

EURASLIC '98
SEVENTH BIENNIAL MEETING OF THE EUROPEAN ASSOCIATION
OF AQUATIC SCIENCES LIBRARIES AND INFORMATION CENTRES
(EURASLIC)
6-8 MAY, ATHENS, GREECE

**Activities of National Hellenic Documentation Centre and the National Network of
Scientific and Technological Libraries.**

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Abstract

The mission of NDC is to ensure the flow of the scientific and technological information to the Hellenic scientific community. This is achieved by establishing online access to **17** international hosts and **1.300** databases, acting as the major information intermediary in the country offering bibliographic references to **10.000** scientists per year, producing **8** national databases and hosting **40** databases produced by other national or international organisations.

Concerning libraries NDC supports them by developing and disseminating ABEKT, the most popular library automation software in the country numbering more than **700** copies installed, developing, in close collaboration with **206** libraries, the Union Catalogue of Periodicals including **22.790** unique journal titles, creating and coordinating the National Network of Hellenic Scientific Libraries with **107** libraries supporting interlibrary loan through the online document ordering system provided by the host computer of NDC, developing its own digital library having access to more than **230** electronic journals via internet and about **1.000** installed locally, organising seminars, workshops and information days focusing on the electronic information services and technologies.

Keywords:

Greece, National Documentation Centre, National Information System, Union Catalogue of scientific periodicals, network of scientific libraries.

Outline of NDC activities

The National Documentation Centre (NDC) was established in 1980 and is hosted at National Hellenic Research Foundation (NHRF) in Athens, Greece. The main objective of NDC is the development of the **National Information System** for science and technology. It is an "installation for national use" and its mission is to ensure the flow and dissemination of Scientific and Technological information at national level. NDC users are Research Institutions, Universities and Technological Institutions, Hospitals, Public Administration, Libraries, Commercial and Industrial Chambers as well as individual SMEs and researchers, scientists and professionals. The following are the main action lines of NDC.

Covering the information needs of the scientific and business community through:

- Operation of HERMES the host computer of NDC

- Creation and maintenance of national databases
- Operation of intermediary information services from national and international online databases
- Creation and support of (peripheral) Documentation Focal Points in regional universities

Link of industry with research through:

- Support and facilitation of the participation of Greek companies and organisations in European Union Research, Technology and Development (RTD) Programmes
- Promotion of exploitation of RTD results
- Support Greek SMEs in technology transfer and innovation

Stimulation of Hellenic market of electronic information services through:

- Awareness and training of active or potential users
- Development of demonstration information systems using new information technologies (GIS, Multimedia, WWW)
- Publishing studies on the Hellenic Electronic Information Market

Support of automatisisation of Hellenic Libraries through:

- Development and maintenance of the "Union Catalogue of periodicals in Greek Scientific Libraries"
- Design, development and coordination of the National Network of Scientific and Technological Libraries.
- Development, dissemination and user support of ABEKT the most popular library automation software in the country
- Creation of the digital library
- Developing of special depository library
- Running the greater serials library in the country

Participation in national and european projects, such as:

1. Programme EPET 1 / Project 7.1-EKT: Specialised Information System and Distributed Document delivery Service
2. STRIDE HELLAS Project 42
3. Programme EKBAN/ Project: National Information System for Research and Technology)
4. VALUE (Hellenic VALUE Relay Antenna)
5. INNOVATION (Hellenic INNOVATION RELAY CENTRE)
6. IMPACT 2 (NAP: National Awareness Partners, TRAIN-Train, MSSTUDY, NFP: National Focal Point)
7. INFO2000 (Hellenic node of MIDAS-NET)
8. EKBAN/ ARGOS (Archaeological Greek Online System)

HOST "HERMES", DATABASE PRODUCTION

NDC runs the HOST Computer "HERMES" (mainframe Siemens/Nixdorf, with BS2000 operating system, GRIPS as the DBMS and CCL (Common Command Language) as retrieval language) which is online accessible via all data networks (HELLASPAC the X25 Greek PSDN, INTERNET (GRNET, etc.) and dial-up. HERMES is interconnected via a bi-directional Gateway with DIMDI (Germany), offering in this way the capability to Greek end-users to access easily databases offered by other host computers. More than 1.700 registered users, located all over Greece, are password owners of HERMES.

The databases which are available on "HERMES" are the following:

Databases produced by NDC

1. **Union Catalogue of Periodicals of the Greek Scientific Libraries (SERI)** containing holdings (25.000 titles) covering more than 57.000 subscriptions of 207 Academic and Research Libraries, spread all over Greece and also Cyprus and providing online document ordering system. SERI is produced by NDC.
2. **Greek Dissertation Index** contains more than 7.000 references of doctoral theses granted by Greek Universities or by foreign universities to Greek doctors since 1987.
3. **Inventory of on-going Research Projects** contains information on more than 8.000 Greek on-going Research Projects of Greek Research Institutes, Universities and Industries.
4. **List of Greek Libraries (LIBR)**. Basic information on the 207 Libraries included in the SERI database
5. **Hellenic Electronic Information Market (HEIM)** contains data on products and organisations of electronic information services such as databases (online or CD-ROM), Multimedia titles, , information brokers, network providers and producers active in the Hellenic Information Market.
6. **URSA**, is an international bibliographic database in English language, on Geographical Information Systems (GIS) including 5.500 records covering major journals and conferences in the field as well as material from seminars and fora.
7. **ARGP**, the union catalogue of periodicals included in the collections of all 17 libraries of the foreign archaeological schools, established in Greece, and 3 humanistic institutions of NHRF (project ARGOS). ARGP covers more than 2.500 journal titles.
8. **ARGB**, union catalogue of books included in the collections of all 17 libraries of project ARGOS. The whole database is going to cover more than 400.000 records on Hellenic history and civilisation.

The following databases are produced by other Greek organisations hosted in NDC and offered online by HERMES.:

1. **URSA - DIS**, a database of documentary information on urban and regional development in Greece, produced by the University of Patras. Includes about 5.000 records, mostly bibliographic references from books, articles and reports on Greek regional planning since 1950.
2. **Greek Biomedical Literature "Hippocrates" (MEDI)** produced in co-operation with the Association of Medical Studies and contains 12.000 references on Greek biomedical research in Greek and in English, published since 1980.
3. **GLAUKA - Sociological database** produced by PANTEION university of Sociological and Political Science (Athens), includes more than 15.000 records covering Greek literature on Sociology, Ethnology, Anthropology.

4. **TEE Hellenic Technical Literature.** Produced by TEE ,the Technical Chamber of Greece, includes more than 7.000 records covering all articles and conference proceedings produced by TEE concerning engineering and technology.
5. **Model of Biomedical equipment (HBIE).** Created by the Institute of Biomedical Technology in 1994 includes 1.200 records describing the model of biomedical equipment available in Greece.
6. **Representatives of Biomedical equipment (HBIR)** Created by the Institute of Biomedical Technology in 1994 includes 140 records with data for the Greek Representatives of Biomedical equipment
7. **Bibliography 2000 (HEBI)** A guide including 80.000 records for books produced by greek publishers (books in print), a database produced by ELEA LTD (Athens).
8. **PRES** Historical archive covering basic information on Greek publications (newspapers magazines, reviews etc.) published in Greece or abroad between 1790-1990. Produced by Centre of Modern Hellenic Research/NHRF.

International databases

The following international databases have been installed locally on an ULTRANET system and are offered online by NDC:

1	Analytical Abstracts	17	Frosti
2	Bibliofile	18	Global books in print
3	Biological abstracts	19	INSPEC
4	CAB Abstracts	20	ISI-arts & humanities
5	Chembank	21	ISI-science
6	Chemical Abstracts	22	ISI-social science
7	COMEXT	23	ISSN- compact
8	Compendex	24	Linguistics & Language Abstracts
9	Dissertation abstracts	25	LISA
10	Drug information full text	26	Mathscience
11	Embase drugs	27	Mc Graw Hill encyclopedia
12	ERIC	28	Medline
13	FDA approved drugs	29	NTIS
14	FDA guidelines	30	Polymer Encyclopedia
15	Fomad	31	Psychlit
16	Forege	32	Religion index.

Information Retrieval Services from international databases

NDC acts as the main online information provider in Greece, covering the scientific and technological information needs of the Greek scientific community. For more than 14 years, NDC has online access to more than 1.300 databases, available on various Host Computers (DIMDI, DIALOG, ESA-IRS, DATA STAR, QUESTEL, STN, EUROBASES, etc.).

During a typical year of operations of the Information Retrieval Department , there are requests for more than 3.000 online connect hours while more than 5.000 online searches are carried out per year on user request. During it's 14 years of operation more than 80.000 online searches have been carried out by NDC / IRD staff.

Stimulation of the Greek electronic information market

NDC is the Hellenic node of the MIDAS-NET network in the frame of INFO2000 European programme. Through this project NDC organises training seminars on multimedia and electronic information services addressed to the staff of Libraries, Research Institutes, Universities, Hospitals, Scientific Associations, SMEs etc. all over the country. A help desk operates during all working hours for solving day to day problems of the end users. In 1995 NDC in co-operation with other NAPs participated in the development of a methodology for the measurement of the European Information Market.

Library Automation Software : ABEKT

ABEKT is a software package for PC computers, developed by NDC staff providing an excellent tool for Greek Libraries to automate their services. It is a user friendly system -in Greek- and its main objective is to promote library automation processes in the country. ABEKT is an integrated system providing facilities such as cataloguing, online catalogue searching and all other modules, such as acquisitions, loans, serial control, data exchange etc.. The catalogue data base can be searched online or used to produce various printed catalogues (card catalogues, etc.).The ABEKT system follows the ISO/2709 standard and supports data interchange in UNIMARC and CCF formats, thus promoting library co-operation through data interchange. ABEKT is distributed free of charge to approved non-profit organisations. ABEKT is used by more than **700** libraries in Greece and abroad. Continuous user support is offered to all ABEKT users.

A new version in windows 95/NT environment is being developed. The basic features of the new version are: graphical interface, multi user environment, fully multilingual capabilities, OPAC via Internet, etc.

Library of scientific periodicals

NDC operates the largest Library of scientific periodicals in Greece. There are 1.800 current titles of scientific periodicals. During an average day, a photocopying service offers photocopies for more than 3.000 pages of journal articles from its own collection. NDC acts as an Intermediary Document Supplier for scientific and technical documents which are not available through the Greek Libraries Network. More than 6.000 requests are processed every year from users via mail, fax, telephone, e-mail or in house visit from all over the country. Orders for photocopies are carried out online, while deliveries are executed via fax or mail according to user needs. Main NDC's document suppliers are ZBM, BL, KNAW, Derwent, INIST, NTIS, etc.

NDC also operates a **Depository Library** which includes EEC reports and publications, AGARD publications, UN reports, the original documents of 13.000 Greek Dissertations and Literature on Electronic Information services, multimedia, GIS.

Since 1998 a **digital library** is being developing including 1.500 journal titles either installed locally on CD-ROMs or remotelly accessed through internet to the publishers www sites or SWETnet system. A project for digitasation of the full image of Greek Dissertations is also on going.

Union Catalogue of Periodicals - Background

The development of the Union Catalogue of Periodicals had started in 1983 and was the first online database created by the National Hellenic Documentation Centre (NDC). NDC having already online access to more than 800 international databases, via its connection to more than 14 commercial host computers, and a group of scientific experts acting as information intermediaries, could ensure, in an adequate degree, the first link of the information chain: the search and retrieval of bibliographic references. The Union catalogue of Periodicals was created to cover the second link, acting as a tool for identification of the original documents in the Hellenic libraries. The first edition of the printed union catalogue was published in 1985. It included 5.000 scientific journal titles which corresponded to the collection of 5 libraries of Institutions supervised and financed by the Ministry of Research and Technology. Namely National Hellenic Research Foundation, National Centre for Physical Research "Democritus", Pasteur Institute, National Centre for Social Sciences, National Centre of Marine Research. More than 2.000 volumes have been disseminated for each one of the four printed editions to libraries all over the country. The Union Catalogue is continuously expanded with new libraries and updated by NDC in collaboration with the scientific and technological libraries of the country.

Infrastructure

The technological infrastructure currently used is the host computer "HERMES" of NDC, which was installed in 1993. The whole system is identical the same to the host computers used by ECHO (European Commission Host Organisation) in Luxembourg and DIMDI (Deutch Institute fuer Medicinize Dokumentation und Informazion) in Germany. The system is composed by a mainframe Siemens/Nixdorff (SNI), operation system BS2000 and the Database Management System (DBMS) GRIPS. The query language is CCL (Common Command Language). A graphical user interface (GUI) based on client-server architecture is also available. Online document ordering functions are also provided by the system. A www interface has already been developed offering easy acces to no experienced users (<http://www.ekt.gr>).

Statistics

The Union Catalogue of Periodicals includes **206** Hellenic libraries (two of them are located in Cyprus). The total collection includes **22.790** titles corresponding to **57.790** subscriptions. Subscriptions which are more than twice the titles raising the overlapping coefficient to **2,53** (= subscription per title).

Table I presents the evolution of the Union Catalogue of Periodicals. The first four dates (1985, 1987, 1989, 1992) corresponds to the printed versions, while the next present the status of the online database during the last years.

Table I

Evolution of the Union catalogue of periodicals in scientific and technological libraries in Greece

Years	Union Catalogue of Periodicals			National Network of Libraries	
	Number of Libraries	Number of Journal Titles	Number of subscriptions	Members	Online orders (since 1994)
1985 Edition 1	5	5.000	11.779		
1987 Edition 2	15	10.000	23.558		
1989 Edition 3	45	15.000	35.336		
1992 Edition 4	104	19.000	44.759		
Nov. 1994	133	20.400	48.057	6	905
Jan. 1995	140	20.587	48.498	41	1.200
Nov. 1995	167	20.614	49.800	57	5.434
Sep. 1996	190	21.100	53.224	81	12.913
Jan. 1997	195	21.500	55.009	83	16.247
Nov. 1997	206	22.790	57.790	95	27.658
May 1998	210	23.100*	58.500*	107	35.000*

* estimation

National Network of Scientific and Technological Libraries

One of the main objectives of NDC is to promote co-operation among all Greek Scientific Libraries, in order to increase their productivity and their usage, avoid duplication of resources, standardise procedures and overall to provide high quality library services to users, all over the country.

Background

The National Network of Scientific and Technological Libraries is an initiative of NDC aiming at the development of infrastructure, the creation of the appropriate mechanism, the acquirement of know-how for the co-operation between libraries, the upgrade of services offered and the optimised exploitation of the continuously decreased budgets of the libraries. A first service developed by the network is the online document ordering of journal articles included in the collections of member-libraries.

The National Hellenic Network of Scientific and Technological Libraries started its pilot operation on February 1994. The initiative was undertaken by the National Documentation Centre (NDC) in the frame of project 13/EKT of the First Operational Programme of Research and Technology (EPET I), financed by the General Secretariat for Research and Technology and the European Commission. The project aimed, among others, to create the primary core of Scientific and Technological libraries, which would have the capability to order online documents from journal articles included in their collections. The basic terms of the network operation were described in a letter of agreement, signed by a limited number of 20 libraries. 6 libraries were selected to run the pilot operation. The criteria of the selection were:

1. Their collection to be included in the database of the Union Catalogue of Periodicals (SERI),
2. The availability of equipment needed, in terms of copiers, personal computer or terminals and modem as well as access to one of the available data networks in Greece i.e

- HELLASPAC (the Greek PSDN) and ARIADNE-T or FORTHNET (the first Greek Internet Services providers),
3. The acceptance and signature of the "Contract and Terms of network operation" by the Director of the participating organisation.

The structure of the Network

The network was developed based on a radial model. The network is centrally managed by NDC while permits fully decentralised operation by the libraries-members. This model requires a central server and a union catalogue regularly updated with data provided by the local catalogues. Each library needs to have access only to a single point (NDC) in order to be informed on the existence of a journal title. Each User-Library considers all the others as a unified set from which documents can be supplied. This model eliminates all necessary tasks to be undertaken by the individual libraries in the periphery to the minimum, as it reduces the hardware and software requirements in the periphery of the network as well as clearance, accounting or payments procedures, hardware and software cost and support. On the contrary the central point requires a team of three people for the co-ordination of the network and the update of the Union Catalogue.

The operation of the Network

During the first phase of the operation, the participation of libraries which can act both as suppliers and users was decided, for reasons of creation of the crucial mass of suppliers and eliminating the possible malfunctions. This means that libraries which can only act as users were excluded from the first phase. The balanced use and the fair sharing of the load caused by the offered services was aimed. In the second phase, after the procedures and functions had been consolidated, the participation of libraries which acts only as users was permitted. Individual users will be permitted to directly exploit the services of the network during the third phase after the clearance mechanism of money collection is proved well established. Library users have only to pay a small portion of the cost covering photocopy and mailing cost.

The system also permits the users to order articles without the use of the Union Catalogue of Periodicals. However searching before the order and checking the holdings results to a relatively high response rate of 78% of the orders.

Support of the Libraries Network by NDC

NDC plays a multiple role in the network. NDC provides all the infrastructure required in the central level which is consisted by:

- The host computer, (HERMES and www interfaces)
- The permanent connections to all available networks in the country i.e. INTERNET (GRNET), PSDN (HELLASPAC) as well as dial up,
- The DBMS for the Union Catalogue of Periodicals,
- The system for the management of orders,
- The system of statistics and invoice production
- The money collection and clearance mechanism,
- The update procedure of the Union Catalogue of Periodicals, in collaboration with the libraries-members,
- The basic user training activities through specialised seminars,
- The user support activities through visits to the users workplaces,
- The operation of a help desk for every day problem solving,

- The promotion of the Libraries Network to potential libraries-members, final users (Higher Education faculty, researchers, bussiness managers and scientists) and decision making groups,
- The participation to projects for the financial support of the Network development and expantion,
- The organisation of annual workshops.

Basic statistical data of the Libraries Network

As presented in table I, after four years of operations the Libraries Network includes **95** libraries-members. They have set **35.392** online orders, of which **27.658** were executed raising the response rate at **78%**. The average response time is **9 days**.

It is estimated that an average of **200** million GRD have been saved till now from the operation of the Libraries Network, as these orders were served within the country not addressed to foreign document suppliers. This sum corresponds to the annual budget for periodical subscriptions of the greater library in the country.

Epilogue

The establishment of the National Network of Libraries in Greece was attempted in an environment with no tradition in libraries cooperation. A remarkable delay was mentioned, in comparison with corresponding procedures in other European countries. The whole Network development passed directly from lack of (systematic) cooperation to computerised procedures of cooperation. However, the succesful results of the Network operation ensure the continuation and expansion of the Network.

The fountemental mechanism and infrastructure has already been established. In addition a general attitude has been formed recognising that systematic cooperation between libraries is the only way to overcam the constrains of the budget cuttings. The national network of libraries exploits the wealth of information spread all over the country in noumerous organisations by transforming past expenses to present and future investments. The co-operation has been proved more effective because it has been established between libraries belonging to different administrative or institutional categories (Universities, hospital, commercial banks, research institutes, etc.).

Hellenic libraries are expected to cover the gap and go ahead to further colaborative schemes and practices. New information technologies helps to this directions. Consortium aggreements for sharing resources to electronic journals have already been planned. The co-ordinated planning for the reconstruction of the individual collections is also designed, starting gradually with a limited number of libraries, which are willing to upgrade the level of cooperation and carry along more libraries.