

ON-LINE RETRIEVAL SYSTEMS AND NETWORKS

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Abstract - The present availability of on-line services in North America and Europe is reviewed and some differences between bibliographic and data bank services are identified. Mapping of points of access to on-line networks shows a very uneven distribution of availability. There is little evidence of systematic planning in the past nor any sign that future plans will lead to more availability in under-privileged areas. Costs for access to on-line services vary widely as a result of non-systematic location of network access points. In addition the duplicative development of on-line services prevents the growth in volume use on any one service which can lead to economies of scale in costs. Charges made by suppliers of data bases are relatively low and likely to be unrealistically so if growth of on-line services reduces other sources of revenue. More effective planning may alleviate some existing problems and prevent the appearance of new problems.

What is on line? Well, according to our data base of data bases there are just over 500 publicly available machine-readable files (1). This excludes private files in industry or private files in government, and of these something like 150 are publicly available on-line, again not through some secret industrial or governmental arrangement, but publicly. The on-line services I want to talk about are the dialable ones, in other words not in-house facilities or those which require leased circuits, but those you can get through to over the telephone, be it by dialling into a computer direct, or by dialling a remote concentrator which will take you to a computer, legitimately or otherwise.

The really remarkable development of the last year or couple of years has been the rise of data banks as opposed to bibliographic files, and you see that about 70 out of 160 are on-line. In other words the on-line percentage of data banks is much higher, of the order of 40, than with bibliographic files, where it is about 20. This of course is due to a number of data banks being not of the Crystallographic Data Centre kind, which involve analysis, but of the prime data kind, made available straight away, not related to literature at all, by-passing the publication analysis and data base construction circuit. They are much cheaper as a result; this applies notably to statistical data banks which are obtained as a by-product. I'll try to run through some of these services for you in a few minutes.

For the benefit of those who can't see, these are the public operators of on-line services in North America and Europe (2). At the top you see Canadian On-Line Enquiry, CAN-OLE, followed by Commodity Information Data Service, a new-comer operating in California through TeleNet, down to Tymshare, in alphabetical order.

In the data base of data bases we have the following material (3): you see the data bases on the left and the operators on the right and you see how much there is in chemistry. That is bibliographic. Now in the data bank field you see chemistry begins half way down (4). You can probably see the little heading chemistry, and there is a very large number of banks, it goes on for another page and a bit. You will get something more legible presently. The remarkable thing is that there is a significant number of chemical data banks which are not available on-line and particularly in Europe.

Let's look at something more legible and we'll start off with our transatlantic friends Lockheed and SDC (5). What I've done is to draw transparencies for you of all they have up, and then I've underlined what can be said to be of chemical interest. So this is following Tony Kent's advice not to be controversial, to be descriptive. I'm being non-controversial and descriptive now. The full underlining means that the file is wholly concerned with chemistry and is intended for the chemical community as its main thrust. The ones with the dotted underlining are files which are known to contain a significant amount of material of interest to the chemist. I've made no further distinctions, although obviously the importance to the chemist varies very much as between for example Compendex, the chemical material of which is about 13%, and as we heard yesterday, PASCAL and ISI, or SCI, where the

percentage is about 30. Nevertheless in all these cases there is probably something like at least 10 to 15 per cent of chemical material. Whether you really need it from these files or whether you can get it from Chemabs is something which you yourself have to decide.

Now we'll go through this quickly. Not all that much from Lockheed really. Of course Lockheed at the moment is interesting in being the only on-line carrier of CASIA. SDC which is a smaller service in terms of the overall number of data bases, has a much greater chemistry density, if I may call it that, and this is notably due to its concern with things like petroleum and energy which have a strong chemical angle, and of course the Derwent patent files and RINGDOC, which certainly cater for chemical industry, possibly not quite as much for the academic user, although I still have to meet an academic user. For the benefit of our Canadian friend, there is CAN-OLE (6). Then there is our European service ESA (7). The same steadies with five important extras as compared with the Americans: IAA and STAR, the nuclear science file, the PASCAL file, and the AGRIS file, all of which have some chemical interest. The other remarkable thing about ESA is its availability through three networks.

Most of these services are bibliographic; now I just want to go briefly through the data bank services. General Electric is a very large service but does not really contain much of chemical interest, I just show you that it exists (8). There are two main data bases from Control Data which are of some chemical interest (9). Techno-bank is very special in that it is an input - output service. You can put in requests for technology and you can then get an answer later. Cyphernetics (10) a lot of non-chemical stuff which we'll gloss over, but of course of interest to, for example, industry, including chemical industry, where things like economics and business should be of some concern, and here of course are our data bank steadies which have been discussed at this meeting. I have learned yesterday from Dr. Kennard that there is a third Crystallographic Data Centre file - the connectivity table file. I don't know if you know about the IPC chemical data bank, which is a data bank of chemical plant and products.

Where is all this available in Europe? I'll concentrate on Europe now. The North Americans will forgive me, but they are in a minority; more EUPAC than IUPAC really. (11) This is a map of dialable access points. You can probably recognise the shape of western Europe and the underlined things are place names and under the place names you see acronyms of services which are dialable from there. From a map like that you can gauge where your nearest Control Data or Tymshare or what have you access point is. And you see that the large clusters are in London, where we are now, with several question marks which I leave you to interpret, (The fact that I put a question mark means that I don't know the answer, so you mustn't ask me: why do you put a question mark?), in The Hague in Holland, underneath the Hague in Brussels, and underneath Brussels in Paris. Then I think come Stockholm in the left top corner, and then Lausanne and Milan, and then we get down to ones or twos. And the vast majority of the singles are General Electric, so if you cut out General Electric from this map, the number of place names will be reduced to one third, and you will find that the areas outside the capitals are very badly covered.

This is the first problem I would like to emphasise and that is the problem of access. If you look at some of the plans which are around, there is no evidence that anyone is planning to do something about that, in other words to help the underprivileged areas. All the plans I know of involve creaming off the capitals once more, putting up concentrators in the same old places, Frankfurt, Paris, London, Rome, and Amsterdam or Brussels or something. So the rich are getting richer and the poor are getting poorer. Now I will not go into network plans, but instead pass on to money.

There are three kinds of cash you have to pay if you use these services. You pay first of all the connect time charge to the operator. This usually includes some kind of royalty to the data base supplier, say 4 dollars an hour for Chemabs, or slightly more for other things. (12) These connect-time charges are all in, in other words the dollar figures cover all except communication. The BRS service which is due to start up on the 1st January will compete with most of the existing services, CAN-OLE, ESA, Lockheed and SDC by offering much lower prices. These are actually averages. The special thing about BRS is that they offer contractual arrangements. You have to guarantee X hours of use per month and the more you guarantee the cheaper the unit cost becomes. You can see another problem looming and that is that everybody does it. (13) These are the files which are the most popular in terms of being up from the largest number of operators. The new operators are proposing to cream off the steadies all over again, and one really wonders how many times one can set up Compendex before everybody goes broke. That incidentally was not a joke; the non-controversial part of my presentation is now rapidly drawing to a close.

The other money you have to pay is network charges and here you see some of them (14). The remarkable thing about them is that within any one of the two continents they're about the same, about 10 dollars. And between America and Europe including the United Kingdom they're about double that, about 20 dollars. TeleNet is a bit cheaper and others are a bit more expensive, but the order of magnitude is clearly about 10 dollars intracontinentally and

about 20 dollars intercontinentally.

Very variable are the call charges you have to pay in order to get on to a network. I have a detailed table of total charges here which is just to show that we do our homework (15); more importantly, here is an example you can probably read. Mlle. Moron of AFDAC has made a comparison of the three main bibliographic services, that is ESA, LIS and SDC, as used in Paris, and arrived at the following price figures (16). You see there that ESA and SDC cost 80 odd dollars and LIS costs 10 to 15 dollars less. The lower connect time charge of LIS and SDC is negated to some extent by the higher network charge, but they still turn out to be cheaper. This applies to Paris, which has concentrators for nearly every service under the sun. If you apply the same underlying rates to searching in London or Stockholm, you get quite a different picture. You will see for example that in Stockholm the total is of the order of over 100 dollars, for both LIS and SDC and rather less for ESA. The reason being that the Swedes have to dial all the way from Stockholm to the nearest what they call continental concentrator in The Hague or Brussels or whatever, and in fact the total communication charge is then much higher than the connect time charge. It's 22 plus 37 which is 59 dollars versus 45 for the data base itself. Now this illustrates the concrete effect of certain regions in Europe being underprivileged, and of course it equally applies to underprivileged areas within countries like Britain and Germany, where the north is underprivileged as compared with the south.

Some more problems. The costs we talked about are the out of pocket costs to the user; now who is the user? The user, as Carlos Cuadra discovered in the survey he conducted 1½ years ago, is not the bench chemist. It's the mediator. And while I share the worry of our Chairman yesterday that we may not have enough end users around here and at similar meetings, I don't think that it is necessarily as much to worry about as some of us may think because the people we should talk to are these mediators. Mediators cost money, and you haven't finished your account if you tot up the other costs. You have to add a man, and a relatively expensive man because he has to be a graduate or near graduate, which means in real money between 50 and 100 thousand guilders a year. The economics of mediating organizations are crucial to the future of on-line services.

Then there are the economics of the operators. I don't mean the data base suppliers, I mean the people who run the show, the on-line service. None of them are making any huge profit and some of them are making less than a profit. This is quite clearly because of under-use. An on-line service is very much a matter of economies of scale, in other words there is a base investment, a lump sum investment either at the beginning of a longer period or annually, and if you can boost use sufficiently, you're all right, and if you can't then it's a very expensive operation. One search on an on-line service per year would take the Shah of Persia to run. Now the economic situation is not being helped by the appearance of new services which go for the steadies again. The thing being that as long as the earlier services are still under-used, the new ones are merely taking bits of the market off the older ones and what I said a few moments ago that we are liable all of us to go broke, is not quite as imaginary as you may think.

Finally, there is the economics of the data base suppliers. The suppliers have been bad in pointing out to us, the users, that the service costs much more than what we're paying. On the whole the suppliers ask for relatively little money from any user of a machine readable file and from on-line users specifically. It is perhaps very strange for a user to be saying this but my grumble against the suppliers is not that we have to pay 4 dollars an hour for the use of Chemabs Condensates but that they don't tell us that the real cost is a multiple of that and as on-line use progresses, and one hopes it does, the problem will get bigger, because people will use the other forms of service less, perhaps not so fast but gradually, and the use of the on-line service will become a more important source of income. If you imagine a situation in which (I've borrowed this idea from Tony Kent) Chemabs Condensates, for the sake of argument, or the CAS data base as a whole including CASIA and the rest of it is used on-line only, that that is the sole source of income, of course a very imaginary situation, you need something like a million hours on-line a year to have it for a royalty of merely 30 dollars an hour. Now a million hours of use is something like 2 to 4 million searches, depending on whether you search in a quarter of an hour or half an hour, and that means that we have to boost our use 20 to 40 fold world-wide before we achieve anything like that sort of situation. I think suppliers should talk to us, the users, more in planning their services. Some of them do, others notoriously don't.

But above all, I think that if we are to spend extra money and that is often tax money, we should spend it on supporting, spreading, and supplementing services rather than inventing them all over again.

(1)

EUSIDIC SURVEY 1.11.76 : PUBLICLY DIALABLE DATA BASES
DIALABLE DATA BASES VS ALL DATA BASES (\pm bibliographic)

	TOTAL KNOWN TO BE PUBLICLY AVAILABLE	TOTAL KNOWN TO BE PUBLICLY DIALABLE	
	No.	No.	%
BIBLIOGRAPHIC FILES	342	80	23
DATA BANKS	160	67	42
TOTAL	502	147	29

(2)

EUSIDIC SURVEY 1.10.76: PUBLICLY DIALABLE DATA BASES: OPERATORS (\pm available in Europe/North America),
NUMBERS OF DATA BASE SERVICES AND DATA BASES (\pm bibliographic)

operator	bibliographic files		data banks		bibliographic files and data banks	
	total	peculiar to operator	total	peculiar to operator	total	peculiar to operator
NA Canadian On-Line Enquiry	7	1			7	1
NA Commodity Information Data Service			1	1	1	1
EU NA Control Data	2	2	1	1	3	3
EU NA Cyphernetics	2	2	26	26	28	28
EU Deutsches Institut für medizinische Dokumentation und Information	1				1	
EU NA European Space Agency	15	5	1	1	16	6
EU NA General Electric			19	19	19	19
EU NA Informatics	9	9	1	1	10	10
EU NA Lockheed Information Systems	42	23	9	9	51	32
NA Mead Data Central			1	1	1	1
EU Medical Information Center	1				1	
EU NA National Library of Medicine	4	3	2	2	6	5
EU National Physical Laboratory			1		1	
NA New York Times Information Bank	1	1			1	1
EU NA System Development Corporation	26	14	2	2	28	16
EU Telekurs			1	1	1	1
EU Thermodata			1		1	
EU NA Tymshare			2	2	2	2
total number of services	110	60	68	66	178	126
total number of data bases		80		67		147

Note: A service is here regarded as being available on one continent only, if it cannot be accessed through a concentrator located on the other continent.

(3)

PUBLICLY AVAILABLE DATA BASES: BIBLIOGRAPHICAL FILES BY SUBJECT (Cont'd)

name (- content) of file	originator	1,000 items/ year	first year	operator(s) available in Europe	mode(s)
EUSIDIC member organizations and their products are marked *					
Revue Française des Corps Gras - KWAC index - oil (seed)s, fat(ly acid)s, detergents, soaps	Institut des Corps Gras F	1.5	1969		
*Rubber and Plastics Research Association of Great Britain Abstracts	*Rubber and Plastics Research Association of Great Britain GB	17.0			
Verfahrenstechnische Berichte - chemical engineering	Bayer AG D	8.0	1966	Bayer AG D	
World Surface Coatings Abstracts	Research Association of British Paint, Colour and Varnish Manufacturers GB		1976	Akzo NL, Research Association of British Paint, Colour and Varnish Manufacturers GB	c-a
Abstract Bulletin of the Institute of Paper Chemistry	The Institute of Paper Chemistry USA	13.0	1966	Finnish Paper and Pulp Research Institute FIN *RIT S SDC USA	ret off c-a ret on
*Chemical Abstracts Condensates - for retrieval of references mainly from keywords and title words	*CAS USA	387.0	1968	*NIC NL/*ESA I *MIC S *AFDAC F, *AgChemDok Gesellschaft Deutscher Chemiker D, Centro Nacional de Información y Documentación Científica E, *CIG A, *CNDST B, *DTB DK, *ICI GB, *IFP F, L'Oréal F, Montedison I, *NOCI NL, *RIT S, *Shell GB, *SNAM Progetti I, *Technical University of Wroclaw PL, *UKCIS GB, *VUTECHP CS, Warsaw University of Technology PL *LIS USA, SDC USA	ret on ret off, c-a c-a ret on
*Chemical Abstracts Service Registry - for retrieval of CA abstract nos. mainly from connectivity tables	*CAS USA			*ARDIC F, Basel Information Center for Chemistry CH	ret off
*Chemical Abstracts Service Source Index - details of non-patent publications scanned by CAS	*CAS USA	5.5	1830		
*Chemical Abstracts Subject Index Alert - for retrieval of CA abstract nos. mainly from CA vol. index entries, molformulae, CAS Registry nos.	*CAS USA	387.0		*LIS USA *AFDAC F test	ret on c-a
*Chemical-Biological Activities - see BIOLOGY					
*Chemical Titles - for retrieval of references mainly from title words	*CAS USA	145.0	1962	*DTB DK *MIC S	ret off, c-a c-a
*Food and Agricultural Chemistry - see AGRICULTURE					
Gas Chromatography	Preston Technical Abstracts Co USA		1952		

(4)

PUBLICLY AVAILABLE DATA BASES: DATA BANKS BY SUBJECT

name (- content) of file	originator	1,000 items	first year	operator(s) available in Europe	mode(s)
EUSIDIC member organizations and their products are marked *					
AGRICULTURE					
artificial insemination	GIR Foundation NL				
crop genes	Institut für Pflanzenbau- und Saatgutforschung der Forschungsanstalt für Landwirtschaft D		1973		
feed analyses	Dokumentationsstelle der Universität Hohenheim D/International Feed Information Centre USA	67.0 feeds	1974		ret off
milk production	GIR Foundation NL				
Chase Econometrics Agricultural Data Base	Chase Econometric Associates Inc USA	several hundred series		Cyphernetics USA	ret on
Chase Econometrics Agricultural Forecast	Chase Econometric Associates Inc USA	140.0 series		Cyphernetics USA	ret on
Pesticides Analysis Retrieval and Control System	EPA USA	36.0 pesticides			
CHEMISTRY					
CIS - spectra	Groupement d'Analyses et des Méthodes Spectroscopiques Résonance Magnétique F				ret off
Commercially Available Organic Chemicals Index	Chemical Notation Association (UK) GB				
Crystallographic Data Centre Numeric Data File - organic and organometallic crystal structures	Crystallographic Data Centre GB		1960	MEDICINDATA S Crystallographic Data Centre GB, Università degli Studi, Parma I	ret on ret off
*Eight Peak Index of Mass Spectra	*UKAEA AWRE GB	13.0 spectra			
*Estimation de Propriétés Physico-chimiques pour l'Ingénieur Chimiste - physical chemistry of organic compounds	*Université de Liège B				ret on
*Group of European Metallurgical Thermodynamicists - physical chemistry of inorganic compounds	*DI NPL GB, RWTH D, THERMODATA F, Vrije Universiteit Brussel B			*DI NPL GB, THERMODATA F, RWTH D, Vrije Universiteit Brussel B	ret on ret off
*Mass Spectral Data on Magnetic Tape	*UKAEA AWRE GB	16.0 spectra			
*Mass Spectral Search System	*UKAEA AWRE GB/EPA and NIH USA	30.0 spectra		MEDICINDATA S, Cyphernetics USA	ret on
Physical Property Data Service	Institution of Chemical Engineers GB	0.9 compounds	1973		
Spectra and Spectroscopic Properties of Diatomic Molecules	Physical Chemistry Laboratory, Oxford GB				
Stoffdatencompiler - chemical engineering	Friedrich Uhde GmbH D		1974	*AgChemDok DECHEMA D	
*13-Carbon Nuclear Magnetic Resonance	*NIC and The Royal Netherlands Chemical Society NL/EPA and NIH USA	5.0 spectra		Cyphernetics USA	ret on
Zulassung pyrotechnischer Gegenstände - pyrotechnics	BAM D		1974		
*Chemical Abstracts Chemical Name Dictionary	*LIS USA			*LIS USA	ret on

(5)

EUSIDIC SURVEY 1.10.76 : PUBLICLY DIALABLE DATA BASES
FROM LIS THROUGH TELENET, TYMNET

- b AHL
- b AIM / ARM
- b ARTBIBLIOGRAPHIES MODERN
- b BIOSIS PREVIEWS
- b CAB test
- b CACON
- b CAIN
- b CASIA
- d CHEMNAME
- b CIJE
- b CIN
- b CLAIMS / CHEM
- b " / GEM
- b CMA
- b COMPENDEX
- b COMPREHENSIVE DISSERTATION ABS
- d EIS PLANTS (in USA)
- b EMA
- b ESI
- b EXCEPTIONAL CHILD EDUCATION ABS

b F & S INDEX INTERNATIONAL
 b " " OF CORPORATIONS AND INDUSTRIES
 d FOUNDATION DIRECTORY
 d " GRANTS INDEX
 b GEOARCHIVE test
 b GRA
 b HISTORICAL ABSTRACTS
 b INFORM
 b INSPEC A
 b " B
 b " C
 b ISMEC
 b LLBA test
 b METADEX
 d METROCASTS (US demography)
 b MGA
 b OCEANIC ABSTRACTS
 b PA
 b PATENT CONCORDANCE
 b PNI
 b POLLUTION ABSTRACTS
 d PREDICASTS BASEBOOK (US business past)
 d " COMPOSITES (" " " + future)
 b " STATISTICAL ABSTRACTS
 b RIE
 b SOCIOLOGICAL ABSTRACTS
 b SOURCE AND CITATION
 b SSCI
 b WAA
 d WORLDCASTS BASEBOOK (world business past)
 d " COMPOSITES (" " " + future)
 b " STATISTICAL ABSTRACTS

EUSIDIC SURVEY 1.10.76 : PUBLICLY DIALABLE DATA BASES
FROM SDC THROUGH TELENET, TYMNET

b ABIPC
 b API LIT
 b " PAT
 b BIOSIS PREVIEWS
 b CACON
 b CAIN
 b CIJE
 b CIN
 b CIS INDEX
 b COMPENDEX
 b COMPREHENSIVE DISSERTATION ABS
 b CPI
 b CRECORD
 b ENERGY INFORMATION ABSTRACTS
 b GEO REF
 b GRA
 d GRANT INFORMATION SYSTEM
 b INFORM
 b LIBCON / E
 b " / F
 b P/E NEWS
 b PETROLEUM ABSTRACTS
 b PNI
 b POLLUTION ABSTRACTS
 b RIE
 b RINGDOC
 d SSIE
 b WPI

(6)

EUSIDIC SURVEY 1.10.76 : PUBLICLY DIALABLE DATA BASES
FROM CAN/OLE

b BIOSIS PREVIEWS
 b CACON
 b COMPENDEX
 b INSPEC A
 b " B
 b " C
 b ULSSCL

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EUSIDIC SURVEY 1.10.76 : PUBLICLY DIALABLE DATA BASES
FROM ESA THROUGH CIGALE, ESANET, TYMNET

b AGRIS_test
 b CACON
 b COMPENDEX
 d ELECTRONIC COMPONENTS
 b ESI
 b GRA
 b IAA
 b INSPEC A
 b " B
 b " C
 b METADEX
 b NSA
 b PASCAL
 b SOURCE AND CITATION
 b STAR
 b WAA

(8)

EUSIDIC SURVEY 1.10.76 : PUBLICLY DIALABLE DATA BASES
FROM GENERAL ELECTRIC THROUGH MARK III

d ASS. OF HOME APPLIANCE MANUFACTURERS
 d BIDATA (business in 70 countries)
 d CURRENCY EXCHANGE
 d DIADEM (business in J, USA, W Europe)
 d ECODATA (imports/exports of I)
 d ECONOSCOPE BETA (US industry)
 d ELECTRICITY CONSUMPTION ANALYSIS DATA
 d FEDERAL TRADE COMMISSION
 d GE ECONOMIC FORECAST
 d INDUSTRIAL BANK OF JAPAN
 d INDUSTRIAL PRODUCTION INDEX
 d MARINE INFORMATION SYSTEM (shipping)
 d NAT. BUREAU OF ECONOMIC RESEARCH
 d NAT. ELECTRICAL MANUFACTURERS ASS.
 d NAT. PLANNING ASS.
 d SECURITY EXCHANGE
 d STANDARD INDUSTRIAL CLASSIFICATION
 d TENNESSEE VALLEY AUTHORITY (fertilizer plant)
 d US REGIONAL (demography)

(9)

EUSIDIC SURVEY 1.10.76 : PUBLICLY DIALABLE DATA BASES
FROM CONTROL DATA THROUGH CYBERNET

- d TECHNO-BANK (licenceable technology)
- b TECHNOLOGY INNOVATION ALERT

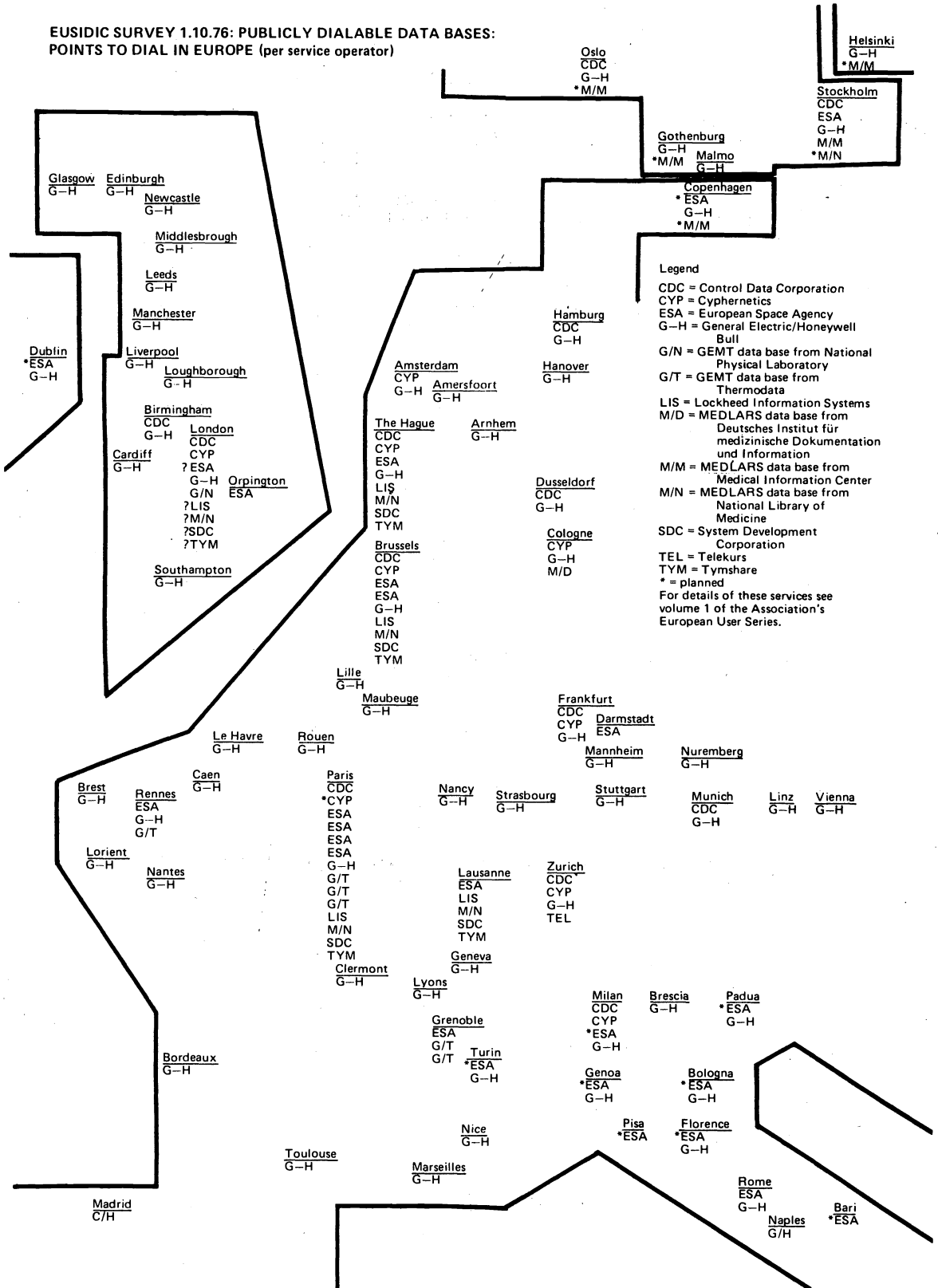
(10)

EUSIDIC SURVEY 1.10.76 : PUBLICLY DIALABLE DATA BASES
FROM CYPHERNETICS THROUGH CYPHERNET

- d BANCALL
- d CHASE AGRICULTURAL
- d " " FORECAST
- d " / BLS CONSUMER PRICE INDEX
- d " / " WHOLESALE " "
- d " BUSINESS CONDITIONS DIGEST
- d " CONFERENCE BOARD
- d " FINANCIAL
- d " " FORECASTING MODEL
- d " INDUSTRIAL PRODUCTION
- d " INSURANCE FORECAST
- d " INTERNATIONAL
- d " " MODEL
- d " JAPANESE FORECAST
- d " LONG-TERM MACROECONOMIC FORECAST
- d " MONTHLY INTEREST RATE FORECAST
- d " SHORT-TERM INDUSTRY FORECAST
- d " " MACROECONOMIC FORECAST
- d " US ECONOMIC
- d CNMR
- d COMPUSTAT (finances of US companies)
- b CRYSTALLOGRAPHIC DATA CENTRE BIBLIOG.
- d " " " NUMERIC
- d IPC CHEMICAL (plant and products)
- b MASS SPECTROMETRY BULLETIN
- d MASTER SECURITY
- d MSSS
- d SITE (US demography)

(11)

**EUSIDIC SURVEY 1.10.76: PUBLICLY DIALABLE DATA BASES:
POINTS TO DIAL IN EUROPE (per service operator)**



(12)

**EUSIDIC SURVEY 1.10.76: PUBLICLY DIALABLE DATA BASES:
CONNECT-HOUR CHARGES, IN US \$, OF MAIN COMPETING SERVICES**

	CAN/OLE	ESA	LIS	SDC	BRS proposal
BIOSIS Previews	46		65	?	21
CACon	31	77	45	60	21
CAIN			25	35	21
CIJE			25	35	21
CIN			90	70	
COMPENDEX	34	60	65	65	21
Compr Diss Abs			55	?	
ESI		57	90		
GRA		51	35	45	21
INFORM			65	65	
INSPEC A	39	62	45		21
B	39	62	45		
C	39	62	45		
METADEX		74	80		
PNI			65	75	
Pollution Abs			65	90	
RIE			25	35	21
Source & Cit Tapes		75	70		
WAA		52	50		

Note. These charges include all connect-time royalties. They do not include charges for off-line print-outs or communication.

(13)

EUSIDIC SURVEY 1.11.76 : PUBLICLY AVAILABLE DATA BASES : DUPLICATION

	NA-CAN/OLE	EU-DIMDI	EUNA-ESA	EUNA-LIS	EU-MIC	EUNA-NLM	EUNA-SDC	*1977 =	NA-BRS	EU-BL	EU-K CONS.
BIOSIS PREV.				x			x		x		
CACON	x		x	x			x		x		x
CAIN				x			x		x		
CIJE				x			x		x		
CIN				x			x				
COMPENDEX	x		x	x			x		x		
COMPR. DISS.				x			x				
ESI			x	x							
GRA			x	x			x		x		
INFORM				x			x				
INSPEC A	x		x	x					x		x
B	x		x	x							x
C	x		x	x							x
MEDLARS		x			x	x			x	x	
METADEX			x	x							
PNI				x			x				
POLLUTION				x			x				
PSYCHOL. ABS				x					x		
RIE				x			x		x		
SOURCE & CIT.			x	x							
TOXLINE						x			x	x	
WAA			x	x							

(14)

**EUSIDIC SURVEY 1.10.76: PUBLICLY DIALABLE DATA BASES: CONCENTRATOR NETWORKS AND NETWORK CHARGES
(in Europe/North America)**

operator	network	charge in US \$ per hour	
		EU	NA
Commodity Information Data Service	TeleNet	—	10
Control Data	Cybernet	~ 14	~ 14
Cyphernetics	CypherNet	~ 14	~ 14
European Space Agency	Cyclades	7.8	—
	ESANET	7.8	—
	Tymnet	11.7	22
General Electric	MARK III	~ 14	~ 14
Informatics			
Lockheed Information Systems	TeleNet	—	10
	Tymnet	22	10
Medical Information Center	SCANNET	?	—
National Library of Medicine	Tymnet	22	10
System Development Corporation	TeleNet	—	10
	Tymnet	22	10
Thermodata	Cyclades	0	—
Tymshare	Tymnet	~ 14	~ 14

Note. The charges marked '~' vary somewhat with type of use and from region to region. Thus, in Holland, the CypherNet charge is

Dfl 30 for use at 10 cps and
Dfl 45 for use at 30 cps

while the MARK III charge is

Dfl 42.75 for low-level use,
Dfl 36.00 for medium-level use and
Dfl 25.65 for high-level use.

EUSIDIC SURVEY 1.10.76: PUBLICLY DIABLE DATA BASES: CHEAPEST ACCESS FROM SAMPLE EUROPEAN CITIES (Copyright EUSIDIC 1976)

	Control Data	Cyphernetics	European Space Agency	General Electric	Group of European Metallurgical Thermod.	Lockheed and System Development Corp.	MEDLARS	Tymshare
Amsterdam	Cybernet The Hague 14 + 5 = 19	CypherNet Amsterdam 14 + 0 = 14	Tymnet The Hague 12 + 0 = 12	MARK III Amsterdam 14 + 0 = 14	Cyclades Paris 0 + 19 = 19	Tymnet The Hague 22 + 5 = 27	DIMI Cologne 0 + 16 = 16	Tymnet The Hague 14 + 5 = 19
Brussels	Cybernet Brussels 14 + 0 = 14	CypherNet Brussels 14 + 0 = 14	ESANET Brussels 8 + 0 = 8	MARK III Brussels 14 + 0 = 14	Cyclades Paris 0 + 30 = 30	Tymnet Brussels 22 + 0 = 22	Tymnet Brussels DIMDI	Tymnet Brussels 14 + 0 = 14
Frankfurt	Cybernet Frankfurt 14 + 0 = 14	CypherNet Frankfurt 14 + 0 = 14	ESANET Darmstadt 8 + 11 = 19	MARK III Frankfurt 14 + 0 = 14	Cyclades Paris 0 + 38 = 38	Tymnet Brussels 22 + 28 = 50	Cologne 0 + 28 = 28	Tymnet Brussels 14 + 28 = 42
Helsinki	Cybernet Stockholm 14 + 22 = 36	CypherNet Amsterdam 14 + 47 = 61	ESANET Stockholm 8 + 22 = 30	MARK III Helsinki 14 + 0 = 14	NPL London 0 + 47 = 47	Tymnet The Hague 22 + 47 = 69	SCANNET Helsinki	Tymnet The Hague 14 + 47 = 61
London	Cybernet London 14 + 1 = 15	CypherNet London 14 + 1 = 15	ESANET Orpington 8 + 5 = 13	MARK III London 14 + 1 = 15	NPL London 0 + 1 = 1	Tymnet The Hague 22 + 26 = 48	Tymnet The Hague 22 + 26 = 48	Tymnet The Hague 14 + 26 = 40
Oslo	Cybernet Oslo 14 + 9 = 23	CypherNet Amsterdam 14 + 47 = 61	ESANET Stockholm 8 + 28 = 36	MARK III Oslo 14 + 9 = 23	NPL London 0 + 47 = 47	Tymnet The Hague 22 + 47 = 69	SCANNET Oslo	Tymnet The Hague 14 + 47 = 61
Paris	Cybernet Paris 14 + 0 = 14	CypherNet Brussels 14 + 22 = 36	Cyclades Paris 8 + 0 = 8	MARK III Paris 14 + 0 = 14	Cyclades Paris 0 + 0 = 0	Tymnet Paris 22 + 0 = 22	Tymnet Paris 22 + 0 = 22	Tymnet Paris 14 + 0 = 14
Rome	Cybernet Milan 14 + 15 = 29	CypherNet Milan 14 + 15 = 29	Rome Rome 8 + 0 = 8	MARK III Rome 14 + 0 = 14	Thermodata Grenoble 0 + 28 = 28	Tymnet Lausanne 22 + 19 = 41	DIMI Cologne 0 + 28 = 28	Tymnet Lausanne 14 + 19 = 33
Stockholm	Cybernet Stockholm 14 + 0 = 14	CypherNet Amsterdam 14 + 37 = 51	ESANET Stockholm 8 + 0 = 8	MARK III Stockholm 14 + 0 = 14	NPL London 0 + 45 = 45	Tymnet The Hague 22 + 37 = 59	MIC Stockholm 0 + 0 = 0	Tymnet The Hague 14 + 37 = 51
Zurich	Cybernet Zurich 14 + 0 = 14	CypherNet Zurich 14 + 0 = 14	Tymnet Lausanne 12 + 11 = 23	MARK III Zurich 14 + 0 = 14	Thermodata Grenoble 0 + 24 = 24	Tymnet Lausanne 22 + 11 = 33	DIMI Cologne 0 + 32 = 32	Tymnet Lausanne 14 + 11 = 25

Explanation. From Amsterdam the cheapest point of access to the Control Data services is the Cybernet concentrator in The Hague. To be connected to it for an hour from Amsterdam you pay, in US \$, a network charge of 14± a call charge Amsterdam-The Hague of 5 = 19 in all. Note that this payment does not cover the use of the mainframe configuration or of the data base(s).

(16)

SUMMARY OF FINDINGS ON HOURLY COST IN US \$ FROM PARIS

	ESA	LIS	SDC
connect-time	77	45	60
network	8	22	22
call	0	0	0
total	<u>85</u>	<u>67</u>	<u>82</u>

COMPARISON OF HOURLY COST IN US \$ FROM

LONDON

connect-time	77	45	60
network	8	22	22
call	5	26	26
total	<u>90</u>	<u>93</u>	<u>108</u>

STOCKHOLM

connect-time	77	45	60
network	8	22	22
call	0	37	37
total	<u>85</u>	<u>104</u>	<u>119</u>