexistent generations of services. Traditional press and book publishers are liable to find themselves competing with unconventional publishers who communicate through radio, television and new on-line information services.

At the same time, information is present at all levels of activity and in all sectors of the economy, whether it is used to seek out technological intelligence, to supply market information or to manage a production line.

Information is also being considered more and more as a tradable commodity which is subject to the economies of scale by reason of the increased cost of collecting, codifying, verifying, assimilating and stocking relevant data, on top of a considerable initial investment.

Technical, legal, commercial and financial information is a commodity of great value which is sold at high prices by specialised companies.

Business communications are assuming considerable importance and represent an investment which is greater than the budget of the cinema industry. It is currently estimated that information handling in the widest sense covers 55% of jobs and two thirds of the GNP in Europe.

With the progress of technology, the information and communications industries and the policies related to them are exerting an ever greater influence on the economy.

In consequence, information constitutes now more than ever an element of power, in business, in society and between nations.

2. The prospects: new needs which will bring about a rapid growth of information services

The growth of information needs has been accompanied by a change in the type and quality of information required. Formerly only information specialists searched databases. Now professionals in industry and trade need to have direct access to information services which are more and more sophisticated. These new users are looking for information which is tailored to their specific needs, is easily and quickly accessible and allows a high degree of interactivity.

Insofar as suppliers of equipment and services will be in a position to respond to these requirements, the prospects for the European information market appear particularly encouraging:

- The 93 000 libraries in the European Community, with a total budget of the order of 7 to 10 000 million ECU, represent an important potential market for advanced information services. They are increasingly playing an intermediary and advisory role in database searching.

- In-house or "desk-top" publishing of catalogues and technical documents could be responsible for a turnover in the order of 5 000 million ECU by 1990.

- Transactional services (electronic mail, electronic data transfer) are undergoing rapid growth and could reach a turnover in the order of 6 000 million ECU by 1990.

- Finally, the European electronic information services market will see its turnover grow from 1 to more than 10 000 million ECU in 10 years. This would be equivalent to an annual growth rate in the order of 20 to 30% per year.

Moreover, the potential for employment represented by the growth in information activities cannot be ignored. It is estimated that 100,000 people currently work in the sector of electronic information in Europe. If libraries, traditional publishing, telecommunications and manufacturers of electronic equipment are included, then several million people are involved in the industry.

3. The position of Europe

As a result of these changes and prospects, Europe is faced with a challenge. It possesses some notable advantages but its position on the world information market has become relatively weaker since the advent of electronic services.

Europe is producing at the moment only half as many on-line databases as the United States. In 1986 the turnover of most of the European suppliers of specialised electronic information services was only half of that of their American counterparts. The Community market is fragmented by many technical, legal and linguistic barriers. This fragmentation hinders the free movement of information and services and therefore prevents the achievement of the economies of scale which are necessary in order to launch advanced information services.

Investment in the industry by the private sector is handicapped by the lack of relevant statistical data on market trends and also by uncertainty as to public policies. Almost 70% of European databases are still being produced by the public sector or by non-profit-making organisations, whereas in the United States 75% belong to the private sector.

It appears difficult for Member States individually to create the market conditions which would enable European suppliers of information services effectively to vie with the world competition in new services.

The Community as a whole possesses, however, some undeniable potential advantages which should be turned to account:

- a market of 320 million inhabitants which remains to be unified,

- an abundance of raw information material in science, technology and culture,

- a competitive industry and expertise in the field of telecommunications,

- a very real innovative capacity in the sector of information services, as evidenced by the exceptional success of consumer videotex services in Europe.

To these advantages may be added a political will which has caused since 1984 the necessary foundations to be laid for a European policy which will aim at the creation of a European telecommunications area and at improving European competitiveness in the domain of informatics and electronics.

It is not, however, sufficient to attend to the tools and infrastructure which enable information to be collected, stored, handled, identified and transmitted. The conditions also have to be created which will favour the setting up at a European level of a vast internal market and the development of a competitive information services industry.

II. TOWARDS A COMMUNITY POLICY FOR THE INFORMATION SERVICES MARKET

Detailed consultations with representatives of the national administrations of the Member States, the industry and information service users have been undertaken by the Commission during the last few months on the basis of the first ideas worked out in document COM(85)658 final. These consultations have enabled a consensus to be reached on the objectives and lines of action of a Community policy which will favour the development of both information services and the information market.

1. The objectives

The objectives of such a policy, which would take full advantage of the dimension of the Community and at the same time complement national private and public efforts to the best effect, are the following:

1. to establish an internal information services market;

2. to stimulate and reinforce the competitive capability of European suppliers of information services;

3. to promote the use of new advanced information services in the Community;

4. to reinforce the joint efforts to achieve the internal and external cohesion of the Community with respect to information services.

Information services must be allowed to develop freely in a vast internal market which offers the economies of scale necessary to their growth and progress, thereby creating the conditions in which information flows can develop both inside and outside the Community.

In parallel, the strengthening of the competitive capability of European information suppliers is necessary to secure the position of the Community on the world market and to facilitate the arrival of a new generation of services needed by research, trade and industry.

Improving the awareness of users and stimulating demand in a Europe which is slower than its competitors to take full advantage of the opportunities offered by new technology is a supplementary objective which is essential if the viability of modern information services is to be assured and investment stimulated.

However, the construction of an internal information market cannot be achieved if certain regions of the Community are excluded. The Commission must be particularly attentive to any initiative which could contribute to reducing regional disparities in information supply and access, for example in the setting down of the telecommunications infrastructure under the STAR programme. Account must also be taken of this objective when the initiatives designed to achieve the above aims are defined by the Commission in a follow-up to the present document. The emphasis which will be given to developing information services for SMEs will also be of direct concern to the less favoured regions of the Community as a result of their structure and economy. This attention will be reinforced in the choice of pilot projects and by the development of specific actions, notably in the domain of training.

Finally, the internal joint efforts to reinforce the cohesion of the different regions of the Community must be backed up by an enhanced effort by the whole Community to show a common front and speak with a single voice in any discussions in international fora on the subject of economic activity connected with the supply and demand of information services.

The initiatives which the Commission considers necessary to undertake, using the Community dimension to achieve the objectives proposed, are detailed below.

2. A plan of priority initiatives

It is proposed to attain the above objectives through two complementary lines of approach:

- making a continuous effort to improve market conditions and promote the use of modern information services,

- setting up pilot and demonstration projects which are capable of exerting a catalytic effect on the development of the market in key sectors.

These two lines of approach will guide the implementation of a plan of priority initiatives set out as follows:

A) The setting up of a European information market observatory

There exist currently very few reliable quantitative or qualitative data on the information services market, industry and trade, on the impact of information services on the rest of the economy and on the needs of users. The Commission proposes to create a European information market observatory which should:

- identify, collect and evaluate the available data on the different segments of the information market,

- identify gaps, define priorities and methodologies for joint efforts to collect data which would be comparable across Europe,

- make a synthesis, at European level, of the results of socio-economic studies carried out on the information market,

in order to supply information necessary to programme policies and to guide investments. The Commission will define, with the help of a group of specialised experts, the composition, mandate and working methods of such an observatory within 6 months from the transmission of the present Communication to the Council.

B) The elimination of technical, administrative and legal barriers to setting up an information market

There exist numerous technical, administrative and legal barriers which are responsible for the fragmentation of the information market. The actions which need to be undertaken to overcome these barriers have to do with standardisation, the harmonisation of certain regulations and the improvement of the conditions of transmission of and access to information services.

1. Actions to support standardisation

The Commission will develop actions which will support standardisation in the area of database access. In this effort it will build on the progress made in the area of standards for telecommunications and the new information technologies. The initiatives to be taken will be complementary to the actions already carried out by the Commission in close consultation with the Senior Officials' Group on Telecommunications (SOGT) and the Senior Officials' Group on Information Technologies Standardisation (SOGITS).

They will bear on the following matters:

- harmonisation of procedures for connexion to networks and hosts,
- automatic identification by networks of the configuration parameters of terminal equipment,
- harmonisation of documentary search software commands,
- harmonisation of formats for data transfer by diskette and by downloading and harmonisation of downloading commands,
- definition of a logical standard for structuring sound, image and text data, independent of the medium,
- establishment of a protocol for transmitting requests for primary documents between bibliographic database hosts and electronic primary document delivery services,
- harmonisation of certain criteria for the description of databases in order to facilitate the user's choice,
- harmonisation of the names and codes of fields which are common to databases of the same type in a given information area, so as to facilitate searching by occasional users, the automatic transfer of a search strategy from one base to another and downloading,

- adaptation of the principles used for indexing and cataloguing electronic products and services,

- active promotion of existing standards.

These efforts in support of standardisation in the field of database access will also take into account the work undertaken in the context of other Community programmes such as DELTA and AIM.

2. The elimination of legal and administrative obstacles

By virtue of the work of the Legal Observatory on the information market, created in 1985, the extent of the problems has become apparent, as has the urgency of taking Community action to prevent new obstacles from springing up as a result of divergent approaches to the adaptation of existing legislations. The Commission will take account of work already carried out in certain international fora and specialised groups and will make proposals before 1990 in a number of priority areas.

The Commission will initiate a wide-ranging discussion of the questions of intellectual property, including that of software, through the publication of the Green Book on copyright. It will also intensify the examination of the problems of authentication of electronic transactions, electronic fraud and the liability of information services.

With regard to the protection of personal data and the confidentiality of database searches, the Commission will continue to see to it that the Convention of the Council of Europe is implemented uniformly in the Member States and that, if any problems should arise, other measures are taken in time.

C) The improvement of the conditions for transmitting and accessing information services

The improvement of the conditions of access to telecommunications services is a part of telecommunications policy.

While awaiting the coordinated installation of the integrated services digital network (ISDN)([1]) the Commission will accord special priority to the improvement of the quality of services and to the interworking of the packet-switching networks. Moreover, in the framework of the debate initiated by the publication on 10 June 1987 of its Green Book on Telecommunications([2]), the Commission will discuss, at the appropriate time, the question of conditions of access to the networks and possible ways to stimulate the accelerated and harmonious development of value-added services (Open Network Provision), particularly in respect of the principles governing tarification.

The Commission will not only concern itself with the conditions of information distribution via telecommunications. It will also continue its efforts to bring about a concertation between publishers and the post, in order to obtain an improvement in the conditions under which the postal services distribute specialised information products (technical and commercial books and journals, but also information products on new media such as optical compact disks). It will also examine the question of the charges made for information services, and will use its best endeavours in the interests of users to improve the transparency of tariffs.

D) **Actions intended to increase the synergy between the public and private sectors**

The public sector has a dynamic influence in the supply and use of advanced information services in the Community. If a Community policy to promote the information market is to be effectively carried out, a joint approach must be sought, particularly in the following areas:

- transnational access to non-confidential data held by the public sector, so that it can be processed and marketed by the private sector,

- codes of practice for the supply of advanced information services by the public sector,

- the role of the public sector as a possible customer for the introduction of innovative services.

The Commission has already started, together with the authorities concerned, to define a joint approach in these areas, taking into account national differences. The Community guidelines which will be formulated as a result of this work will serve as a basis for the initiatives which will be submitted to the Council for approval in the course of 1988.

E) **The launching of pilot projects**

Because users are now requiring facilities of a different quality, a new generation of information services is needed which will be much easier to use, will take greater account of the linguistic diversity of Europe and will correspond more closely to the complex and varied needs of the end user in business and industry.

In the current state of the information market in the Community, there is little hope that such services will spring up unaided in the next future.

The Commission considers, however, that a useful stimulus to such developments could be created by Community support for a number of pilot or demonstration projects, which would be defined in collaboration with users and/or the industry.

The purpose of these pilot and demonstration projects would be:

- to identify genuine obstacles hindering the creation of European services and a common information market, and to try out different remedies;

- to encourage different operators in the market to pool their resources and expertise necessary to set up innovative products;

- to test the market response to those products;

- to identify medium-term priorities as defined by the needs of the market.

The envisaged projects must be large enough to exert a catalytic effect on the development of the information services industry and on the market in general.

They should also match the following criteria, wholly or in part:

- to achieve an optimal combination of competences through collaboration across different specialisations and different countries;

- to encourage cooperation between SMEs and the large organisations active in the market;

- to target well-defined groups of users, in several Member States of the Community and particularly including those in SMEs;

- to incorporate the necessary multilingual facets;

- to relate to those segments of the market which show potential for future growth and pave the way for the introduction of potentially viable information products and services;

- to aim, at least in some projects, at generating a high level of demand in the public sector, in order to help open up an important ready market;

- to make an active contribution to simplifying the formalities of access to services, to improving their user-friendliness and to reducing regional disparities in the supply of and access to information services;

- to make use, wherever possible, of existing technological infrastructure and involve the supply of electronic information products and services available on line and/or via other machine-readable media;

- to include follow-up and evaluation mechanisms which enable the transfer of findings.

Obviously, few products, if any, will meet all of these criteria, so each will have to be assessed primarily on its overall strategic impact on the market as a whole. The use of the most advanced tools and the scope for transfer of experience with a view to the supply of more easily used advanced information services will be the main factor for granting Community support.

The size and conditions of Community support will be determined by the type and requirements of the project, taking into account the imperative requirement not to distort competition.

Projects corresponding to the above criteria and submitted by groups of industry operators will receive an initial assistance calculated by reference to actual needs, and normally limited to 25% of the development costs. Community support will not necessarily take the form of a subsidy. It could be used to marshal other financial instruments such as reduced-interest loans, guarantees or venture capital.

Other projects which are of general interest but which are unlikely to attract private sector investment (e.g. databases containing strategically useful information for public policy decisions or common infrastructures for easier access to databases) could benefit from cofinancing, shared between the Community, users and Member States. In such cases the Community contribution would be limited to 50% of costs except in certain cases (such as exploratory and feasibility studies undertaken at the Commission's initiative).

In parallel with these pilot and demonstration projects, the Commission will keep up its activities already under way, notably in the framework of the five-year programme for the development of the specialised information market, to remedy the lack of scientific and technical database services in priority areas such as information for industry and research, patents, materials and image databanks.

The present Communication does not cover access to the information resulting from those Commission's activities which are financed through other schemes from appropriate budgetary lines.

F) Action in favour of libraries

Public spending for the benefit of libraries in the Community makes up 0.5% of total public expenditure (excluding military expenditure). In addition to its irreplaceable cultural significance, recognised by the Council in its resolution of 27 September 1985, the library sector is assuming an increasingly important role as an intermediary, helping firms gain access to the wide range of databases and other sources of scientific, technical and commercial information available.

In parallel with the pilot projects envisaged above, the Commission will in the course of 1988 prepare the launch of a special action in favour of libraries in the European Community to encourage their interconnexion and the use of the new information technologies.

G) Facilitating user access to existing information services

The user is confronted with both multiplicity and complexity in using existing database services. It is advisable therefore,

1) to supply him with clear and objective information about the range of services available in the Community. The Commission intends to extend the coverage of multilingual electronic directories (e.g. the DIANE GUIDE) available on its host service ECHO by adding other information sources (information brokers, specialised consultancies etc.) which could help respond to user needs.

2) to set up in the Community a number of help desks to tackle the technical difficulties in accessing international services.

The Commission will reinforce the help services and user assistance provided by ECHO. It will also look at ways to encouragee collaboration between information intermediaries, by setting up a network of franchised advisers, so as to secure access to the best information services to reply to users' questions.

3) to promote actions to alert users to the abundance and quality of available European information. Experience with Euronet DIANE has shown that Community awareness campaigns helped to multiply by a factor of 30 over 5 years the number of expert users of European on-line services. Such actions are considered by information service suppliers as crucial to the success of their marketing operations. They are considered essential, in the view of users in business, industry and research, as a means of disseminating information about available databases. They assume a particular importance in the light of the objective to extend the market to the millions of potential users represented by the professionals who lack expertise in the use of information services in business.

   The Commission will propose to the Member States a coordinated campaign to promote the abundance and quality of European information available on the market.

4) to reinforce the existing training structures. The problems of education and training are directly linked to the promotion of electronic information services. The Commission believes that certain forms of Community support for this activity are justified (e.g. schemes to promote the use of the Common Command Language installed by a number of hosts in the Community). The Commission will reinforce its assistance to users by increasing the travelling training workshops organised by ECHO, by developing new automatic training aids on the ECHO host service and by taking advantage of the transnationally orientated pilot activities concerning training in the framework of the SPRINT programme, as well as the remote teaching techniques developed within the DELTA programme.

5) to help the user cross the multilinguistic barrier. The diversity of language in the Community is one of the facets of its rich cultural heritage, and third-generation services will have to take full account of this characteristic if they are to tie into the internal market. New technologies, in particular machine-assisted translation, may help in constructing such services. The Commission intends to undertake a complete study of the entire question of multilingualism, with a view to taking further, and if necessary reinforcing the schemes already in operation (Eurotra and Systran) to facilitate the incorporation of multilingualism in information services.

6) to strengthen the role of the European Institutions as providers of information. A special effort should be made to facilitate access to Community information through user-friendly systems and tools such as those which have been developed within the INSIS programme.

III. IMPLEMENTATION OF THE PLAN OF PRIORITY ACTIONS

1. General approach

The launching of pilot projects which will exert a catalytic effect on the development of the information market is only one of the mechanisms which are envisaged to attain the objectives of the Commission's action plan. Other schemes corresponding to the priority objectives will be set in motion either directly or through related Community policies (such as the setting up of the internal market, the policy on telecommunications, innovation policy etc.).

2. The introductory phase

Because a complex policy can only succeed if it is carried out with flexibility, the Commission proposes to commence the implementation of its priority actions with an introductory phase of 24 months, for which an amount of 15 million ECU for 1989 and 20 million ECU for 1990 is deemed necessary.

During this phase the Commission will go on with its current work to improve the market conditions for electronic information services. This includes setting up the European information market observatory, promoting standardisation, undertaking the legal work which will result in draft recommendations or directives to be submitted to the Council and completing the guidelines covering the role of the public sector in the information market.

In parallel, the Commission will step up its user support activity and will propose to the Member States a coordinated campaign which will aim to promote the wealth and the quality of information available in Europe.

Finally, the Commission will launch a limited number of pilot or demonstration projects.

The objectives and basic principles underlying the selection of projects have been worked out in consultation with representatives of the information services industry in ISPG(1), representatives of users in ISUG(2) and the Senior Officials of SOAG. Calls for Declarations of interest will be published in the Official Journal in order to obtain proposals for projects from users and from the industry. The selection of projects will be carried out by the Commission in consultation with SOAG.

At the conclusion of this two-year phase, the Commission will transmit to the Council and to the European Parliament an evaluation report on the results obtained and on the basis of those results put forward guidelines for the continuation of actions until the end of 1992.

3. Conclusion

The Council is invited to indicate its approval of the general objectives and lines of action proposed by adopting the draft decision at annex.

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(1) Information Services Providers Group
(2) Information Services Users Group

Annex

Proposal for a

Council Decision concerning the establishment at Community level of a policy and a plan of priority actions for the development of an information services market in the Community

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THE COUNCIL OF THE EUROPEAN COMMUNITIES

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100A thereof,
Having regard to the proposal from the Commission (1),
In cooperation with the European Parliament (2),
Having regard to the opinion of the Economic and Social Committee (3),

Whereas it is essential to adopt measures for the gradual establishment of the internal market during the period up to 31 december 1992 ; whereas the internal market comprises an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured;

Whereas the Heads of State and of Government, meeting at the European Council in Brussels on 29 and 30 March 1985, approved the creation of a Community information market as a specific objective;

Whereas the Council on 18 March 1986 gave a favourable reception to the communication from the Commission comprising a work programme for creating a common information market;

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(1) OJ No
(2)
(3)

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Whereas the Commission, having consulted representatives of users and suppliers of information services as well as the Senior Officials Advisory Group on the information market, has been able to draw up an agreed definition of the principal objectives and lines of action of a Community policy which is designed to tackle on a broad front the complex, diverse and overlapping questions arising out of the evolution of the information market;

Whereas it is recognised that information plays a role of fundamental importance in the development of trade and industry, giving strength and coherence to the European economy as a whole, as well as being an essential component both of the cultural identity of the Community and of the fabric of a modern society;

Whereas, by virtue of the economic importance of information, the creation of a common information services market occupies an essential place in the achievement of the internal market by the end of 1992;

Whereas there exist numerous technical barriers in the way of the development of services, as well as barriers to access and unacceptable distortions of competition which must be eliminated in order to set up a fair and balanced framework for the development of the information market in the widest sense, and thereby also for the whole economy;

Whereas the development of information resources and information-based services requires the application of new technologies and the achievement of economies of scale, thereby presenting a number of problems, but at the same time opens up, directly or indirectly, new prospects which have many important repercussions, not only for the competitive working environment of the internal market but also for the whole Community in the face of its main competitors in the world arena;

Whereas public authorities in the Member States are carrying out to a varied extent different activities in the domain of the information market;

Whereas the growing importance of information in international transactions, and of the related problems concerning services, is receiving increasing attention in international fora and this fact serves to emphasise the necessity for Member States to develop common positions in those fora;

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Whereas the needs and legitimate demands of users of information services and particularly of those in small and medium-sized enterprises and in the less-favoured regions of the Community merit special attention;

Whereas the Community already possesses potentially useful instruments for the implementation of the above policy;

Whereas the Community's financial engineering mechanisms may contribute to the implementation of the present action plan, in particular with regard to the pilot and demonstration projects designed to exert a catalytic effect on the development of the information services market;

HAS ADOPTED THIS DECISION:

Article 1

Approval is hereby given to the objectives and broad lines of the plan of action proposed by the Commission with the following aims:

- to set up an internal information services market by the end of 1992;
- to stimulate and reinforce the competitive capability of European suppliers of information services;
- to promote the use of advanced information services in the Community;
- to reinforce joint efforts to achieve the internal and external cohesion of the Community with respect to information services.

Article 2

In order to attain the objectives referred to in Article 1 the following actions shall be undertaken under the responsibility of the Commission:

- the establishment of a European information market observatory;
- the presentation to the Council of proposals which will aim at eliminating technical barriers to the establishment of an information market;
- the improvement of the conditions for transmitting and accessing information services;
- the preparation of initiatives concerning the role of the public sector in the information market;
- the launching of pilot and demonstration projects which will act as catalysts for the development of a European market;

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- the preparation of a specific action in favour of libraries.

- the reinforcement of user support activities and the launching, in coordination with the Member States, of a campaign to promote the wealth and quality of European information services available on the market.

Article 3

The action plan described in Article 2 shall be implemented in two phases, the first of which shall last two years, beginning with the date of adoption of this Decision, and shall constitute an introductory phase designed to intensify cooperation between the different parties concerned and to test the feasibility of a number of pilot and demonstration projects.

Article 4

The amount deemed necessary for the implementation of the introductory phase is 15 million ECU for 1989 and 20 million ECU for 1990.

Part of the amount deemed necessary, that used to finance pilot and demonstration projects, may serve in particular to bring to bear, as appropriate, additional sources of finance emanating from interested partners, thus multiplying its effect on the development of the European information services market.

Article 5

During the second half of 1989, the Commission shall transmit to the Council and to the European Parliament an evaluation report on the results obtained during the introductory phase and shall present, on the basis of those results, guidelines for the continuation of actions until 1992.

Article 6

This Decision is addressed to the Member States.

Done at For the Council