CAN/OLE: A CANADIAN SYSTEM FOR THE ON-LINE,
          INTERACTIVE SEARCHING OF LARGE
          BIBLIOGRAPHICAL REFERENCE FILES
(CAN/OLE: UN SERVICE CANADIEN DE CONSULTATION
          DIALOGUÉE EN LIGNE DE GRANDS
          FICHIERS BIBLIOGRAPHIQUES)

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ABSTRACT

The National Science Library, which now forms part of
the Canada Institute for Scientific and Technical
Information (CISTI), initiated the CAN/OLE Pilot
Project in March 1974 to provide 15 Canadian organi-
zations in industry, university and government with
on-line access to 1.8 million references from
Engineering Index (COMPENDEX), Information Service in
Physics, Electrotechnology and Control (INSPEC),
Biological Abstracts Previews and Chemical Abstracts
Condensates. In November 1974 the first CAN/OLE Workshop
took place in Ottawa to give our nationwide users an
opportunity to express their opinions on the system and
to participate in the orderly development of a tool
designed to meet Canadian requirements. Possible courses
of action, including pricing policy and data base
coverage will be discussed. (La Bibliothèque
scientifique nationale, qui fait maintenant partie de
l'Institut canadien de l'information scientifique et
technique (ICIST), a lancé le programme pilote CAN/OLE
en mars 1974 afin d'offrir à 15 établissements industriels,
universitaires et gouvernementaux du Canada un accès en
ligne à 1,8 million de références de l'Engineering Index
(COMPENDEX), de l'Information Service in Physics,
Electrotechnology and Control (INSPEC), de Biological
Abstracts Previews et de Chemical Abstracts Condensates.
Le premier atelier CAN/OLE a eu lieu à Ottawa en novembre
1974 et a permis aux utilisateurs dans l'ensemble du pays
d'exprimer leurs idées sur ce service et de participer à
la mise au point rationnelle d'un programme répondant aux
besoins du Canada. Les orientations possibles, y compris
la tarification et les bases de données offertes, seront
étudiées.)

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The Canada Institute for Scientific and Technical Information officially opened its doors on October 16, 1974. The Institute was founded on the combined resources of two nationally and internationally known information services - the National Science Library and the Technical Information Service. The National Research Council of Canada thus had united under one roof its two major information delivery systems. In addition to continuing with established services using both conventional and automated techniques, the Institute was to continue developments in the innovative processing and delivery of scientific and technical information to the Canadian STI community.

In anticipation of this mandate, the National Science Library, in cooperation with the National Research Council's Computation Centre, initiated the CAN/OLE Pilot Project in March 1974 to provide 15 selected Canadian organizations in industry, university and government with on-line access to 1.8 million bibliographical references.

DATA BASE	COVERAGE	VOLUME
1. Biological Abstracts Previews	January 1973 -	360,000
2. Chemical Abstracts Condensates	July 1973 -	598,000
3. Engineering Index	January 1970 -	323,000
4. Information Service in Physics, Electrotechnology and Control	April 1970 -	615,000
		1,896,000

Table 1: DATA BASE COVERAGE, MARCH, 1974

Our decision to enter a highly competitive, multi-million dollar on-line retrieval market was greatly influenced by the following criteria:

(a) Communications costs for low speed, digital data transmission had been reduced by up to 90% with the introduction of DATAROUTE and INFODAT.

(b) The Computation Centre of the National Research Council had demonstrated competence in operating timesharing services for 400 to 500 scientists in the previous 3 years.

(c) The National Science Library had developed substantial expertise in the utilization and marketing of commercially available tape services to the point where CAN/SDI was and continues to be a world leader in current awareness technology.

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(d) In providing a national current awareness service
the National Science Library had acquired and
converted, in machine readable form, over 4,000,000
bibliographical references in all fields of science
and technology.

(e) The requirements to access a national on-line system
in both official languages would not likely receive
sufficient priority in competing North American
systems.

(f) Canada should continue to develop the technical and
operational capability of on-line, interactive
processing to reduce its dependence on foreign
technology and to allow for the provision of
nationally relevant services complementing inter-
national resources.

(g) Finally, an invitation to 30 Canadian organizations
to participate in the CAN/OLE Pilot Project received
the required support and financial backing.

The 15 Centre limit was imposed to ensure adequate educational
and technical support based on available manpower and hardware resources.

Government	7
University	5
Industry and Others	3

Table 2: CAN/OLE CENTRE DISTRIBUTION BY ORGANIZATION TYPE

All Centres were given complete freedom in distributing access
to their sign-on code with the result that CAN/OLE is now being utilized
by 72 sub-accounts.

To give an impression of systems' usage during the first eleven
months of the Pilot Project we measured the following activities:

1) Connect hours by main and sub-accounts
2) Connect hours per data base
3) Number of terminal sessions
4) Number of searches performed
5) Full references displayed or printed.

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	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.
Biological Abstracts	64	44	63	111	58	63	96
Chemical Abstracts	67	52	66	96	63	61	95
Engineering Index	96	92	82	117	103	99	94
INSPEC	75	80	63	93	85	51	60
TOTAL CONNECT HOURS	302	268	274	417	309	274	345
TOTAL SESSIONS	1,142	1,082	1,101	1,355	1,178	1,055	1,367
Ref. displayed or printed	35,299	35,102	35,888	74,960	36,197	39,705	56,911

Table 3: CAN/OLE UTILIZATION

The average length of a session continues to be in the order of 15-18 connect minutes exclusive of pre- and post-edits. Graphically represented, a typical day would show the following activity per account and time of day.
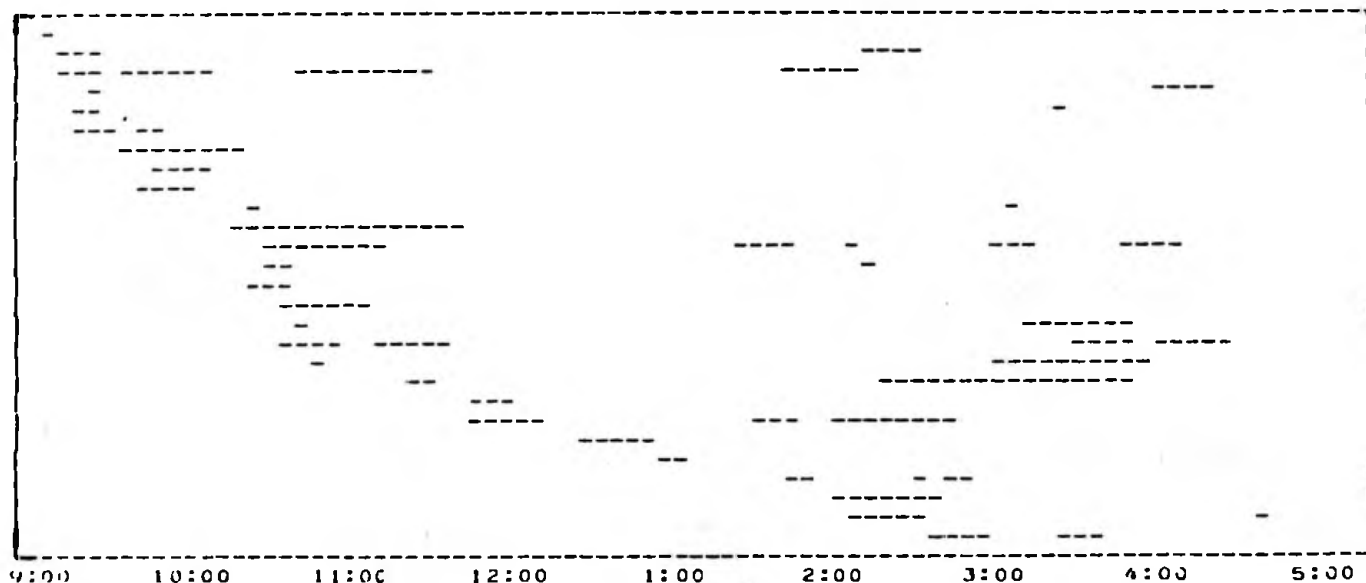

Figure 1: ACTIVITY CHART FOR JANUARY 10, 1975

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Because of the cost recovery nature of this new service, subscribers were required to share expenditures on a fixed price rate basis with the two following options to choose from:

Option 1 (for occasional users)

Membership fee of $542 per month plus $12 per connect hour of usage. The base fee covered all computer storage costs and literature file creation costs, while the hourly charge covered searching time, printing, mailing and literature royalties.

Option 2 (for regular users)

Membership fee of $700 per month. This base fee covered all computer storage costs, literature search, literature file creation costs and fifteen (15) hours of unlimited searching. When 15 hours of use had been exceeded a charge of $12 per connect hour was applied as above.

The 15 hour limit in option 2 was based on average monthly use by established Canadian Medline Centres. However, use of CAN/OLE turned out to be in the order of 18-25 hours per month and centre.

Based on subscription fees, communications requirements and terminal hardware, three typical CAN/OLE centres would have to budget for the following fixed monthly expenditures.

	Quebec	Toronto	Calgary
Terminal rental	$ 175.00	$175.00	$ 175.00
DATAROUTE or INFODAT	127.00	121.00	287.00
CAN/OLE Option 2	700.00	700.00	700.00
TOTAL	$1,002.00	$996.00	$1,162.00
Average cost per hour	$ 66.80	$ 66.40	$ 77.46
Average cost per session (~18 min.)	$ 20.25	$ 20.12	$ 23.47

Table 4: EXAMPLES OF MONTHLY CAN/OLE EXPENDITURES DURING PILOT PROJECT PHASE

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The above figures clearly show the high cost of on-line searching, especially if a centre would not be able to utilize the full allotment of 15 connect hours. A subscriber is now faced with the additional cost of education, promotion, marketing and provision of search services to end-users. The following table, which shows expenditures incurred by a high, medium and low usage centre, clearly shows a discriminating effect on the small users versus a large volume centre capable of marketing several hundred searches per month.

	High	Regular	Low
Connect hours	50	15	4
Terminal rental	$ 175.00	$175.00	$175.00
DATAROUTE, INFODAT	127.00	121.00	
Direct Distance Dialing (DDD)			216.00
CAN/OLE Option	700.00	700.00	542.00 (Opt. 1)
& $12 after 15 hours	420.00		
or $12 below 15 hours			48.00
Subscription total	$1,120.00	700.00	590.00 (Opt. 1)
TOTAL	$1,422.00	$996.00	$981.00
Average cost per hour	$ 28.44	$ 66.40	$245.25
Average cost per session (~18 min.)	$ 8.62	$ 20.12	$ 74.32

Table 5: VOLUME DEPENDENT SEARCH COSTS

By footing the bill for the CAN/OLE Pilot Project, and by providing us with a steady stream of comments on system's performance and possible improvements, participating centres were entitled to have a voice in the future development of this national information retrieval system. With this in mind, the Director of the Canada Institute for Scientific and Technical Information extended an invitation to participants to attend the first CAN/OLE Workshop in November of 1974. All 15 centres represented were given an opportunity to summarize their operational experiences, implementation priorities and any other comments relevant to the future of CAN/OLE.

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After 2 days of lively discussions, the following recommendations were made by four sub-committees:

1) Data Base Coverage

CISTI should attempt to continue with what is available now and expand coverage of Chemical Abstracts Condensates and Biological Abstracts Previews to a minimum of three years. If and when necessary resources become available, priority should be given to Canadian content data bases or those not available from established on-line systems.

2) Charging

CISTI should adopt a "pay as you go" fee schedule based on connect hours used. Consideration should be given to the financing of data base additions or increments through membership fees or surcharges to manifest a real need.

3) Data Base Availability and Scheduling

CISTI should make all files available during the course of a working day on alternating A.M. and P.M. shifts.

As a result of these recommendations the following major changes were decided upon by CISTI management effective April 1, 1975 or earlier if technically feasible.

1) Coverage

Commercial:

COMPENDEX	4-5 latest years
INSPEC	4-5 latest years
CAC	12-18 latest month
BA	3 latest years

Canadian content:

ULSSCL	Union List of Scientific Serials in Canadian Libraries. An inventory of 45,000 scientific and technical serials held in 250 libraries across Canada and updated 3-4 times a year.

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The unavailability of Biological Abstracts Previews in competing systems prompted the expansion of this file to 3 years. As a first step in providing Canadian content, we decided on the Union List of Scientific Serials in Canadian Libraries because of its ready availability in machine readable form and its potential as a resource file for location of scientific and technical publications held in Canada and identified through CAN/OLE.

2) Charging

	Base/hour	Royalty/hour	Hourly charge or fraction thereof
COMPENDEX	$30.	10%	$33.
INSPEC	$30.	$8./hour	$38.
BA	$30.	$15.	$45.
CAC	$30.	1¢/hit	~$31.
ULSSCL	$30.	--	$30.

$1. per off-line print request.

With this rate structure we hope to achieve the following objectives:

1) Encourage small, medium and large volume users to take advantage of accessing large, bibliographical reference files in all major fields of science and technology.

2) Recover operating costs, royalties and expenditures related to the processing of off-line prints.

3) Remain competitive with foreign systems to encourage development and growth of similar services in Canada.

3) Shift System

EASTERN TIME	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:30-13:30	EI-INSP	BA-CAC	EI-INSP	BA-CAC	EI-INSP
13:30-14:00	CHANGE DATA BASES				
14:00-19:00	BA-CAC	EI-INSP	BA-CAC	EI-INSP	BA-CAC

The shift system effectively allowed our clients at predictable intervals to access all available data bases during the course of a working day, regardless of geographical region.

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Summary

CAN/OLE will continue to provide with increasing depth and scope, on-line access to the world's major scientific and technical bibliographic reference files available in machine readable form. Simultaneously, it is to develop into a vehicle for data bases meeting specific Canadian needs. The network will be expanded to a minimum of 30 centres in 1975.