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information management

STATE OF THE ART OF THE APPLICATION OF NEW INFORMATION TECHNOLOGIES IN LIBRARIES AND THEIR IMPACT ON LIBRARY FUNCTIONS: A REASSESSMENT

Report

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COMMISSION OF THE EUROPEAN COMMUNITIES

information management

Libraries programme

State of the art of the application of new information technologies in libraries and their impact on library functions: a reassessment

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Contents

1 Preface

This study is an update study on information technology in libraries on behalf of the European Committee. Although the authors have tried to make a report that could be read separately, it is important for the reader to know on what basis it is founded.

For the present study a study specification was given. In this specification the following was stated about what lays behind this update study:

"In response to the Resolution of the Council of Ministers, 7 September 1985, and as a preliminary to the definition of the proposed Plan of Action for Librarians in the EC, the Commission carried out a parallel study in each of the member states to determine the state of the art of the application of new information technologies in libraries in those states (LIB-2 Study, 1986, EUR 110361). These studies determined the extent to which catalogues (especially of major collections) existed in machine readable form, the role of library networks, the level of automation for the other housekeeping functions of acquisition, circulation control and local cataloguing, the use of computer-based user-related services, and the nature and level of interlibrary transactions and frameworks. The studies were set in the context of national and institutional policies and frameworks. They revealed wide discrepancies between member states, not only in the implementation of the new technologies but in the provision of basic library services."

The study which was carried out for the Netherlands was published in 1986 as "Informatietechnologie in de Nederlandse bibliotheken". The following conclusions were drawn:

- automation of cataloguing and housekeeping continues; it is expected that within 10 years most catalogues will be in machine readable form, for the whole library collection
- research and experiments in the field of new technologies will augment because of shrinking budgets
- increasing use of on-line information, not necessarily bibliographic; there is a policy to get on-line information accessible to the public; there is a role for public libraries as intermediary
- cooperation is a major line of development
- emphasis in government policy on information technology in for instance education, research and market sector, less on information technology in libraries, but some projects received subsidies of some importance

Successively, again quoting the study specification

"The draft Plan of Action for Libraries in the EC was presented and endorsed by the representatives of the member states and the library community at a

forum in Luxembourg in 1989. It is formulated in five action lines, targeted at: source data projects, through the creation of (new) machine readable national bibliographies or enhancements of existing ones and through retrospective conversion projects for collections of international significance; the interlinking of networks providing services to libraries; the development of new services for library users; the development of new tools for librarians, to promote cost-effective working and to deliver services; and the exchange of experience and skills.

There is now a need to review any progress made since the undertaking of the original LIB-2 studies in order to provide a current knowledge base for actions and to help provide additional startup information for developing projects, both at Community level and at the level of the prospective project partners in the member states.
The purpose of this update study is to provide factual information in order to distinguish the major changes and the take up of new technologies. Descriptions of systems which were given in the original LIB-2 study need not be repeated. Also, the update study does not repeat all the original areas of investigation in the same form, but is restricted to four key areas:

- machine-readable record resources
- network access to machine readable record resources
- integrated library housekeeping systems
- information technology-based user services"

The restrictions did not always make it easy to do justice to developments in library service in the Netherlands. And sometimes it even seemed better to explain the situation in general terms before reporting on the technological aspects. We felt, for instance, that a chapter like chapter 3, on the library situation in general, could not be missed.

2 Research framework

In the first LIB2 study it appeared difficult to get exact data, particularly quantitative data, from libraries. This has not changed. The reliability and actuality of statistical information on the information sector has not very much improved since. In "Kwantificering van de informatiesector", RABIN, Den Haag 1990, Advies 5, the RABIN (Netherlands Council for Libraries and Information Services) recommends that the efforts of the CBS (Netherlands Central Bureau of Statistics) should be intensified. The Council commissioned research into the availability of collections of quantitative data to support this recommendation. In the inventory given in its report, the Council included quantitative data on automation. It appeared that there is very little information about automation in public libraries and none on academic and special libraries, not even in the most obvious statistical sources.
Although this was a drawback, we thought it not impossible to report effectively, provided that it is accepted that the update study is carried out in order to support policy makers only. In information for policymaking the emphasis lies on the presentation of a general survey, on main lines and trends. Mostly detailed information is not necessary. So the reader should be aware of the fact that the present study is not a reference work full of facts about library technology.
This having been said, the research was carried out with the following proviso's:

- what data could be collected without too much difficulty had to be sufficient
- data collecting should be done through utilities, corporations and suppliers and vendors of information technology, instead of through individual libraries; this should be done through interviews and questionnaires; extra checks should be made by way of telephone inquiries
- published sources, in particular reports and journals in the library field, should be scanned from 1987 on for extra information; the journals that were scanned were:

  Automatiseringsgids
  Bibliotheek & Samenleving
  Electronic library
  Informatie en informatiebeleid
  Information World Review
  Nieuwsbrief and other publications of NBLC
  Open
  PICA-mededelingen
  RABIN-reports

- key persons should act as a forum for the discussion on main statements and trends; the key persons were:

Ch.L. Citroen (CID/TNO)
L. Costers (PICA)
Th.G. Geurts (NBLC)
A.P. van der Kooi resp. J.F. Steenbakkers (Royal Library)
R.L. Schuursma (Library Erasmus University Rotterdam)
L.J.W. Waayers (Library Technical University Delft)

- the presentation of the research results should be done on a general level, effective for policy making, but not going into much detail.

In the following figure the optimum between the information that is obtainable and the information that we would have liked to collect is indicated.

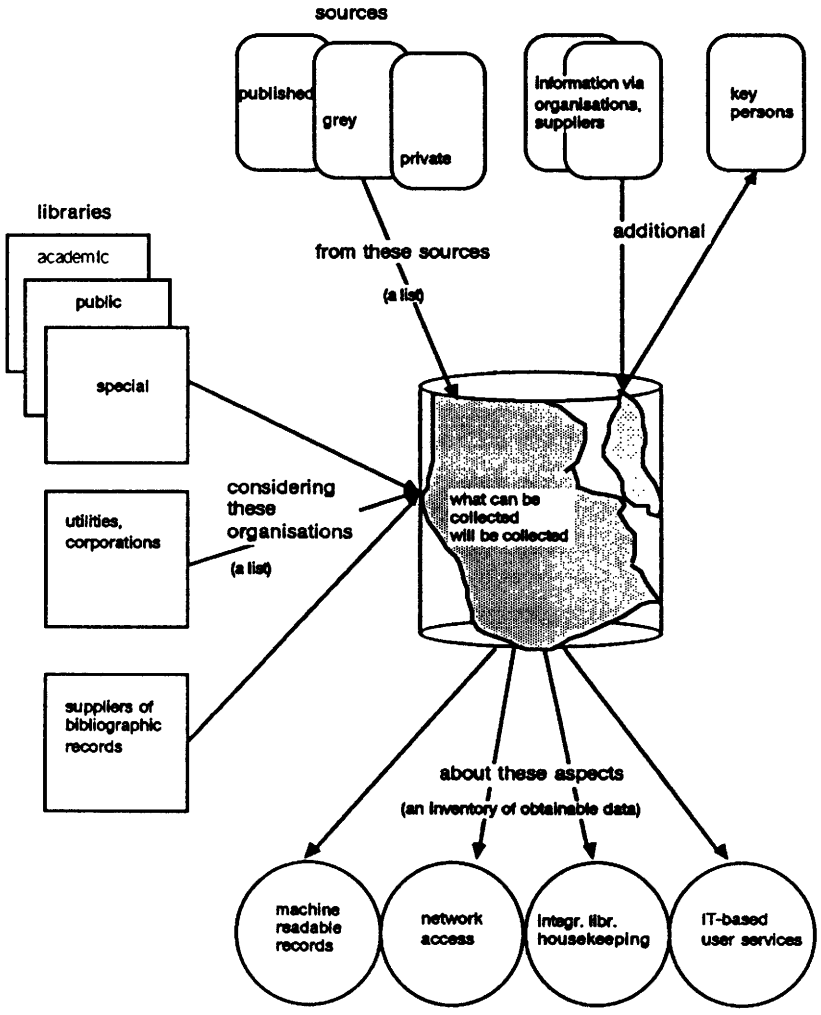

Fig. 2.1 Optimum between reality and ambition in the collection of data

Following this practice, we are confident that this report describes the state of the art by the end of 1990 in most respects. However, actual statistical information on number of libraries, size of collections, budgets spent on automation, etc., is not available. The most recent information that is provided by the Central Statistics Office (Centraal Bureau voor de Statistiek) on libraries, for example, dates from 1986.
The information given in this study covers only a percentage of all libraries in the Netherlands. By comparing the number of libraries in the Nederlandse Bibliotheek- en Documentatiegids 1990-'92, the list of public libraries that the NBLC compiles and the number of libraries that we came upon in our study, we assume that we covered about 80 % of the library field. It should, however, be noted that all the large and important libraries are covered, so that the impact of our survey goes beyond the actual percentage.

An interim report was presented in October 1990.

The collection of data through interviews and literature searches and the compilation of statistical and other overviews was mainly done by Johan van Halm of Johan van Halm & Associates, Consultants. The "conversion" from data to text was made by Afra Wamsteker of Innogration Management Consultants. Grammar and idiom were corrected by Anneke Reinders-Reeser, interpreter/translator.

3 Libraries

It is not easy to get an insight into the state of the art on the aforementioned key areas without any insight in the library structure in the Netherlands. In the following paragraphs a short overview will be given of the categories of libraries and the most important characteristics of the library situation in the Netherlands. This overview acts as a framework for the survey.

3.1 Categories

Conforming to the Unesco categories, we have made a distinction between academic, special and public libraries. The same distinction was made in the former study "Informatietechnologie in de Nederlandse bibliotheken". In actual practice, this distinction is rather artificial. One library may to some extent be academic, in other aspects public and even special. To draw conclusions from quantitative data on this basis is dangerous. However, we tried to follow the distinction as well as possible.

To give the reader an insight in the overlapping clusters in the classification, we make the following remarks:

- academic libraries include the national library (called the Royal Library), the central university libraries and the affiliated faculty libraries and some autonomous research libraries; all academic libraries are open to the public
- higher vocational education libraries could be classified as academic or as special libraries; we have included these among the special libraries
- there is a separate category of so-called libraries with a research support function for a region; some of these are autonomous research libraries, others are large public libraries with an additional function; the latter we have classified as public libraries
- some special libraries are open to the public, especially government libraries; they were classified as special libraries
- some special libraries are large research libraries and welcome other researchers, just like university or faculty libraries; we have included these, nevertheless, in the special libraries category

The following illustration gives an indication of the blurred borderlines between the categories:

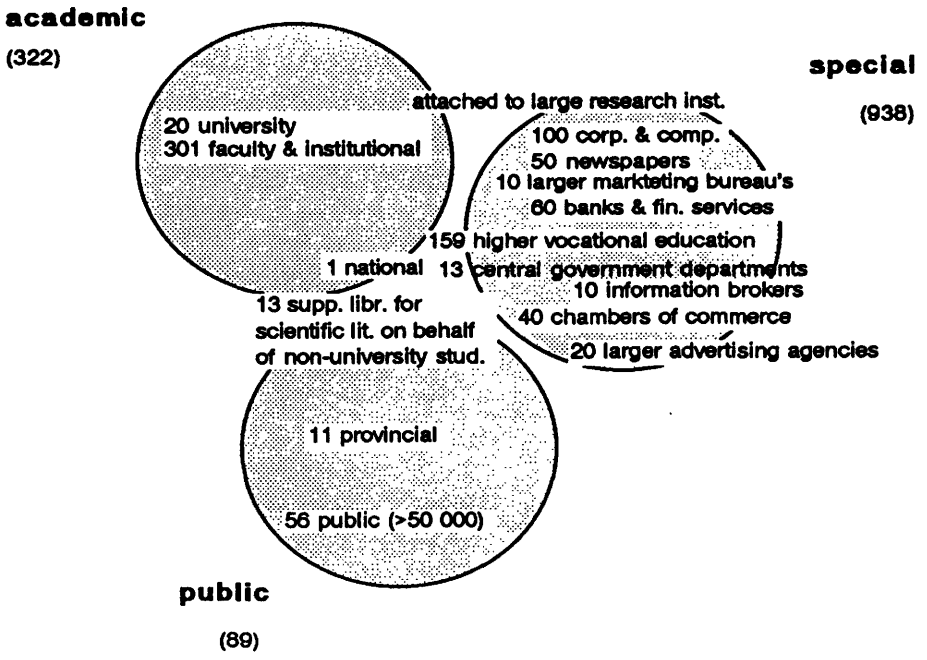

Fig. 3.1 Library categories in the Netherlands

The size of the collections and the number of libraries within a category is given in the table below. We used the following sources:

- public library statistics (NBLC, CBS)
- scientific and special library statistics
- Bibliotheek- en documentatiegids 1990-'92
- vendor data (notably to assess the degree of automation)

The number of libraries in the Netherlands, excluding branch libraries and annexes, has been estimated as follows:

national library	1
university libraries	20
institutional libraries, attached to universities	301
higher vocational education libraries (HBO)	159
special libraries, incl. libraries attached to large research institutes	938
. 100 corporate business libraries and libraries attached to companies	
. 50 newspapers	
. 40 chambers of commerce	
. 10 information brokers	
. 60 banks and financial services, incl. insurance companies	
. various export organisations	
. 10 large(r) marketing and market research bureaus	
. 20 large(r) advertising agencies	

. 13 central government	
public libraries, for communities with more than 50 000 inhabitants, included regional support libraries on behalf of non-university students	301
provincial library centres (PBC's)	11

It is interesting to place the libraries in the context of their user groups, because of the non-technological aspects of networking. An impression is given in the following figure.

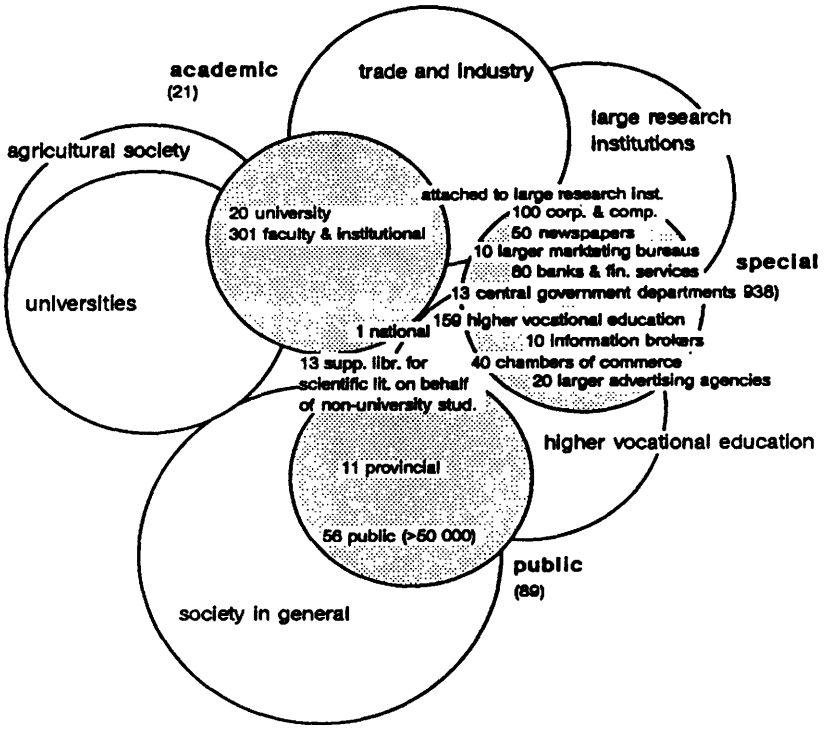

Fig. 3.2 Libraries in their surroundings

3.2 Financial position

All libraries in the Netherlands are being funded directly or indirectly by the central, provincial or local government, except those special libraries which are part of commercial organisations. Libraries have nearly no revenues, except a (small) entrance fee, the reimbursement for copying costs, the use of databases, etc. Only special projects receive extra subsidies. Normally, the introduction and dissemination of information technology in libraries will be part of the dayly housekeeping costs. No wonder that for some facilities and for groups that are not the target group of the library in question, charging of costs is coming into practice.
The former report on technology in Dutch libraries stated that in government policy emphasis lay on information technology in other fields than in the library context. This has not changed in the years 1986-1990.

3.3 Cooperation

The libraries in the Netherlands have a long tradition of cooperation. Within the context of this report we will give attention to two library organisations which play an important part in information technology on a cooperative basis. There are more organisations -and some of them do have an interest in information technology questions, e.g. the organisation of libraries with an additional support function for scientific literature on behalf of non-universitiy students and the provincial library centres- but these two are the ones that not only harmonize activities, but also offer facilities on a large scale. The organisations are:

- PICA
- NBLC

3.3.1 PICA

PICA, Centre for Library Automation, is a foundation in which several library categories participate. PICA offers

- facilities for shared cataloguing (from cataloguing in publication to full bibliographic description), database building and retrieval, library housekeeping and on-line public catalogues; we will refer to these facilities in chapter 5
- the on-line union catalogue and facilities for the creation of the national bibliography (both under responsibility of the Royal Library); we will refer to this in the next paragraph
- facilities for automated interlibrary loan; this too will be referred to in the next paragraph
- network access to machine readable resources; this will be referred to in chapter 5.

In this survey we will come across PICA in the role of keeper of machine readable records, in the development of network access to machine readable records and as a vendor of an integrated library housekeeping system. We will notice that there is a convergence that affects much of what is going on in library technology assessment.

3.3.2 NBLC

NBLC, Dutch Centre for Public Libraries and Literature, is an association in which most of the public libraries participate. The objectives of NBLC are the promotion of the public library service, the encouraging of cooperation, the encouragement of the use of information and the enhancement of professional skills. It is an active association, involving members through centres for study and communication, working groups etc., and a central

office. The tasks of the central office are: preparation and implementation of the association's policy, supervision of centrally funded local projects, management of the national lending library for public libraries and central services. NBLC offers an extensive library service, partly in combination with the Nederlandse Bibliotheek Dienst (Dutch Library Service) from reference material and acquisition to binding and labeling. Libraries that make use of this service make a selection from the readers' reference lists and order what they think useful for their public. The ordered books arrive ready for circulation, complete with catalogue cards.
NBLC makes use of the facilities of Pica for cataloguing activities, in order to participate in the shared cataloguing advantages.
In the field of information technology NBLC offers the following services to the public libraries:

- development of on-line information networking
- information packs, articles, seminars
- acting as host for a network (NEON) for public libraries and others
- development of user-friendly interfaces for files often used by public libraries
- project coordination
- development of off-line databases (CD/ROM and WORM)
- in the years between 1986 and 1990 the "Retriever", a computer specially designed for libraries, was developed; by now it is no longer necessary to use a specially designed computer, because all the functionality is offered commercially in standard components
- development of a thesaurus and a directory
- publication of a survey of available electronic databases
- organisation of Dutch Online Information Conference together with the Vereniging van On line Gebruikers in Nederland (Association of On-line Users) and the Nederlandse Vereniging van Bibliothecarissen, Documentalisten en Literatuuronderzoekers (Dutch Library Association)

In the present survey we will come across NBLC mainly in the paragraph about network access in the role of project coordinator, and in the role of host for a number of databases (5.2). We will notice that it looks as if, after a period of interesting experiments, public library technology assessment stands at the crossroads of several possible directions to further developments. The role of the NBLC in the next period might be important for the choices to be made.

3.4 Union catalogues and interlibrary loan

In the Netherlands there are three union catalogues:

- national, kept by the Royal (or National) Library
- technical, kept by the Library of the Technical University of Delft
- agricultural, kept by the Library of the Agricultural University of Wageningen

The national union catalogue is by far the largest and includes the collections of all the academic, special (especially when they are open to the public) and the larger public libraries (for the parts of the collections that are considered deposit collections). This union catalogue consist of two parts:

- in machine readable form
- in card files

The union catalogue in machine readable form is a collection of bibliographic descriptions with holdings. It is accessible on line. It is called the Nederlandse Centrale Catalogus (NCC) and comprises references to, a.o., monographs, periodicals, audio-visuals. An interlibrary loan facility (IBL) is connected to it, consisting of an ordering possibility for the user and a system for decisions about the library that will procure the requested item. The chosen library will receive an order. Delivery is handled locally and mostly by post. An increasing number of libraries has a connection to this service (1989: 270 connections, 1990: 300 to 315 connections, including connections from other organizations such as booksellers, publishers, etc.).

For the NCC/IBL system the PICA-facilities are used. The database is built up from the following sources:

- the shared cataloguing results from the PICA using libraries
- descriptions of publications that are requested on interlibrary loan and could not be found in the machine readable catalogue but could be found in the card files; they are put in successively by the Royal Library
- tape input by some large libraries that use (or have used) another cataloguing system than PICA offers (University Library of Amsterdam, Library of the Free University of Amsterdam, University Library of Utrecht)
- input by the two other union catalogue keepers, the libraries of the universities of Delft and Wageningen; the on-line input of the Technical University of Delft consists only of periodicals; the tape input of the Agricultural University of Wageningen consists of the catalogue records only (the whole collection of Wageningen-items, the so called AGRALIN-database includes documentation records)

In the following chapter the emphasis will lie on information technology that serves the individual library. In general we may state that the academic libraries and the larger (and sometimes also the smaller) special and public libraries have a connection with the NCC/IBL system.
The existence of the NCC/IBL-facilities is very determining for the direction in which the technological innovations in the Netherlands develop. The impact on the library world as a whole may be visualized in the following figure.

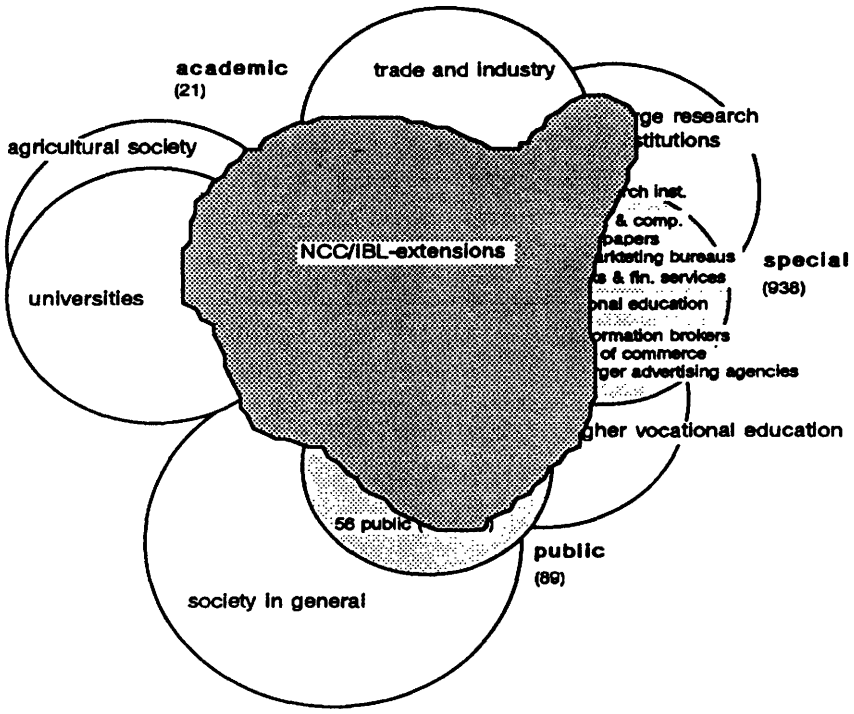

Fig. 3.3 The impact of the NCC/IBL on the library situation in the Netherlands

The impact is enhanced by the fact that NCC/IBL is also becoming a starting point for international interlibrary lending. In this field there are two developments:

- if a publication could not be found in the NCC, a library may connect through the network the collections of the British Library Document Supply Centre in the United Kingdom to realise international interlibrary lending
- PICA participates in the ION ILL-project; the objectives of this project are to connect the three ILL-systems in France (PEB), the United Kingdom (VISCOUNT) and the Netherlands (NCC/IBL); the connection will be made between the computers of the three participants, to improve the efficiency of ILL-services and to demonstrate the capabilities of OSI communication protocols in a message-oriented environment for interlending services in the interconnection of computerized networks with different technical

characteristics; test site libraries will be the VISCOUNT (academic and public) libraries in the United Kingdom, CADIST libraries in France and PICA libraries in the Netherlands

The agricultural union catalogue is not only a catalogue: it also contains documentation records from journals. Agricultural institutions are a well defined group with a strong cohesion, not only nationally but also internationally. The agricultural union catalogue functions as information intermediary rather than as a union catalogue. The University Library of Wageningen offers it as the central database in AGRALIN, the network for agricultural information.

The technical union catalogue for periodicals is available on line in the NCC/IBLsystem. The Library of Delft is one of the more important delivering libraries in interlibrary loan circles, with a high success rate and fast delivery. The technical catalogue for monographs is available on line in the AUBID-network.

The holdings of the public libraries are not included in an union catalogue, but are accessible on line within regions through regional catalogues.

The function of the union and regional catalogues are visualized in the following figure, in which the levels of inter library lending are indicated.

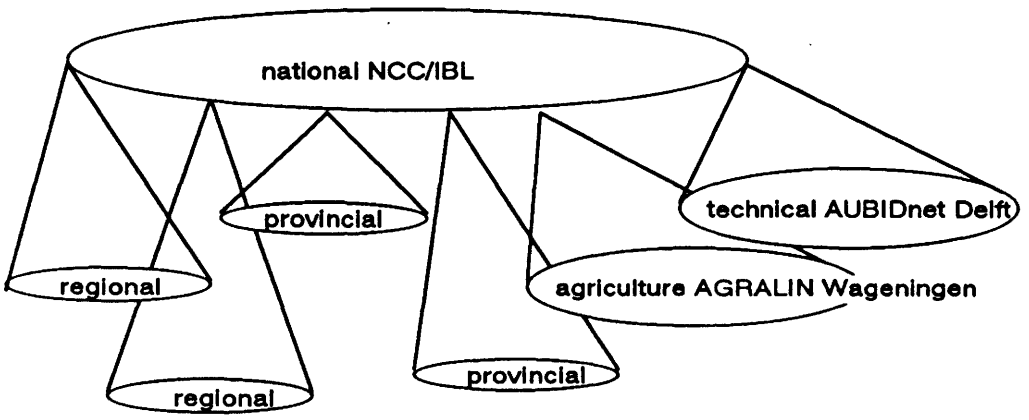

Fig. 3.4 Levels of interlibrary lending

4 Technology in libraries

4.1 Academic libraries

Academic libraries make use of thePICA- services, commercial vendors or a combination for cataloguing and library housekeeping. PICA offers a central (shared) cataloguing facility (Gemeenschappelijke Geautomatiseerde Catalogisering or GGC) and local facilities for the other functions (Locaal Bibliotheek Systeem or LBS). Commercial vendors normally offer only local operational solutions.

The majority of the academic libraries which did not use the shared cataloguing function of PICA in 1986 now became participants. Of the larger academic libraries only the library of the Royal Academy of Science and the University Libraries of Wageningen, Delft and Eindhoven do not participate. The University Library of Delft makes use of the cataloguing function for periodicals descriptions only on behalf of the NCC. For the vast machine readable bibliographic resources of the newcomers, the University Library Amsterdam, the Library of the Free University Amsterdam and the University Libraries of Utrecht and Delft conversion techniques, including the matching with the central bibliographic database of PICA (GGC) were developed.
It may be concluded that the years 1986-1990 did not bring really new technology for the creation of machine readable records. But instead, consolidation and standardization led to a less complex situation and easier ways to connect to union catalogue and interlibrary loan service.

The same seems to be true for the other housekeeping functions.
Some of the academic libraries use the local housekeeping system LBS from PICA, others use their own system, or commercially bought systems. Housekeeping systems cover acquisition, cataloguing, on-line public access to catalogues, periodicals management and circulation. All academic libraries made their catalogues (completely or partially) available through on-line public access.

However, there are also other tendencies that indicate new directions.

Given the construction of the GGC, terminals or (especially designed and dedicated) personal computers, connected to a central computer system through telephone or data line, internetworking is a natural effect of participating in the GGC. This phenomenon is not only specific to academic libraries. There are developments that may be more "research-like" and therefore of more importance for academic libraries:

- the transition of the PICA-network from a custom-made telephone/data line construction to the Dutch university network SURFnet, which has connections with other university networks, such as JANET (UK); details will be given in the next chapter

- the development of methods of selective downloading, e.g. from the AGRALIN-database for research workers

The use of a university network not only for cataloguing, but also for the union catalogue and interlibrary loan service brings within scope what untill now PICA did not cover: bibliographic information on research level for the end user. Although in this stage of development only the libraries have connections with the network, an expected development will be that a research student uses his personal computer in the university network for all his information needs, including bibliographic information, from databases, other libraries and the university library on the work station. This is the more important because SURFnet offers not only facilities as the use of dedicated computers for certain research methods, but also connections with special knowledge centres, the so-called Expertise Centres.

In some instances a CD/ROM catalogue has been produced as an alternative for on-line access to the central database. The Royal Library and PICA also produced an optical disc catalogue for descriptions and images of manuscripts to be offered to end users.

The use of the AGRALIN-network for research workers shows a development in the same direction: do-it-yourself use of bibliographic information. In the margin: as AGRALIN also contains documentation on articles in journals, the downloading facility is more useful for documentation records than it would have been for references to monographs and periodical only.

There is also another line of development, however, in which the academic borders are crossed: some university libraries build up networks, not only within the university community itself but also in connection with other information services, for instance from the libraries of the institutions for higher vocational education, the libraries with an additional support function for non-university students and large public libraries. To give an example: the University Library of Utrecht, faculty libraries of the university and the public library, (also support library for non-university students in the region) have a common network. The network consists not only of a technological facility but also of special document delivery agreements and services.

Some libraries have ambitious plans for future development in which they do not only make use of technology for cataloguing and housekeeping, but grow out to centres of high-tech documentation, information and communication. This implies the involvement of third parties, in which PICA isoften an important party.

The University Library of Tilburg (Katholieke Universiteit Brabant or KUB), for instance, specifies in a policy document that, given the building of a new centralized location for the library, it will endeavour to enter a new phase as

a hich-tech centre. All attention will be directed towards improved disclosure and accessibility of information. Disclosure will become possible, even at article level in a magazine, through techniques such as image and data bases, not only for current publications, but also for grey literature (research memorandi and such) and old books and manuscipts. The KUB will do so in cooperation with PICA.
One of the new developments is the On-line Contents Catalogue, a database of periodicals, in which the tables of contents are part of the description. The contents are put in by scanning the printed material. This development is an cooperation between the University Library of Tilburg, the Royal Library and PICA. It is still in an experimental phase, but it is expected that it will be available as a service by the middle of 1991. By then, the input activities will be shared and Elseviers Science Publishers will also participate by providing machine readable abstracts and in future even full text.

Another example is the Library of the Technical University of Delft. This library has a well-developed position as information intermediary for trade and industry, besides being the central library for the university. Commercial organizations need customer and ready-made information as fast as possible. In a memorandum concerning the automation policy for 1990-1992 the library states the following motto: "Tailored information please ... on the spot!" With this motto as a starting point, the library tries to bring together two types of investment for the future: in people and in material. Emphasis is laid on education and staff management to enhance the quality of knowledge. Concerning material, the library matures from automation for the library in isolation towards integration, in which consolidation of the DOBIS/LIBIS-application (so-called AUBID-project), with on-line access to central and faculty catalogues and connection with the PICA-GGC-database, play an important role.

Both examples make clear that the period 1986-1990 was not only a period of consolidation and standardization, but also of growing insight and vision in new concepts, in which the end user and the availability, without barriers, of all information -bibliographic or otherwise- for end-user needs have become direct instead of indirect goals.

4.2 Special libraries

Special libraries are not a coherent group. They make their own choices in automation facilities, depending on the institution's organisation. The result is a large variety of systems, amongst which the most widespread turnkey or complete systems are ADLIB, BIBIS, DLIB and VUBIS.

Furthermore, there are many systems based on IRS-software, developed with or without direct assistance of the software supplier.
The special library field, thus, shows the

- largest variety of systems
- largest number of systems
- a large number of small suppliers.

There are, in addition, many in house developments, notably for periodicals management. The management of loose-leaf publications is a function that seems to be automated only in the field of the special libraries.

Furthermore, there is no internetworking between special libraries. Special libraries rely on interlibrary loan facilities instead.
Apart from technological networking, there is a tendency to form groups around a specific service area, e.g. higher vocational education schools, hospital libraries, central government libraries, etc.
Special libraries in trade and industry, especially large research libraries, group together around the Library of the Technical University of Delft, and contribute to the technical union catalogue.
Special libraries for the central government have a steering committee for coordination. They do not use the same library and documentation systems, but offer access to their databases through the same host organisation, the Rijks Computer Centrum (RCC).

Decreasing funds led to reorganization of the library and documentation function in corporations and institutions. One of the effects is a merging of this function with office and archive functions, e.g. by using the same thesaurus, subject indexing, means of access, etc.

4.3 Public libraries

The public library structure in the Netherlands is regulated by law. The libraries receive funds from the government, central, provincial or local. Libraries in the smaller communities used to be part of a provincial finance structure. Since a new Welfare Act was put forward in 1987 the financial structure has become further decentralized. In actual practice each public or provincial library may make its own decisions in accordance with the community policy.

To give an impression of the number and size of libraries, we present the following figures:

independent libraries, inc. branches	99
libraries which used to be part of the provincial structure, incl. their branches	654
provincial libraries	10

The tendency towards decentralization has its effect on the technological structure too. Smaller libraries are no longer obliged to make use of services of their provincial library centres. As a consequence, the larger central systems still exist, but there has been no further development in this field. There is a tendency towards regional cooperation between libraries, sometimes even with other than public libraries.

There is no public policy in the Netherlands which obligates the public libraries to use the same technical solutions for library functions. As a consequence, there existst a variety of automated library systems.

4.3.1 Independent libraries

Grouped by number of inhabitants per service area, there are the following figures for independent libraries:

> 200 000	4
100 000-200 000	13
< 100 000	82

The systems and functions that are used the most are the following.

SYSTEM	NUMBER OF USERS
TOBIAS	37
VUBIS	12
GEAC	11
LIBS 100	4
OCELOT	3
ALS	3
KAMBIS	2

Fig. 4.1 Independent libraries serving more than 200 000 inhabitants: all libraries are automated.

SYSTEM	NUMBER OF USERS	FUNCTIONS								NUMBER	NUMBER OF FUNCTIONS
		ACQ	PMS	CAT	OPAC	IRS	CIRC	M/S	CIS		
Datapoint	4				x					1	1
ALS	2			x	x		x	x		2	4
GEAC	2			x	x	x	x	x	x	3	6
KAMBIS	1	x		x			x	x	x	1	6
LIBS 100	1	x	x	x	x		x	x		1	6
PICA-LBS	1			x	x		x	x	x	4	6
VUBIS	1			x	x		x	x		1	4

Fig. 4.2 Independent libraries serving between 100 000 and 200 000 inhabitants: all libraries except one are automated.

SYSTEM	NUMBER OF USERS	FUNCTIONS								NUMBER	NUMBER OF FUNCTIONS
		ACQ	PMS	CAT	OPAC	IRS	CIRC	M/S	CIS		
ALS	2			x	x		x	x	x	2	5
GEAC	2			x	x		x	x		1	4
		x		x	x	x	x	x	x	1	7

Fig. 4.3 Independent libraries serving less than 100 000 inhabitants: 88 % percent of these libraries are automated.

4.3.2 Provincial library centres (PBC) and their depending libraries

Each PBC is automated and provides on-line automation services to the libraries in the region for a variety of functions.

SYSTEM	NUMBER OF USERS
ALS	3
LIBS 100	3
GEAC	2
BUKS	1
LIBRA	1
SIAS	1
VUBIS	1

Fig. 4.4 Systems used by the PBC's

In some cases there are two separate automated systems in a provincial library centre, for different user groups. The PBC Noord-Brabant uses LIBS 100 and SISI/SIAS, the PBC Friesland uses GEAC and Buks.

The number of depending libraries served is per system as follows.

ALS	181
LIBS100	132
GEAC	70
LIBRA	49
SIAS	39
Buks	13
VUBIS	13

Within the PBC context (654 libraries, incl. branch libraries) 80 % has been automated at the end of 1990.

The PBCs have automated the following functions

acquisition	33 %
cataloguing	89 %
OPAC	77 %
circulation	89 %
management/statistics	55 %
community information	22 %

Not all libraries connected to a PBC are using the full functionality.

On the basis of the former figures we may conclude that

- 90 % of the independent libraries is automated
- 100 % of the PBCs is automated
- 80 % of the PBC connected libraries is automated
- there is a broad variety of systems in use
- circulation, cataloguing, OPAC and management and statistics are the most used automated functions

It seems that, just as in the academic libraries, the technological development has gone in the direction of consolidation and standardization. This is true as far as automation of the library functions is concerned. But when it comes to networking and community and other consumer information, the public libraries have been rather active in experiments in cooperation with NBLC. A range of projects between 1986 and 1990 shows that the public libraries try to find a position in broader contexts and for a larger audience. The networking activities will be seen into in the next chapter. Here we will only list a few and give some information about the viewpoint of the minister of Welfare. The most important projects were:

- Informatie Project Almelo (IPA)
- Brabants Informatie Project (BIP)
- Oosterhouts Digitaal Informatie Netwerk (ODIN)
- Informatie Project 's-Hertogenbosch (IPH)
- Actuele Groningen Informatie (AGI)

They were all financed (partly) by the minister of Welfare. It was the policy of the minister to obtain insight in the possibilities of digital information in the whole context of library activities and the role of public libraries in the information sector in general. That is why the projects are undertaken with very different basic assumptions. As a consequence they show a variety of solutions to essentially the same problems.

By the end of 1990 the minister has formulated the following points of view:

- the products and the experience which are the result of the projects are of importance and will be brought to the attention of all the public libraries
- the basis for networking is established, but it is now necessary to create standards for communication between the several solutions which have been created
- the experimental phase is terminated and no new projects will be financed by the central government

Concluding, we may state that

- the public libraries are nearly all automated where it comes to housekeeping functions
- the increasing decentralization leads to a variety of technological solutions
- a period of experiments in networking and community and other consumer information has recently been terminated
- a period of standardization and coordination seems to lay ahead

5 Key areas

In the preceding chapter we have globally described the state of the art in the separate categories of libraries. In this chapter, we give a more detailed description of the situation in the four key areas. As far as possible we relate given information to the library categories. In the appendix all the library housekeeping systems that we came upon are listed. Of each system a short profile is given with an adress for further information.

5.1 Machine readable record resources

In the Netherlands the situation around the creation of machine readable record resources is rather specific. In the study specification a distinction was made between the following types of organizations:

"- libraries themselves where the record resource is the catalogue of one or a number of libraries (union catalogue) and including the national service
- library cooperatives or "utilities" in the American sense, including organisations which have derived from these (library resource sharing networks such as PICA, BLCMP, etc.)
- other private sector organisations, involved in the supply of catalogue records to libraries, such as booksellers."

In the Netherlands, however, these categories have more or less melted together. The most outstanding feature is the resource sharing network of PICA with the GGC-database, which supports the union catalogue NCC and the national bibliographic service. The libraries of the universities of Delft and Wageningen have separate machine readable record resources, which serve as union catalogues too, but the records are also partly included in the NCC-database. Also, publishers are involved in the production of the national bibliography, and some of them participate in NESTOR, a specific database, derived from the GGC-database. The next figure gives an indication of the way in which record resources are blended with each other.

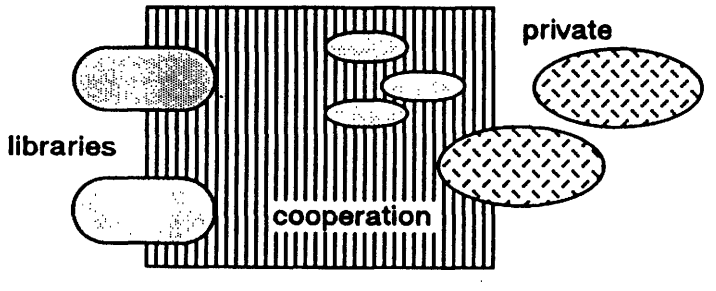

Fig. 5.1 Interrelations between different resources of machine readable records

In the Netherlands there are the following machine readable resources of bibliographic records:

- the cataloguing records in the GGC
- some smaller sets of specialized information alongside the PICA-GGC-database, e.g. Short-Title Catalogue Netherlands (STCN), NESTOR (a set of bibliographic descriptions of publications on research level that are in print), a database of grey literature (GLIN)
- the cataloguing records of the Technical University of Delft
- the cataloguing records of the Agricultural University of Wageningen
- smaller sets of specialized information which are not assembled within the library context (e.g. the Bibliography of Netherlandish language and literature studies, BNTL); which are not offered through PICA (e.g. catalogue of the Police Management Institutions, specialized regional collections of public libraries); which are documentation records rather than cataloguing records (e.g. Documentation on articles in periodicals for public libraries, TACO); we excluded them from this study
- the records of the library and documentation centres of the central government departments
- the records of the central clearing house corporation for the booksellers, Boekdata
- records of suppliers of periodicals who also offer periodicals management facilities, such as EBSCO and Swets and Zeitlinger

The above mentioned records are bibliographic records, but some resources also include non-book materials. In the GGC, for instance, over 90 % consists of bibliographic items, but there are also desriptions of articles in journals, audio-visuals, letters, maps, music and sound.

Descriptions of non-book materials/music are also available through, for instance, the Nederlandse Omroep Bedrijf (Corporation for Radio and Television Facilities; approx. 200 000 items), Discotheek Rotterdam (approx. 100 000 items), NBLC (approx. 30 000 items).
Maps are catalogued further, for instance, at the Cartographic Institute of the University of Utrecht.

5.1.1 The cataloguing records in the GGC

The GGC is the database, offered by PICA, in which all the shared cataloguing activities of the participating libraries take place. Participating libraries are nearly all the academic libraries, a range of special libraries and all the public libraries, be it often indirectly through NBLC.

The GGC has been built up from tape and on-line input. Tape input comes from:

- Library of Congress, supplied by the Royal Library
- British National Bibliography, supplied by the Royal Library
- Deutsche Bibliothek, supplied by the Royal Library
- libraries that shifted from other systems to PICA while they already had machine readable catalogues

On-line input is done by:

- Depot van Nederlandse Publicaties (Deposit Library of Publications in the Netherlands; department of the Royal Library) for all Dutch publications that have been deposited
- CIP-bureau (cooperation of the Royal Library and the publishers' organizations) for all Dutch publications that are still in the publication process
- on-line input by NBLC on behalf of public libraries
- participating libraries for all the titles that were not found in the database; this includes full bibliographic descriptions, made with book in hand, and retrospective cataloguing from former catalogue cards; the libraries attach their holding information to the bibliographic information, whether derived from the database or put in originally

By the end of 1990 the database contained 7 million descriptions, with approx. 10 million holdings, attached to 6 million descriptions, indicating that (a) copy(ies) is (are) available in the Netherlands. Approx. 130 organizations participate. On average 83 % of the descriptions were found in the database so that they could be derived. Only 17 % had to be original input. This figure was enhanced by the fact that libraries may make use of an automated link with OCLC (Ohio) to copy on-line descriptions for retrospective cataloguing.

The PICA-GGC-structure may be visualized as follows.

Machine readable records

shared cataloguing
(PICA-GGC) 7 million records

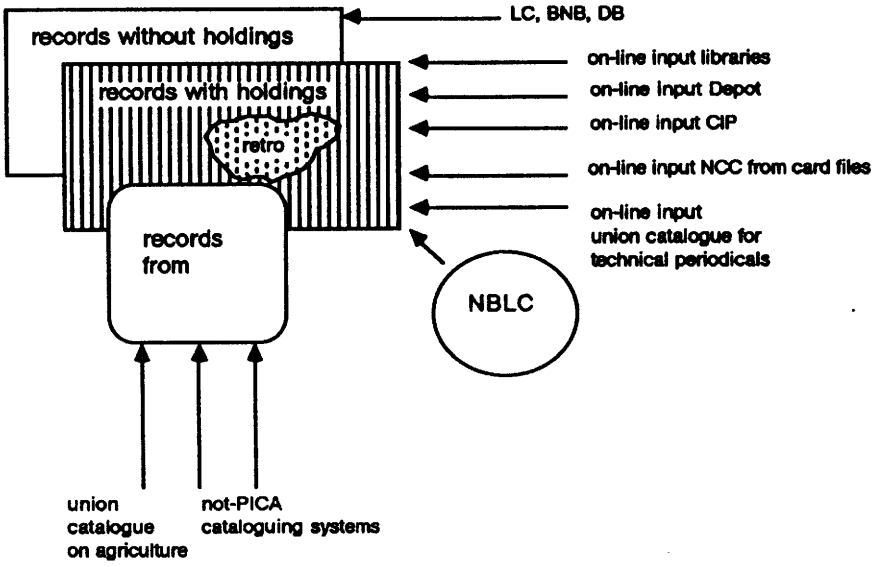

Fig 5.2 Machine readable records in the GGC-database

The bibliographic descriptions in the GGC-database have the following characteristics:

- a variety of languages and alphabeths
- not restricted in publication date range
- International Standard Bibliographic Description (excl. retro-description)
- for monographs, periodicals, audio-visuals, software, maps, letters, sheet music
- a variety of subject indexing methods; most academic and special libraries have their own method, but a Basic Classification for common use has recently been developed for the academic libaries; most of the public libraries use a common classification and subject heading
- authors' names are subject to authority filing in a thesaurus
- in PICA-format, i.e. compatible with the MARC-format

Output is possible:

- on hardcopy (card or list), tape, CD/ROM, floppy disc (output on microfiche is no longer available)
- as ready-made catalogue records in ISBD or in PICA- or MARC-exchange format; special facilities for the production of the National Bibliography and the NBLC

The costs of the use of the PICA-GGC-facilities depend on the facilities that are used. Parameters are:

- price per on-line catalogued item: f 5.– per item for the first 10 000 items, f 3.65 for the next 10 000, f 2.60 for the third 10 000 and f 1.05 for items above 30 000; for retrospective input irrespectively of numbers f 0.50 per item
- searching is obligatory before input, in order to be able to derive records that have already been put in; 3 search actions for a record are free, above 3 f 1.25 for a hit
- output f 0.15 for each item
- price for output medium, depending on the medium

On-line access to the database other than for cataloguing is not allowed. The union catalogue NCC contains the same information, minus records that have been put in from Library of Congress, British National Bibliography and Deutsche Bibliothek and that are not used by participating libraries. For searching bibliographic information in the NCC-database f1.25 per search action is charged.

5.1.2 Other cataloguing records

5.1.2.1 Specialized sets along side the GGC-database

The smaller specialized sets of bibliographic records are produced by using the the GGC-cataloguing functionality. They are accessible on line for participants only (STCN) or on subscription (NESTOR, GLIN).

The Short-Title Catalogue Netherlands STCN is a project for the realisation of a bibliography of books, printed in the Netherlands between 1540 and 1800, and all books, printed elsewhere (with the exclusion of Belgium) in the Dutch language. Cataloguing is done book-in-hand by a STCN-bureau under the responsibility of the Royal Library. It will take at least another twenty years to complete the project, depending on financial support. The total sum of records will by than be approx. 300 000. By the end of 1990 STCN comprised 35 000 records. There are special description rules for the project. On-line retrieval is possible by way of PICA ORS (On-line Retrieval System).

The Netherlands Educational and Scientific Titles for Online Retrieval (NESTOR) is a database in the GGC which contains records of monographs, loose-leaf volumes and periodicals from Dutch publishers in the scientific, professional and educational sector. The descriptions are full bibliographic and enriched with subject indexes and a contents description meant for acquisition policy making. NESTOR is retrievable through PICA ORS. The costs depend on whether there is already a suscription to an ORS-service

(free), another PICA-service (first time f 100.- without and f 500.- with support) or not (f 900.--).

Grijze Literatuur in Nederland (Grey Literature in the Netherlands GLIN) consists of full bibliographic descriptions of reports that have been labelled "grey literature". Input is done under the responsibility of the Royal Library. GLIN contains 57 000 records, that may be retrieved under PICA ORS.

There are other files in the GGC-context that are available under PICA ORS, but these are documentation files, not catalogue files. They are not included in this study. The smaller specific sets of records in the GGC are included in the following figure.

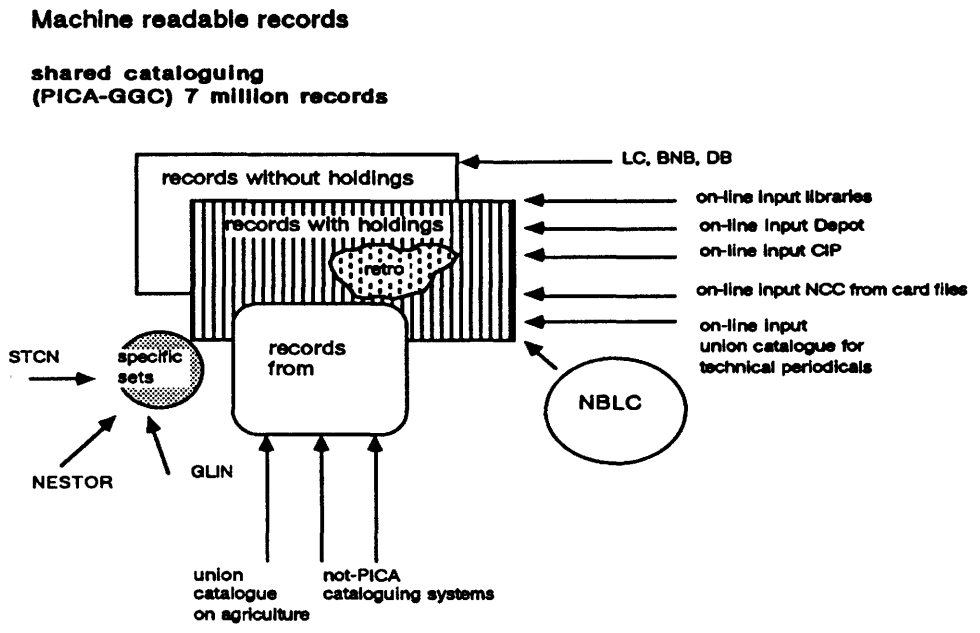

Fig. 5.3 Smaller specific databases alongside the GGC-database

5.1.2.2 Machine-readable records outside the GGC-database

We distinguish four categories of other sets of machine readable catalogue records of some importance outside the GGC-database.

The categories are:

- in academic libraries
  - * the cataloguing records of the University Library of Eindhoven, which does not participate in the shared cataloguing system GGC

    * the records of the Technical University of Delft, the Central Technical Catalogue (CTC), of which only the records for periodicals are put in in the GGC-database; Delft maintains its own collection in the database of the DOBIS/LIBIS housekeeping system that the library uses; total amount: 550 000 records
    * the cataloguing records of the Agricultural University of Wageningen, the Central Agricultural Catalogue (CLC) which are also put in into the GGC-database; total amount, including documentation records: 580 000 records

- in special libraries

    * the cataloguing records of the central government departments of a.o. Education and Science, Home Affairs, Transport and Public Works, Agriculture and Fishery, Housing and Environment and Social Affairs and Employment and Trade and Industry, and the Parliament, which are stored in the database of the Rijks Computer Centrum (State Computer Centre) and which are retrievable through Stairs; total amount, included documentation records approx. 500 000
    * an unknown quantity of cataloguing records in special libraries; presumably all rather small collections compared to the afore-mentioned

- in public libraries

    * as the public libraries are PICA-participants, directly or by way of the NBLC, we assume that there are no significant collections of machine-readable cataloguing records in public libraries, that are not also in the GGC-database

- with booksellers and periodical suppliers

    * in Boekdata, the central database of the Centraal Boekhuis, the central clearing house for booksellers, approx. 200 000 records are available of deliverable publications
    * some periodical suppliers (Ebsco, Swets, Faxon a.o.) also offer periodicals administration services; normally their machine-readable records are for their internal use only; depending on the supplier, the databases are between 60 and 120.000 records, comparable with Ulrich's and other periodical lists

The availability of other than GGC machine readable records may be visualized as follows.

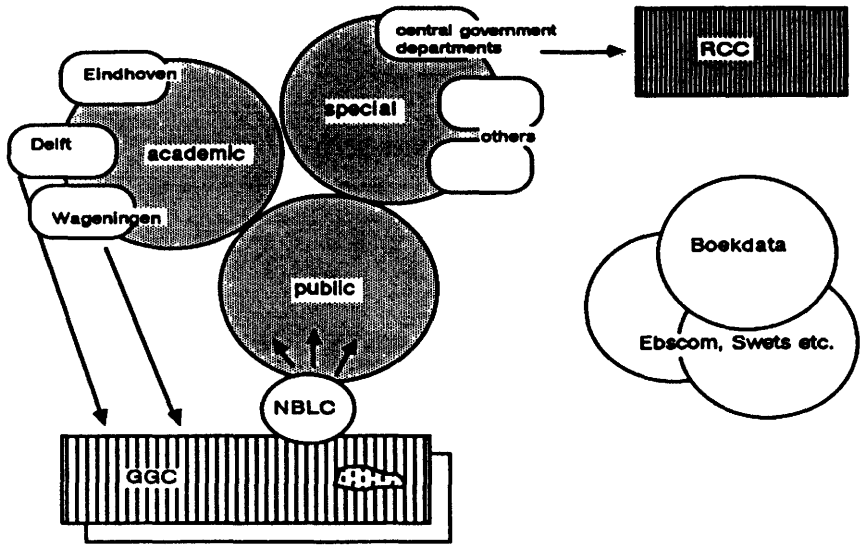

Fig. 5.4 Other than GGC machine readable records

5.2 Network access to machine readable resources

Network access to machine readable resources as dealt with in this paragraph is restricted to access to catalogue files through wide area networks. In some cases the access to the catalogue file also gives access to other comparable files, e.g. documentation on articles in periodicals, etc. When the combination is being offered, we made a note of it. When only this kind of information is offered, we excluded it from the survey. But, of course, the access to resources of this kind is not unimportant. Most of it is offered by way of a host organisation. The following figures for on-line use of databases may be given (there is no information that is more up to date):

> on-line searches in 1986: 65 881; estimated growth perhaps: 25 % in 5 years; on-line searches by the end of 1990: 82 351

The extent to which catalogue information is offered by way of local area networks is unknown. In general we could state that larger corporations tend to have some in-house networks. In some cases the catalogue of the library is offered through the network. But in the cases we know of, the library systems are not really integrated into the local network, but are separate developments. This is enhanced by the fact that there are no campus universities in the Netherlands and that even large institutions like central government departments are housed in several buildings over the country, so that wide area networks are of more importance. But with the growing demand for end-user facilities in the university environment, it became vital to integrate library systems at least in the local area networks of the universities. Although at the end of 1990, the integration has not yet been realized, steps towards this kind of integration are interesting enough to be reported here.

For wide area networks the PTT always delivers the basic physical facilities and often more. Some public libraries, however, experimented with networking through radio/television cable networks that are not operated by the PTT but by private corporations.

There are two possible ways to present information about network access in the Netherlands: by describing networks that have an autonomous status and by describing machine readable catalogue files which are accessible on line. Both are relevant.

5.2.1 Networks with an autonomous status

There are two main lines of development of networking:

- target group-oriented networking
- region-oriented networking

In the target group-oriented networking there are the following networks:

- a network aimed at research and higher education (SURFnet)
- a network aimed at libraries that participate in the PICA-shared cataloguing facilities GGC (PICAnet/Open Bibliotheek Net)
- a network aimed at agricultural industry and institutions (AGRALIN)
- a network aimed at professional users in the field of science and technology (Technical University Delft/ MISTEL and DISTEL)
- a network aimed at the booksellers (Boekdata)

The networks are meant for professional users, particularly library staff, but there is a tendency to allow the professional end user to find his own way.

The region-oriented networking consists of two two main lines:

- library networks within a region, aimed at library cooperation
- end user networks, also within a region and focused on information that is of interest for inhabitants of the region

The library networks within a region are of course meant for library staff. There is always more involved than technological networking: organization of interlibrary loan, transport etc.

5.2.1.1 SURFnet

The Dutch universities developed a common network for their union-members, SURFnet. The network is open to other relevant parties too, such as research institutions, higher vocational education institutions, etc. The user groups of SURF and PICA-libraries largely coincide. This made it attractive for PICA to shift from the PICA-network with leased telephone lines to SURFnet.

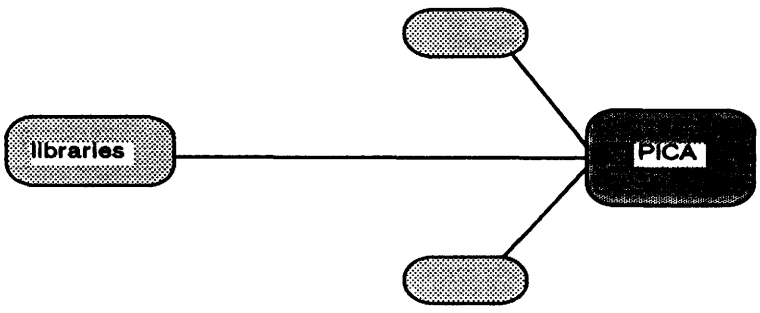

Fig. 5.5 PICA-net (courtesy PICA)

Since 1990 SURFnet has taken over the responsibility for the network service for all PICA-facilities.

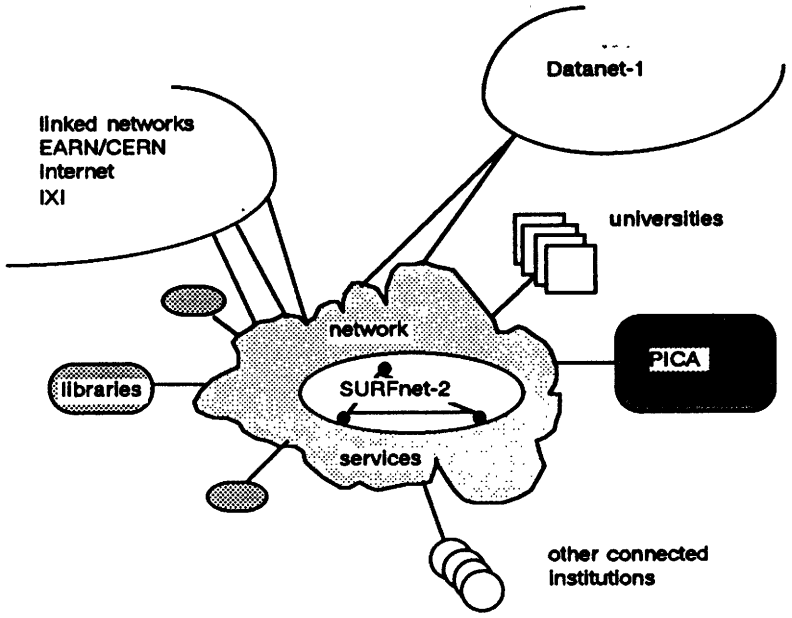

Fig. 5.6 PICA in SURFnet (courtesy PICA)

SURFnet is a value added network offering to Dutch universities, schools of higher education, public and private research and expertise centres and libraries that make use of PICA-facilities, a wide range of services, e.g. electronic mail, file transfer, remote log in and job entry, conference facilities and bulletin boards. Gateway services to other networks, e.g. EARN/Bitnet, Internet/EUnet, IXI (COSINE) and the public Datanet of the PTT, are also provided.
SURFnet uses a private network infrastructure based on the X.25 standard/1984. The user group is restricted.
Libraries that make use of PICA-facilities made a separate contract with SURFnet for the network services and all the other services that come with it (most of them free of charge). Libraries that are part of an organization which participates in SURFnet, are easily connected. Other libraries, however, may use SURFnet free untill 1992, when other arrangements will be made. The costs for the use of SURFnet differ from library to library, depending circumstances and services used.
Those libraries that do not want to use SURFnet, may still use the former leased line or Datanet-1 connection with the PICA-systems.

The number of libraries that were connected to PICA through SURFnet by the end of 1990 was 130. The effect of working with SURFnet on the library world is visualized in the following figure.

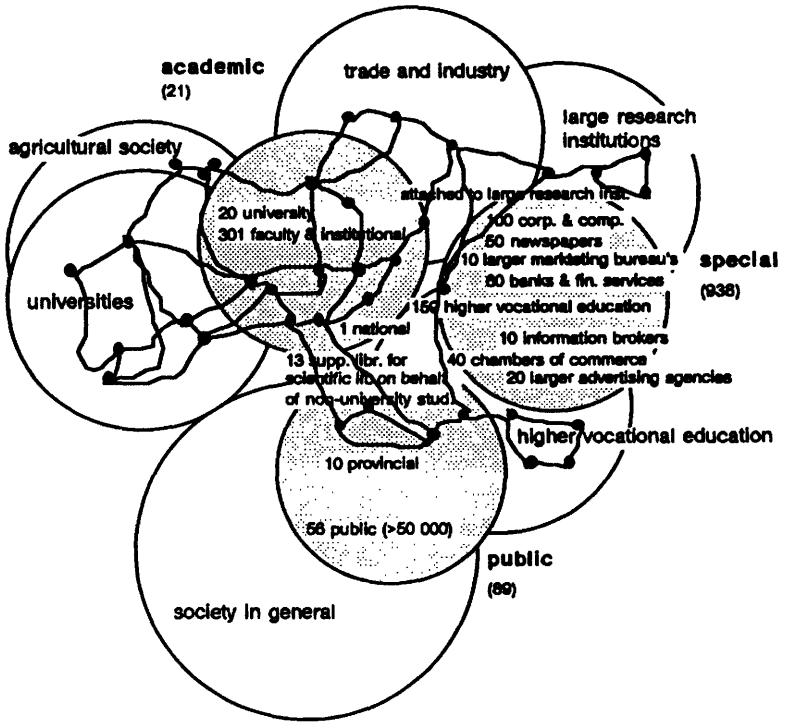

Fig. 5.7 SURFnet in the Netherlands

Internationally there is the possibility to connect to OCLC (Ohio) for the use of the database on behalf of retrospective cataloguing. There is also the possibility to connect BLDSC for international interlibrary lending. The international cooperation project ION in which the Bibliographic OSI-protocols will be implemented which are now under development for Inter Library Lending and Search Retrieve , gives an extra dimension to the already internationally very open structure of SURFnet. It is visualized in the following figure.

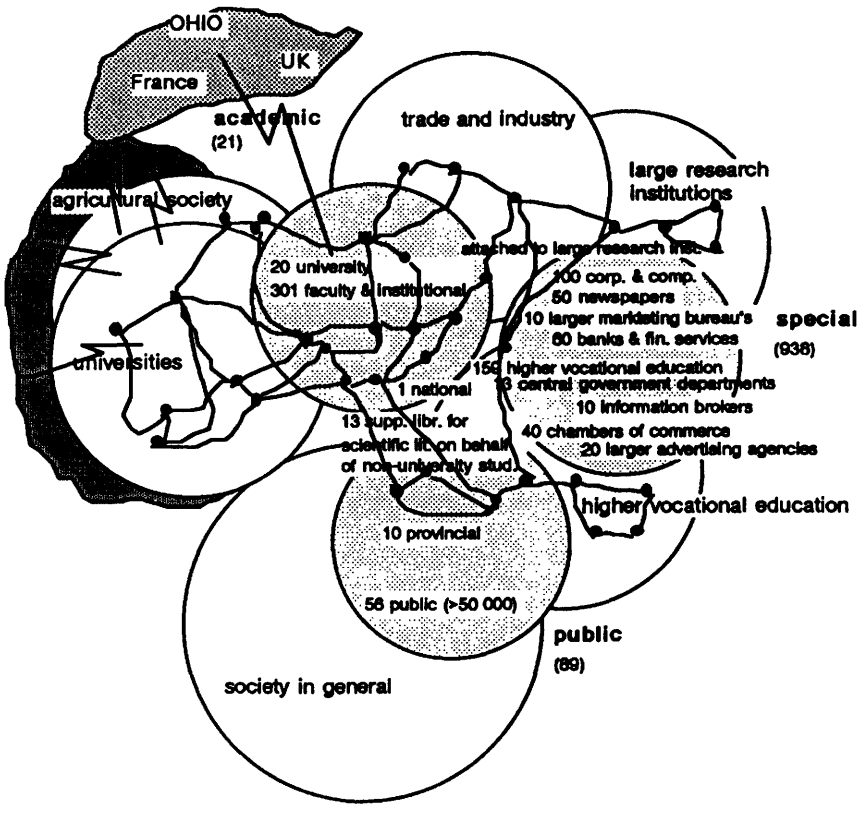

Fig. 5.8 International networking

5.2.1.2 PICAnet/Open Bibliotheek Netwerk

PICA and SURFnet cooperate in the development of an open integrated library network, supported financially by the Dutch government: Open Library Network (Open Bibliotheek Netwerk OBN). OBN is an intensified and enriched way to use SURFnet, in connection with the university local area networks. In this network library staff and users can use from each workstation the local PICA-facilities for on-line public catalogue and mail service (in LBS) and central PICA-facilities (GGC, NCC/IBL and ORS), without difficult log in -- log out procedures. The network facilities will make the linking transparant for the user. Both SURFnet and PICA maintain the policy to use OSI (Open Systems Interconnection) standards. PICA participates in OSI-developments specifically for library applications. In this context a Virtual Terminal Protocol, a Search Retrieve Update Protocol and an Interlibrary Loan Protocol were designed. The Virtual Terminal Protocol will make access possible to all PICA-local systems from one PICA-workstation. In order to achieve this, the PICA local library system (Lokaal Bibliotheek Systeem LBS-2) has to be redesigned. In LBS-3 the server and client machines which together comprise the system will be connected through an Ethernet LAN and work together on a PICA-3 protocol, that is

proprietary to the system but of which the above-mentioned VTP will be one of the spin offs in standardization. When OBN is complete, other non-PICA systems will be connected, provided that they support OSI-standards.
Till OBN is implemented, the libraries link their functions in PICAnet through PICAlink. PICAlink has restricted possibilities and is used only in the acquisition function to copy descriptions from the GGC for the local acqusition file. In OBN catalogued records will be available at the same time in the central GGC-database and in the local library catalogues. In the present solution cataloguing is done shared in the central system; the local systems receive the new data through weekly tape-output, so there is always a time lag.

When working in OBN, it will also be possible to use a new version of OPC for end users. In this version not only the catalogue of the library in question will be available on line, but in principle all the other catalogues and retrieval files of connected libraries as well. Although connection with the NCC/IBL system is technically possible, there are constraints for the implementation. The effect of direct end-user access to interlibrary loan facilities is difficult to predict. The fear is that the number of interlibrary loan demands will increase beyond the document delivery capacity of libraries.

The difference between the PICAlink facilities and working with OBN is visualized in the following figures.

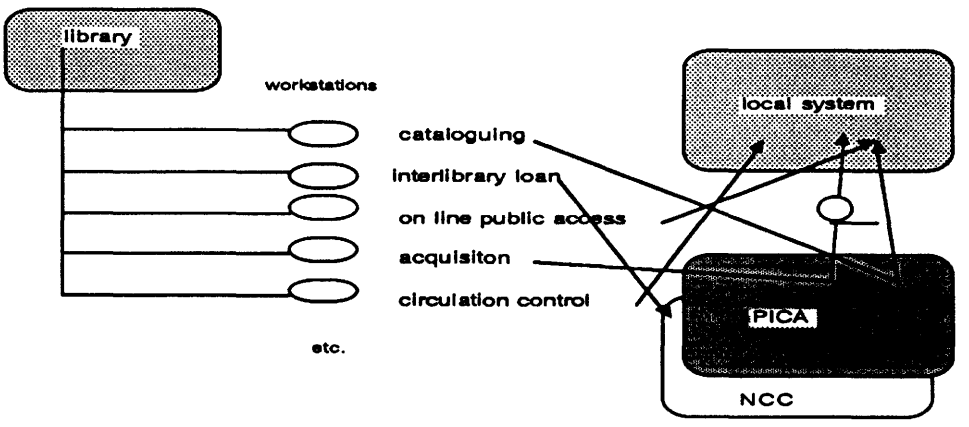

Fig. 5.9 Working with PICAlink

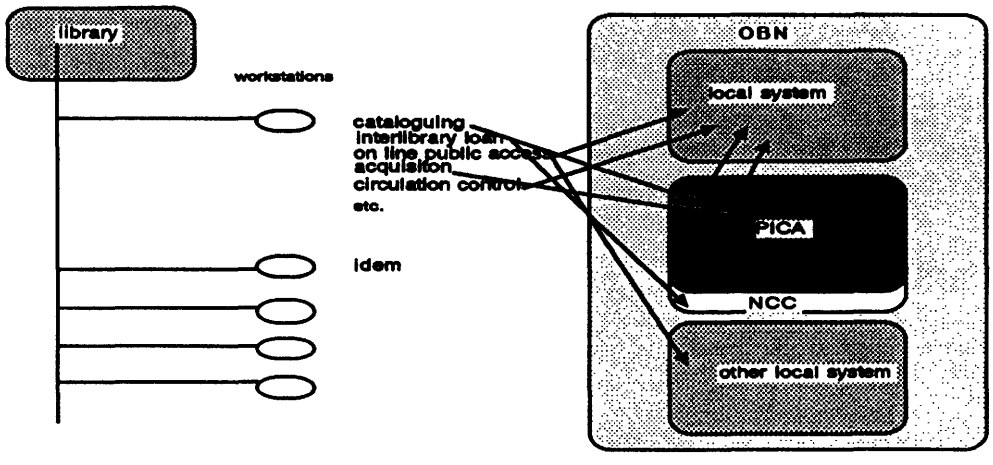

Fig. 5.10 Working in OBN

5.2.1.3 AGRALIN

The scope of AGRALIN (Agrarisch Literatuur Informatienetwerk Nederland) has been, from its beginning, to present catalogue and documentation information on agriculture in an integrated form.
There are 60 connected libraries and the database contains 580 000 reference items, with the possibility to gateway to the publications of the Federation of Agricultural Organizations FAO, and information about 6500 research projects.

Access to the files is possible through the public telephone network by terminal or pc, or through SURFnet, Agronet (the international agricultural network) and Datanet-1. The costs are:

- first time connection f 175.–, incl. user documentation
- connect time f 60.– per hour, with a minimum of f 200.– per hour
- it is advisable to follow an introduction course (f 150.–)

AGRALIN may be visualized as follows.

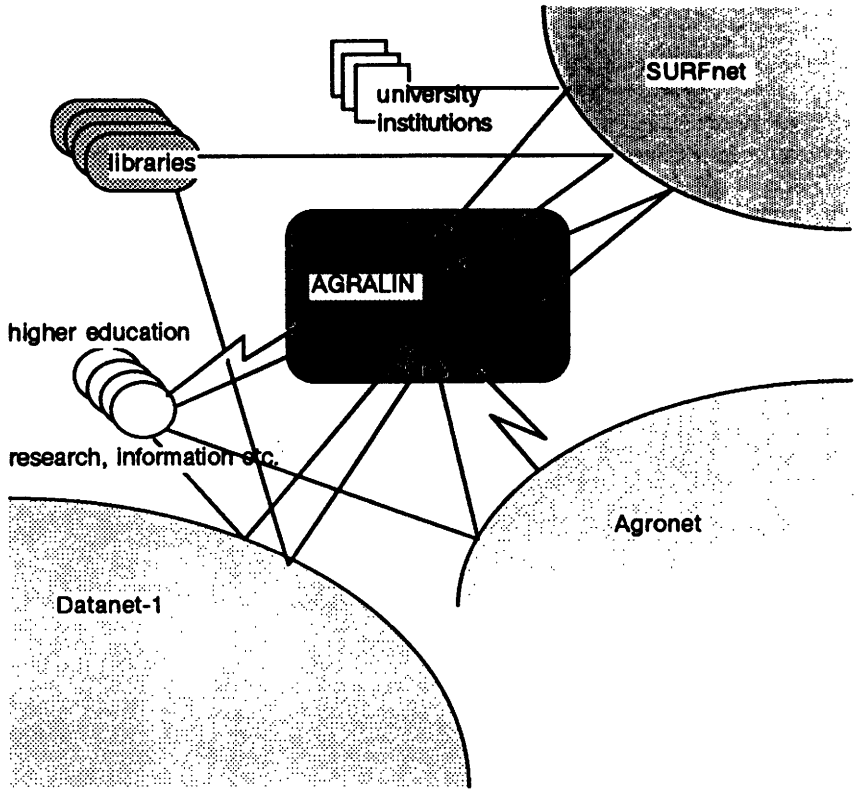

Fig. 5.11 AGRALIN

5.2.1.4 Technical University of Delft

The Library of the Technical University of Delft has a national task, to keep the technical union catalogue. In this role the library participates in the NCC/IBL for periodicals.The target group beside the university users are the professional workers in science and technology who are mostly employed in trade and industry. The library is also the technical library with the most important role in document delivery, so emphasis is laid on fast delivery procedures and techniques. Despite the NCC/IBL facilities, about 60 % of the user groups of the library seem to prefer to order photocopies directly from the TUD Library, because it is quicker and safer. The library decided to look for facilities for electronic document ordering and delivery, such as CD/ROM, electronic mail, telefax. This is called the DISTEL-project.

For the monographs, the library has built its own database, consisting of their own holdings and those of other technical libraries, in the DOBIS/LIBIS system the library uses, the AUBID-project. From 1989 on this catalogue is accessable for on-line searching by the central and faculty libraries.
The database contains 550 000 records; there are 200 connections (of which 37 are non-university connections) to AUBIDnet. The costs for a

connection are f 1800.– a year; there are no seperate fees for searching, only for output material.

In 1989 the library decided to lay emphasis on information retrieval and delivery facilities instead of cataloguing, in the MISTEL-project.
In this project the library works together with the library of the Royal Academy of Sciences and the library of the Agricultural University of Wageningen. Experiments were done with electronic supply from CD/ROM in the so-called ADONIS-project.
The network is also planned to be part of the international network facilities for scientific and technical literature, EIDOSTAS, European Infrastructure for Document Supply in the field of Technology and the Applied Sciences.

The position of the Library of the Technical University of Delft may be visualized as follows.

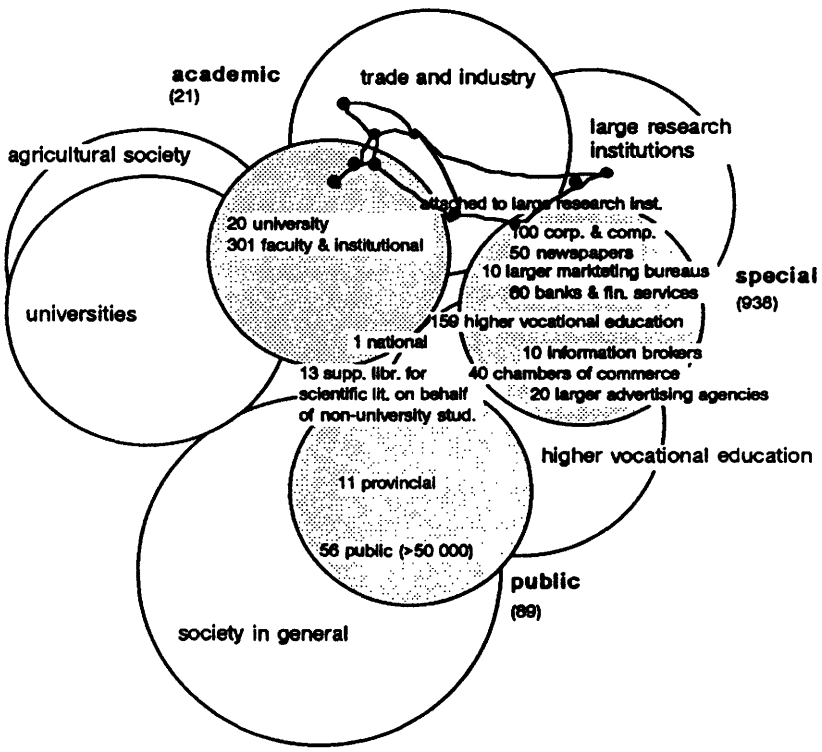

Fig. 5.12 AUBIDnet Delft

5.2.1.5 Boekdata

The Centraal Boekhuis, the clearing house for booksellers, operates the Boekdata database, in which books in print and books in stock are recorded. Booksellers may connect Boekdata through Datanet-1. It is also possible to work partly locally on a microcomputer. We could not obtain figures on the number of connections Boekdata has.

5.2.1.6 Library networks within a region, aimed at library cooperation

With the Provincial Library Centres as a starting point, public libraries within a region have set up networks for catalogue access and interlending facilities.
In provinces or larger cities, especially university cities, networks between libraries of different categories emerge. These networks are intended for cooperation between libraries, e.g. in interlibrary lending. Users are normally library staff members. In some cases the networks also are meant for the end users. But, in actual practice, the use of different types of catalogues (public and academic) is a barrier for end users. In this paragraph we describe the networks in which end user facilities are not dominant.

There is no central policy for networking on a regional basis, nor is there a special necessity for it. It just seems to be done as an effect of the possibilities of machine readable catalogues and networking facilities. The examples we came upon are:

- within the university environment the OPACs of the university libraries and institutional libraries are interconnected by way of SURFnet

- within cities

  * Rotterdam Bibliotheek- en Informatienetwerk ROBIN, in which an interactive connection has been made between the libraries of the Erasmus University and the City of Rotterdam; this network is used for consultation of each others catalogues and for loan demands; the access facilities were created by means of a Virtual Terminal Protocol for the libraries; in a further stage other institutions will be connected, such as the City Record Office, musea, higher vocational education institutions; the network will by then also be end user oriented
  * Utrecht library network, a connection between the University Library, the City Library and the Provincial Library was made; in this network three GEAC-configurations and PICA-GGC had to be connected

- within provinces

  * examples of public library networks are Noord- and Zuid-Holland and Overijssel (ALS), Zeeland (VUBIS) and Utrecht (GEAC)

  * in the province of Limburg, several networking initiatives seem to come together:

- network in GEAC-environment for public libraries, run by the Provincial library (SIBL)
- Infrastructure voor Higher Education (IHOL), an initiative to compose a regional union catalogue
- local library system (PICA-LBS) in the University Library Limburg
- the City Library Maastricht is a support library for scientific literature on behalf of non-university students (WSF-library); like the other WSF-libraries, the City Library makes use of the cataloguing facilities of PICA-GGC; there is no local catalogue, but the records were loaded in the local catalogue of the University Library

In the so-called LINK-project these initiatives came together. The network structure looks like this:

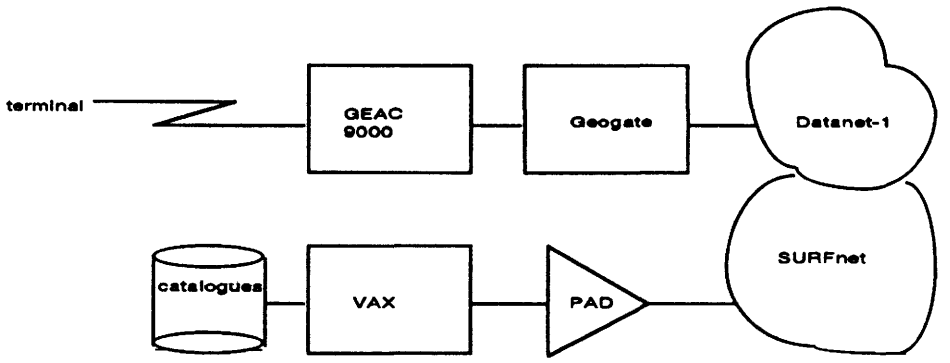

Fig. 5.13 LINK-project (courtesy LINK-project)

The LINK-project is part of a larger networking initiative PUPIL, in which end user information is also an issue.

- the Technical University of Eindhoven, the University of Brabant (Tilburg) and the provincial and city libraries of Eindhoven have a network together with connected VUBIS-systems

The networking within the library context may be visualized as follows.

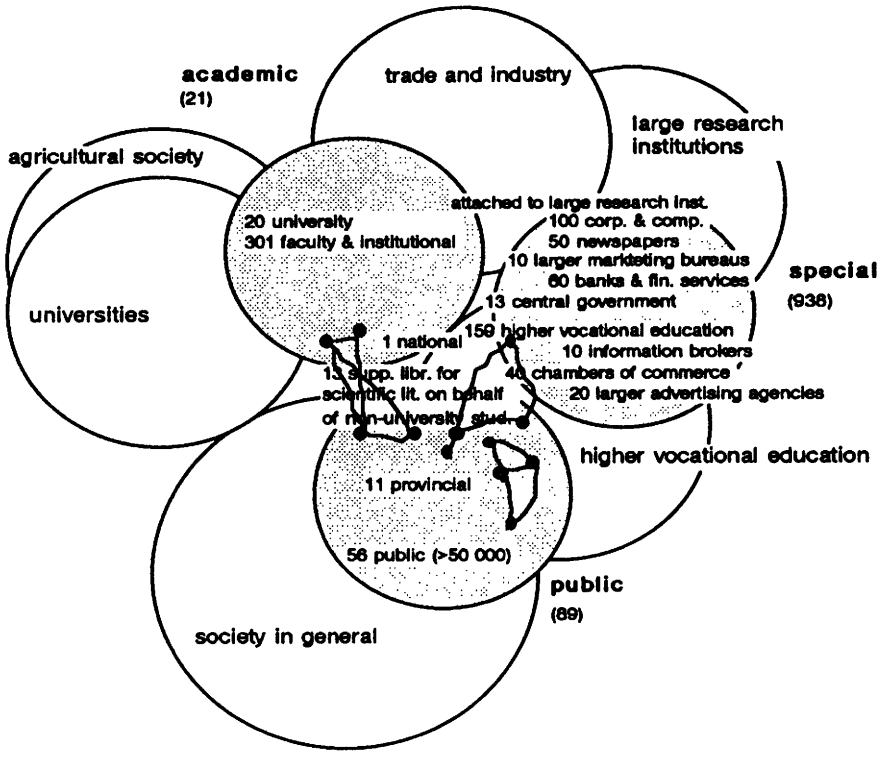

Fig. 5.14 Regional library networks

5.2.1.7 End-user networks

SURFnet may be seen as an end-user network for professional users, e.g. research workers and students. The libraries that participate in PICA use the network for library staff, but it is foreseen that in the future the on-line catalogues of the participants will be open to other universities as well. But some libraries fear that this will increase the pressure on library facilities, such as the demand for document delivery facilities. So it looks as if the technological development will not be the most important barrier.
Along with more professional facilities, some other kinds of information are offered to the users, such as lecture programs, agendas, etc. The experiments in some of the academic libraries were untill now not very succesfull. The same information is more easily available in print.

In the last five years the public libraries especially have been experimenting with networking for end users in a broader context than library information alone. Some of the experiments were part of larger projects aimed at the creation of an information infrastructure for end-users. It is not the policy of the Dutch government to create such an infrastructure with public funds, as France did with the videotex-service on Minitel. The private (but subsidized) initiatives are now growing along two lines: end user information through the telephone net, presented in videotex on cheap terminals, offered by the PTT, and end-user information through the local radio/television cablenet,

presented on television by means of a push-button telephone.
The information offered to the users is mainly information in the field of government, welfare, education, and employment, but sometimes it also includes recreational and tourist information, information about stray animals etc. and facilities like home banking, teleshopping, etc.

The best known experiments are:

- Informatie Project Almelo (IPA): community information on education, welfare, sports, etc.; Biblitel application, presentation in videotex mode; access points in libraries, city hall, tourist information office, etc.; IPA is now cooperating with a commercial firm, Brokerits, in an independent host organisation for the regio Twente
- Brabants Informatie Project (BIP); originally very ambitious technically; with so-called "chapeau software" a videotex simulation for transparant presentation of information from different sources was presented; with use of telephone network and radio/televison cable network; should bring information of local interest, such as news, city-council information, transport information, business information, teleshopping, telebanking, directories, library information; there were problems with the technique and commercial firms were not eager in using the network; also, the public (home access) was not as interested in the offered information, as was expected; the developed technology is now used by NEON
- Oosterhouts Digitaal Informatie Netwerk (ODIN): city-council information, directories, programs of cinemas, theatres, etc.; Wordperfect files, presented under videotex; access in the library and other public offices
- Informatie Project 's-Hertogenbosch: information on education, sports, tourist information, etc., gateway to BIP, videotex presentation; software Biblitel; access in the libraries and other public offices
- Actuele Groningen Informatie (AGI), a library initiative with a lot of actual information for the regio, such as on education, employment, real estate information, weather forecasts, city-council information, programs of concerts, theaters, etc.;it is now nationally available through Videotex Nederland; access points in libraries and other public offices
- Eindhovens Bibliotheek Informatie Netwerk (EBIN), participating in BIP, VUBIS system, offering a variety of community information on education, welfare, sports and employment; access in libraries and other public offices
- Publieks Informatie Gemeente Amsterdam (PIGA): originally a community information system of the city-council, but now operating in cooperation with the City Library of Amsterdam (follow-up of the LIA-project for community information); information on education, city-council information, social welfare; is not a videotex system, but a relational database system; access points in the libraries and other

public offices
- Haags Informatie Netwerk Stadsinformatie (HANS), originally Raads Informatie Systeem for the city-council only, but now extended as a library network too; videotex module ALS; access points in one quarter of The Hague

All the above-mentioned projects have been subsidized by the central government. In paragraph 4.3 it was already indicated that the minister of Welfare does not intend to subsidize more projects, nor increase the budgets for the ongoing ones. From 1991 onwards they have to be self-supporting or be financed locally.

In an evaluation report from NBLC on some of the projects a.o. the following statements were made:

- because electronic information is often cheaper and more easily available in printed form, the public is not very much interested
- the public is not yet used to electronic information retrieval, even in simple forms
- technologically, the networks are beginning te consolidate
- the experience that was built up in all these projects is extremely useful
- libraries should decide very carefully whether certain categories of end-user information belong to their primary tasks or not

The position of end-user networks may be visualized as follows.

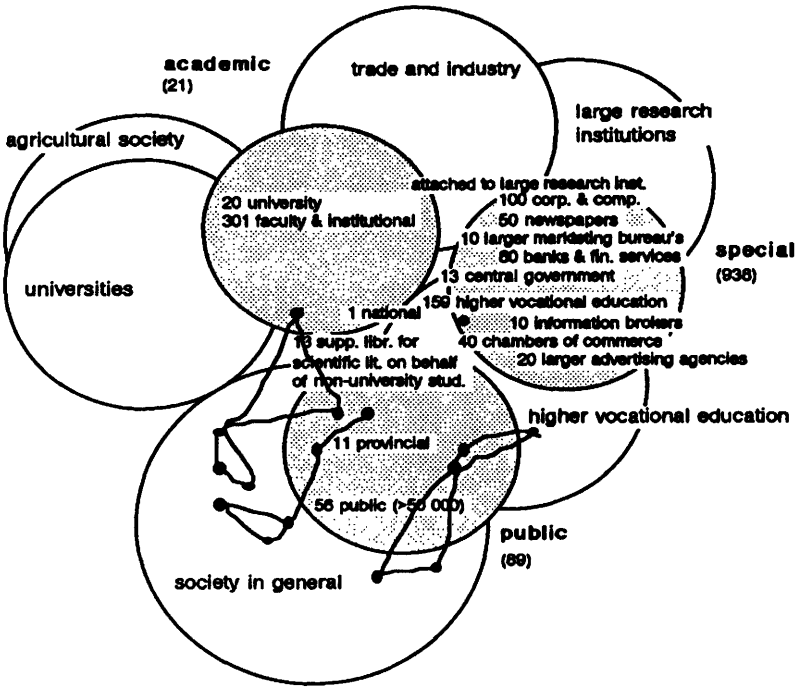

Fig. 5.15 End-user networks

5.2.2 On-line accessable catalogues

There are two ways to consider the situation of on-line accessable catalogues in the Netherlands:

- from the viewpoint of the catalogue offered
- from the viewpoint of access points

As both viewpoints have led to developments in the last five years, we will give information about them both. We will restrict this paragraph, however, to those on-line facilities, which are not part of an autonomous network.

5.2.2.1 Catalogues which are offered on line

The catalogues which are offered on line are offered

- through hosts or intermediate hosts
- on off-line machine readable media

There are three important hosts for catalogue information:

- PICA

- NEON
- RCC

PICA offers

- the Nederlandse Centrale Catalogus (NCC), the general union catalogue on line by (dial-up) telephone, Datanet-1 and SURFnet for every institution that has a subscription; by the end of 1990 there were between 300 and 315 connections, varying from libraries to research institutions and booksellers; the costs are f 1.25 per search; the interlibrary lending facility (IBL) is part of the contract; there is a special NCC-search technique
- smaller sets of catalogue and documentation records, like NESTOR (information on scientific literature that is in print), under ORS (On-line Retrieval System); the charge is f 2.-- per search and f 0.25 for a full bibliographic display

NEON is the host facility of the NBLC. NEON uses "chapeau software" for user friendly access to several different databases, such as newsitems (ANP, Algemeen Nederlands Persbureau), biographic information (also ANP), tourist information (Nederlands Bureau voor Toerisme), consumer information (CONSUTEL, Consumentenbond), indexes on Official Gazette a.o. (SDU Uitgeverij), Parliament (PARAC), etc. Amongst the databases offered are

- the catalogue and documentation files of the central government departments WVC (Welfare), ADION (Education and Science)
- documentation file TACO, created and maintained by the NBLC for the public libraries; it contains general information and information on literature in the Netherlands and abroad

Subscription to NEON is open to any institution. Subscription price for 1991depends on the use that is made of it. For intensive users the price is f 3120.-- for NBLC-members and f 3900.-- for non-members. For less intensive users it is f 780.-- for members and f 980.-- for ono-menbers.There is also a facility for incidental use, depending on the type of database consulted (first time between f 260.-- and f 520.-- and f1.-- resp. f 2.- per minute).

RCC used to be the State Computer Centre, but is now a commercial firm. Traditionally, the libraries of the central government turned to RCC for documentation and cataloguing facilities. So, from the eighties on, machine readable records were stored in the IBM-environment of the RCC. They were accessable through Stairs for internal use only. In the same environment the Proceedings of the Parliament (Tweede Kamer, comparable with the House of Commons) and the text of Acts were stored and made accessable through Stairs.

By now, RCC acts technically as a host for the databases of the libraries and the Parliament. Access contracts have to be made with the distinctive keepers of the databases. There are no restrictions to membership and a lot of institutions and libraries have subscriptions.
The databases are mainly documentation files. A selection is listed here:

- ADION (Education and Science)
- Foreign trade and economic abstracts ((Trade and Industry)
- BIZA (Home Affairs)
- V&W (Transport and Public Works)
- WVC (Welfare, Health and Culture)
- L&V (Agriculture and Fishery)
- SZW (Social Affairs and Employment)

5.2.2.2 Access points to machine readable catalogues

The access to machine readable catalogues may technically be possible, the real problem starts when the general user, or even the librarian, has to log in and search for information. The lack of standardization has led to the development of workstations and "chapeau software" which do the translating from one log in procedure into another and from one command language into another.

Another solution to access problems (and line costs) is to obtain off-line machine readable products to implement into a local network, or for stand-alone use only. The following catalogue and catalogue-like products are available as off-line products:

- Provincial Catalogue Brabant via ODIS (supplier of VUBIS) on CD/ROM
- Dutch Royal Library Disc; a cooperation between PICA, the Royal Library, and the Foundation Film and Research (Quadrant); on this optical disc the descriptions and the images are stored in color of the 90 most beautiful manuscripts in the Royal Library and the Museum Meermanno-Westreenianum; it may be searched with the PICA-OPAC-facilities; it is obtainable at a commercial firm for ca f 1100.–, and f 100.- for the computer program
- PICA/NBLC Reference Disc on CD/ROM; on this disc 19 files are stored, varying from the biographic catalogue of the University Library of Leiden to publications of the World Health Organization, from periodicals in supporting libraries for scientific literature on behalf of non-university students to a Dickens collection; the disc was made as an experiment to obtain experience; the disc is obtainable at NBLC for ca f 1500.–
- in the ADONIS-project, a document delivery project for interlibrary lending, publishers offer articles from 219 biomedical journals on

CD/ROM; use of the CD/ROM is possible on an ADONIS-workstation, consisting of laser-printer, personal computer, high resolution monitor and CD-player; costs for the workstation and for the subscription are ca f 60 to 70 000.-- each

- the databases of the central government departments of Welfare and Home Affairs are offered on WORM by NBLC; on the same medium the documentation records of TACO are offered
- an increasing number of catalogues on CD/ROM which serve as OPACs, replacing the off-line microfiche catalogues

5.3 Integrated library housekeeping systems

In this paragraph we present a survey of the situation of housekeeping automation in libraries in the Netherlands. In the appendix a list is given of all major systems that are in use. A profile is given of each system, with an indication of costs and an adress for further information.

We list only dedicated library systems, but it has to be kept in mind that there are supposably more automated library facilities on personal computers with DBase, CardBoxPlus and other database program facilities in use than dedicated systems. To give an example: in the universities more than 500 applications are in use in the area of library and information systems with CardBoxPlus. Those very small systems are normally made in-house, and sometimes copied by others.

We have put down information about the following functions:

- primary functions
  - * acquisition (ACQ)
  - * periodicals management system (PMS)
  - * cataloguing (CAT)
  - * on-line public catalogue (OPAC)
  - * information retrieval system (IRS)
  - * circulation control (CIRC)
  - * thesaurus (THES)
  - * management and statistics (M/S)
- secundary functions
  - * community information system (CIS)
  - * CD/ROM and Multi-media (CD/MM)
  - * gateway and kiosque functions (G/K)
  - * wordprocessing and office automation (WP/OA)
  - * videotex (Vtex)
  - * networking (N)

We made a distinction between academic, special and public libraries, but the blurred borderlines that are indicated in chapter 3 should be kept in mind.

Another remark should be made beforehand.
Given the dominant position of the shared cataloguing facility of PICA-GGC, cataloguing as a function is less relevant than it may be in other situations. To give an indication:

- libraries that make use of the GGC will often also use the PICA local library system LBS; the linking between the GGC and their local systems is, of course, very important
- the public libraries obtain catalogue information on tape through NBLC; the tapes are products from the GGC
- some libraries shifted from local cataloguing to shared cataloguing in GGC (University of Amsterdam, University of Utrecht, Free University); linking between their systems and PICA (resp. in-house developed, GEAC and CLSI) was developed in cooperation with PICA

The shared cataloguing situation may be visualized as follows.

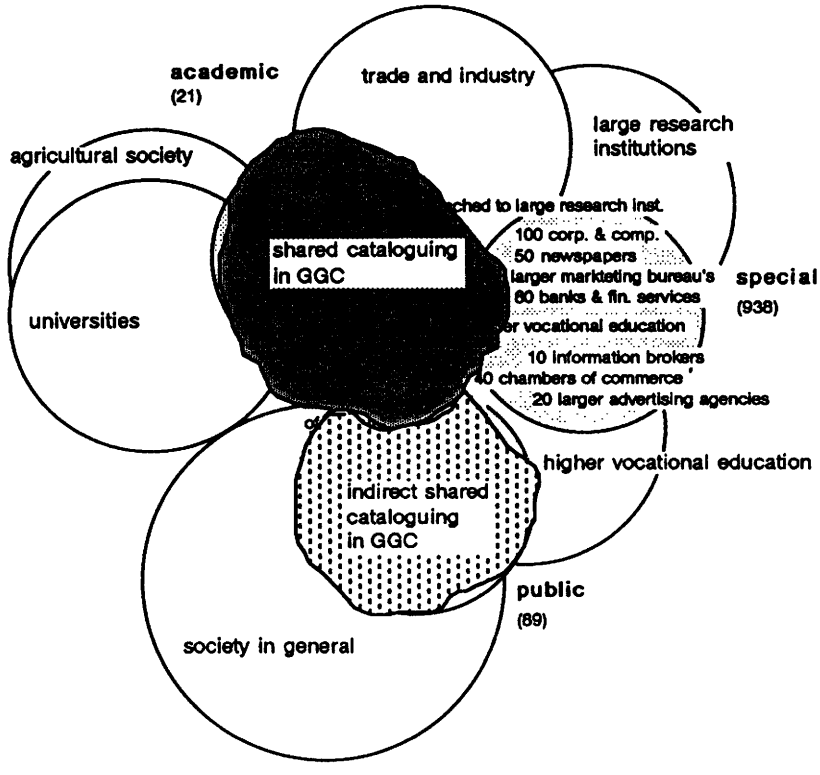

Fig. 5.16 Library cataloguing in the Netherlands

5.3.1 Number of integrated library systems

In the following chart, the number of installations of integrated library systems is presented. The figures are based on information given by the suppliers, but do not always correspond with the overall figures for libraries. There are two inconsistencies: some libraries are not listed in the Bibliotheek & Documentatiegids 1990-92, the library directory for the Netherlands, and sometimes libraries are counted as one for central and branch libraries together. Another inconsistency arises when there are systems which have been developed in-house. They are not subject of this

study, but for the overall figures for automated library functions they are counted in other statistics.

In the appendix more information about the systems is given.

	NUMBER OF USERS					
	found in Bibl. & Doc. Gids				not	
systems	acad.	spec.	publ.	subtot.		TOTAL
ADIOS					4	4
Adlib		32		32		32
Advance			1	1		1
ALS			187*	187		187
BASISplus/BASIS						36
Bib/Search		3		53	6	59
BIBIS	50	49		49	48	97
BIBLIS		2		2		2
BIDO					5	5
BRS/Search						32
Buks			1+12*	13		13
Cardbox plus	300	46	4	350		400
DATATREK		3		3		3
dLIB		78	2	80	50	130
DOBIS/LIBIS	1*	4		5		5
GEAC-LIS (GLIS)	1*	1	17*+70	85		85
ISOBAS	1*	6		7		7
Headfast						47
Inmagic						68
KAMBIS			2	2		2
LIBRA			1*+64	65		65
LIBS/100	1*	4	10*+25	40		40
MicroCairs					12?	12?
MicroLibrary		1		1		1
Mikro-polydoc	3	70			5	124
MINISIS	1			1		1
OCELOT				47		47
PC-Stairs	1	5			1	7
PICA-LBS	9	8		17		17
ROTA		7		7		7
SHELF		2		2		2
SISIS			1*+39			40
STAR					6	6
Status				12	55	67
Strix				137	163	300
TechLib				1		1
TINLIB	1	10		11	28	39
TOBIAS		2	39	41		41
VUBIS	3	37	4*+10	54		54
*central system						

Fig. 5.17 Number of users of integrated library housekeeping systems

5.3.2 Functions

Because it might be useful to have an impression of the size of the different systems, the following chart makes a distinction between large or mainframe systems, middle sized or mid-range and smaller or pc-systems. Although the categories are not watertight (a large pc-system may be more powerful than a small mid-range system), we assume that the distinction corresponds roughly with 100 to 1000 connected terminals for mainframe systems, 20 to 150 for mini systems and up to 20 for pc-systems.

	Systems by size		
	large	middle	small
systemen			
ADIOS			x
Adlib		x	
Advance		x	x
ALS		x	
BASISplus/BASIS	x		
Bib/Search		x	x
BIBIS		x	x
BIBLIS			x
BIDO			x
BRS/Search	x	x	x
Buks		x	x
Cardbox plus			x
DATATREK			x
dLIB			x
DOBIS/LIBIS	x		
GEAC-LIS (GLIS)	x	x	
Headfast		x	x
ISOBAS	x	x	
Inmagic		x	x
KAMBIS		x	
LIBRA		x	
LIBS/100		x	x
MicroCairs			x
MicroLibrary			x
Mikro-polydoc			x
MINISIS	x	x	
OCELOT			x
PC-Stairs			x
PICA-LBS	x	x	
ROTA			
SHELF	x		
SISIS/SIAS	x	x	
STAR		x	
Status	x	x	
Strix		x	x
TechLib	x		
TINLIB		x	x
TOBIAS		x	x
VUBIS		x	x

Fig. 5.18 Size indication of integrated library housekeeping systems

In the following chart the functions offered in the systems are explained, divided in primary and secondary functions.

	Primary and secundary functions offered								
	Primary								
systems	ACQ	PMS	CAT	OPAC	IRS	CIRC	M/S	THES	ILL
ADIOS	x	x	x		x	x	x 1		
Adlib	x	x	x	x	x	x	x		
Advance	x	x	x	x	x	x	x		
ALS	x	x	x	x	x	x	x 1		
BASISplus/BASIS					x				
Bib/Search					x				
BIBIS	x	x	x	x	x	x	x	x	x
BIBLIS	x	x				x			
BIDO	x	x	x	x	x	x	x		
BRS/Search					x			x	
Buks						x	x		
Cardbox plus					x			x	
DATATREK		x							
dLIB	x	x	2		2	x	x	x	
DOBIS/LIBIS	x	x	x	x	x	x	x	x	x
GEAC-LIS (GLIS)	x	x	x	x	x	x	x	x	
Headfast	x	x	x	x	x	x			
ISOBAS		x	x	x	x	x			
Inmagic	x	x	x		x	x			
KAMBIS	x	x	x			x	x		
LIBRA			x			x	x		
LIBS/100	x	x	x	x	x	x			
MicroCairs				x	x			x	
MicroLibrary	x	x	x	x	x	x	x		
Mikro-polydoc					x				
MINISIS					x			x	
OCELOT	x	x	x	x	x	x	x		
PICA-LBS	x	x	x 3	x	x 4	x			
PCStairs			x		x				
ROTA		x							
SHELF	x	x	x	x	x	x		x	x
SISIS	x	x	x	x	x	x	x		
STAIRS									
STAR	x	x				x		x	
Status			x		x			x	
Strix			x						
TechLib	x		x	x		x			x
TINLIB	x	x	x	x		x	x	x	x
TOBIAS	x	x	x	x		x	x		
VUBIS	x	x	x	x		x	x	x	
1) in each module			3) for some materials						
2) via Strix			4) menu version OPAC						

Fig. 5.19 **Primary functions**

	Primary and secondary functions offered						
	Secondary						
systemen	CIS	CD/R	G/K	W/OA	Vtex	Netw	
ADIOS							
Adlib				x		x	
Advance	x					x	
ALS	x	x	x			x	
BASISplus/BASIS							
Bib/Search							
BIBIS		x				x	
BIBLIS							
BIDO							
BRS/Search		x					
Buks							
Cardbox plus		x		x		x	
DATATREK							
dLIB							
DOBIS/LIBIS			x			x	
GEAC-LIS (GLIS)	x	x	x	x	x	x	
ISOBAS							
Headfast							
Inmagic							
KAMBIS							
LIBRA							
LIBS/100	x	x	x			x	
MicroCairs							
MicroLibrary							
Mikro-polydoc							
MINISIS			x			x	
OCELOT						x	
PC-Stairs							
PICA-LBS	x					x	
ROTA							
SHELF							
SISIS/SIAS		x	x			x	
STAR							
Status							
Strix							
TechLib							
TINLIB							
TOBIAS	x	x	x	x	x	x	
VUBIS	x	x	x			x	

Fig. 5.20 Secondary functions

Some systems offer nearly all or all functionality, others only a few functions. It could be interesting to consider the clustering of functions, in relation to the number of systems in which the functionality in question has been installed. In the following chart, the combinations of functionality are given, with the figures for implemented systems. We reserved the term "functional configurations" for it.
The functional configuration figures, however, give a flattering impression of the penetration of automation in library housekeeping, because libraries may have bought functionality but do not use it. We got the impression that that is rather often the case.

Functions in functional configurations										
Academic libraries										
ACQ	PMS	CAT	OPAC	IRS	CIRC	M/S	G/K (PICAlink)	CD/ROM	T	Number
x	x	x	x	x	x	x	x			2
x	x	x	x	x	x	x	x	x		1
x		x	x		x					2
		x	x							1
x	x	x	x			x				1
x		x	x		x					7
x		x	x		x				x	1
x		x			x					1
x		x	x							1
16	4	17	16	3	8	4	3		1	17
percentages										
94	24	100	94	18	89	18	18	6	6	

Fig. 5.21 Functions in configurations/academic libraries

Functions in functional configurations							
Special libraries							
ACQ	PMS	CAT	OPAC	IRS	CIRC	M/S	Number
x	x						6
x	x	x					4
x		x		x	x		50
x	x	x		x	x		23
x	x	x			x		4
	x			x			2
					x		6
	x				x		5
	x			x			20
				x			450
x							3
		x					4
x	x	x		x			4
	x	x		x	x		1
	x	x			x		1
x	x				x		6
x	x	x	x	x	x	x	30
x	x	x	x	x	x		13
x		x	x	x	x		10
x	x	x			x		3
x	x	x	x				1
		x	x				20
	x	x	x		x		5
	x	x	x	x			1
x	x	x	x		x		67
x		x	x		x		35
x	x	x	x				2
		x	x		x		11
	x	x	x				9
		x		x			7
		x	x	x			2
	x	x	x	x	x		2
x	x	x	x	x			1
		x	x	x	x		7
	x	x		x			6
x					x		1
		x		x	x		12
		x			x		2
		x	x		x	x	2
x		x	x		x	x	1
					x	x	1
		x	x	x	x	x	2
	x	x	x	x	x	x	1
x		x			x		1
x					x		1
		x	x		x		1
x		x	x		x		1

Fig. 5.22 Functions in configurations/special libraries

Functions in functional configurations								
Public libraries								
ACQ	PMS	CAT	OPAC	IRS	CIRC	M/S	CIS	Number
x		x	x		x			14
x	x	x	x	x	x	x		1
x	x	x	x	x	x	x	x	1
x		x	x	x	x	x	x	1
x		x	x		x	x	x	4
x		x			x	x		1
		x	x		x		x	6
		x			x			26
		x			x		x	2
		x	x		x	x		12
		x	x		x			3
		x	x					2
		x	x	x				1
		x	x		x	x	x	2
			x					7
			x		x			3
					x			4
					x	x		9
22	2	76	57	4	89	31	16	99

Fig. 5.23 **Functions in configurations/public libraries**

5.4 IT-based user services in libraries

In the study specification the following was stated:

"This chapter should update the information provided in the original LIB-2 only where there are known areas of significant increase in the introduction of the services covered.
New information:

The study should, where possible, provide information on IT-based user services which have been introduced by and into libraries since the compilation of LIB-2. It should in particular identify:

- services which handle new types of information (for example, additional bibliographic files not relating to materials held in the library, local or community information files);
- services offered by the library which are delivered in an innovative way or which allow new means of access to the user (for example, gateways to other systems and databases, access via videotex and use of kiosqu- based services, etc.)"

In the study of 1986 services for additional bibliographic files, local and community information files, gateways and videtex presentation are already indicated. There has been a certain increase in the use of these services, but not significantly. This is remarkable as there have been several initiatives, for instance in the creation of networks for local or regional use. The organization of libraries with a support function for scientific literature on behalf of non-university students did an experiment in their libraries with facilities for a range of databases. But, on the whole, we must conclude that there were no important effects in IT-based use by end users.

Consequently, this paragraph has little to offer. Most library effort still goes to technology as a tool for librarians. Those services which we came upon that had something promising or interesting are listed underneath.

5.4.1 OPAC

Although some libraries do have a policy to divert their interest from cataloguing and housekeeping to user services, only the on-line public catalogue is an outstanding feature in this field. Since 1986 the implementation of OPACs has increased significantly.
Also, it looks as if the public has accepted the on-line catalogue as a better way of access than card files or microfiche. But we noted a remarkable feature: not so much the technological problems, but the library terminology and procedures are new to the public and act as a barrier in easy use of it. Maybe we should not only keep the public in mind, but also more specialized users. In university libraries subject specialists are interested

users of the OPAC for subject indexing and collection maintenance. For this objective they download catalogue information to their workstations for further handling. In some cases researchers do the same.

The experiment of the Royal Library, the University Library of Tilburg and PICA with the creation of a Contents database for articles in periodicals is a new development which looks promising.

5.4.2 Others

Most larger libraries have commercially bought CD/ROM-publications for public use.

The public libraries have tried to make available to the public all kinds of community information through networks, based on video presentation. Information about the networking was given in the previous paragraphs. It was already noted that the success is not overwhelming, possibly with the exclusion of AGI (Groningen), that is presented through the facilities of Videotex Nederland, in a broader context than the library context.

The host organization NEON of NBLC offers databases that are also available by other means in an user-friendly presentation. This interface will in future be complemented by document delivery service on line, for instance through remote printing. Untill now, however, the document delivery relies on an organisational network, in which the libraries with a support function for scientific literature on behalf of non-university students play the main role.

NBLC offers a standard training set in on-line searching and the use of CD/ROM for library staff and end users, consisting of a network and written material, and supported by training staff.

The public libraries in the provinces Friesland, Noord-Holland and Overijssel started a BIBLIOFOON. By way of a so-called 06-number the public may make telephone contact with an information desk and put forward any question; library staff with a special training uses all the information material in the library to answer the question, if possible immediately.

The Library of the Technical University of Delft is developing a very fast document delivery, by way of electronic mail, telefax, etc.

6. Summary, major changes and trends

6.1 Summary

In this LIB-2 update study a survey is given on four key issues:

- machine readable record resources
- network access to machine readable record resources
- integrated library housekeeping systems
- information technology-based user services

The study was carried out by using mainly the knowledge of corporations, utilities, vendors and suppliers, by consulting the literature and by discussing the main issues with a forum of key persons. There is not much quantitative information available, and the available information is not always up to date. Consequently, this study is as effective as can be for policy makers, but not detailed enough to be used as a reference work.

Because the key issues which were given are not easily explained without some insight in the situation in the Dutch library world, two chapters were dedicated to give a survey on cooperation, shared cataloguing, union catalogues and interlibrary lending facilities. Two important organizations in the Netherlands are PICA and NBLC. Their role was explained.
In addition to this, a short description of the technology assessment situation in respectively academic, special and public libraries was given.

The situation around machine readable record resources in the Netherlands is rather dominated by PICA. PICA operates an extensive database for shared cataloguing service, GGC. Most academic, a number of special and directly or indirectly all public libraries rely on this service. On the GGC is based the general union catalogue with interlinrary lending facilities.
Other resources to be mentioned are the AGRALIN-database of Wageningen, with bibliographic and documentation items on agriculture (also the union catalogue on agriculture), the AUBID-database of Delft (also the union catalogue for scientific technical literature) and smaller databases, some rather specialized, like STCN, with records on printed books, printed between 1540 and 1800.

Network access to machine readable records has developed well in the last five years. We made a distinction between networks with an autonomous status and networking around machine readable catalogue files.
We noticed that autonomous networks may be target group-oriented or region-oriented.
PICA shifted from a dedicated library network to SURFnet, the network of the Dutch universities. By doing this, the effect of library networking has increased significantly, not only nationally, but also internationally.
In cooperation with SURFnet an open library network will be developed,

which links the local library systems transparantly to the central facilities. PICA has adopted ISO-standards for bibliographic applications. As a consequence, the connectivity to other than PICA systems will increase. Next to PICA the major target group-oriented networks are AGRALIN and AUBIDnet. They both serve a special user group. Reliable and fast document delivery facilities are important factors behind especially AUBIDnet.
The public libraries have tried in several ways to develop user friendly regional networks for end users. Emphasis was laid on community information. The experiments were evaluated and the public libraries are now finding ways to standardization and communication between the experiments.
Networking around machine readable catalogues is seen around the general union catalogue NCC, for which PICA is the service organization, and around the databases that are offered by NEON in a user friendly way. Further there are the databases from the libraries of the central government departments and the Parliament, which are offered by the RCC, but no significant developments can be noted.

There is a variety of integrated library housekeeping systems in use. We have taken some forty into consideration. Most of them offer a rather complete functionality. Because of the special of PICA's shared cataloguing facility GGC, it is important that linking possibilities are developed between some commercial systems, like GEAC and ALS, and PICA-GGC. There variety in systems used is more evident in the special and public libraries than in the academic libraries, where there has been a tendency towards PICA.

Concerning IT-based user services there is not much to report on. Most libraries use information technology mainly as a tool for their library work, but the use of OPACs has increased resaonably.

6.2 Major changes and trends

The following is a comment by the authors of the study on its results.

From the short summary the picture arises of a process of consolidation and standardization. The previous five years did not show dramatic changes in the situation of technology assessment in the libraries in the Netherlands. Library automation did become a normal feature of library life.
In the academic library category the already strong position of PICA became even stronger when three university libraries with other systems than PICA-GGC were connected to the GGC by PICAlink.

In the special library category there remained the same variety of systems, but more libraries were automated and more functions implemented.
For the public library category the same may be said.

In all library categories the on-line public catalogue is a fast growing feature. The facilities for interlending through NCC/IBL and the facilities for shared cataloguing in GGC worked together to a convergence of activities around cataloguing and union cataloguing in NCC/IBL.

The overall impression is one of a saturated market, a replacement instead of a first time users' market.

But there have also been some events, which, although consistent with the past, may, in time, effect important changes. These events are the following

- the shift from PICAnet to SURFnet
- PICA's policy to change from self developed software to OSI-standards
- the tendency to integrate the local functionality with the central functions in PICA's OBN

The originally rather closed PICAset-up will be open and transparant for user groups in future because of the wide reach of the university networking, and the PICA central facilities will be connectable for all kinds of local facilities, provided that the systems support the OSI-standards.

In the public libraries the last five years have been years of experiments with networking, database-exploitation and crossing of borders when it comes to the range of traditional library tasks by offering all kinds of community information. The lack of an infrastructure for cheap (home) access has been one of the problems which made it not so easy to make experiments a success.
The experience has been useful, but the experiments have not grown beyond local or regional effects. The variety of systems and the variety of networking experiments will not make it easy to come to a consistent library policy on a national level. The new Welfare Act brings even more decentralization of responsibilities, so that standardization will not be a simple matter.
In this context we expect that the fact that PICA supports strongly OSI-standardization will be of importance. Suppliers who support the same standards will in future have better possibilities in the market of public and special libraries than those who do not.

Although it may not look like a major change, the following is also not unimportant. In some special libraries the library, documentation and archive functions were brought together in one organizational structure. Where traditionally the fields are seen as quite apart, because of the different status of the documents, the document is no longer the orientation point for questions of selection, preservation, disclosure, etc., but the information contained in the document. This could mean that a trend has set in in which

despecialization is an important feature.

It also leaps to the eye that special libraries tend to decrease their activities in library and documentation, but are relying more heavily on other libraries. With decreasing funds everywhere, charging of coststs comes into practice. Also in the experiments in the public libraries it became clear that the public is less interested in information -even free- than was expected. It looks as if electronic services will be more effective in surroundings where information is "raw material" for which a price has to payed, or in surroundings where added value, e.g. thesaurus facility, common classification, fast document delivery, is worth ist extra costs.

For the more technical side of library technology we expect about the same trends as everywhere for future automation:

- distribution of workload to pc's
- networking as the most important future development
- Unix-environment as standard for system software
- standard packages, with decreasing influence of e.g. university computer departments
- complete functionality in all packages

These developments will, we think, support at the same time the growth of technological cohesion in library service at national and regional level and the possiblity for local variety in machines, software and public service.

APPENDICES

PROFILE OF ADIOS

System	:	ADIOS
Category	:	Modular PC-based system
Hardware	:	Single-user and network versions on computers with MS-DOS, OS/2, Unix and Novell
Representative (supplier)	:	De heer J.C. Dekker Computerij B.V. Afd. ADIOS Bügelstraat 4 / Postbus 99 7950 AB STAPHORST Tel.: 05225-9911 Fax : 05225-1082
Features/functions	:	ADIOS is based on a relational DBMS. ADIOS has been sold to supplment an existing IRS application with library management components. Within each component a library can define menus, options, screen and print lay-outs (a "windowing" feature will be on the market soon). Modules exist for - cataloguing - acquisitions - circulations - PMS To each module submodules can be attached for addresses, budgeting and statistics non-library applications incl. marketing information systems.
Number of installations	:	5
Price of a single-user configuration*	:	ECU 3.500 - 5.500, excl. h/w

Pricing policy:

Price plus 10-15% of the purchase price for new releases for maintenance annually after the first year.

PROFILE OF ADLIB

System	:	ADLIB
Category	:	On-line integrated library system
Hardware	:	PRIME 50 series multi-user minicomputers under Unix, VMS and NOVELL
Representative (supplier)	:	Mevrouw Karin Nieberg DATABASIX Information Systems B.V. (i.o.) Rijnzathe 8 / Postbus 179 3454 ZK DE MEERN Tel.: 03406-62455 Fax : 03406-65033
Features/functions	:	ADLIB is a dbms/information retrieval software. It is modular and the basic package consists of: - basic module . dbms . query language . menu management . catalogue database . OPAC . acquisition database . PMS - free-text module - thesaurus module - menu-driven circulation system The basic packages is supplied turnkey. Optional modules are: - Tools (for modifications in the dbms) - conversion modules: ADLIB has a PICA-Link for cataloguing based on developments within the libraries of the Dutch Library Schools, as well as MARC interfaces - statistics. ADLIB can be used in conjunction with (high)school administratieve systems.
Number of installations	:	24
Price of a standard configuration*	:	The basic package (see features) starts at ECU 10.000,--. The requested standard configuration would be appr. ECU 40.000,--.

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

Pricing policy:

Price plus 15% of the purchase price for new releases annually, incl. maintenance.

PROFILE OF ADVANCE

System : ADVANCE

Category : portable integrated local and on-line library system

Hardware : Advance supports a direct cursor addressed terminal, incl. C. Itoh 324, GLIS Informer. The ICON 4000 computer features 8 mb of Core memory 4MB of Disc cache memory and 3 separate processors looking for different functions. The operating systems for the ICON are UNIX and PICK. ADVANCE runs under PICK. UNIX supports all of the communications facilities and acts as the core operating system.

Representative (supplier) : Geac Computers bv
Herengracht 481
1018 BT AMSTERDAM
Tel.: 020-273666
Fax : 020-258324

Features/functions : Advance functions are:
- cataloguing
- OPAC, incl. gateways
- authority control
- circulation, incl. ID Systems barcode scanners
- acquisition
- PMS
- output generator
- management.

The ADVANCE system includes multiple levels of organization for purposes of establishing separate circulation policies, selectively displaying local holdings first in the on-line catalogue, etc.
The first three levels arbitrarily are called institutions, sublocations, and collections. Some libraries may prefer to think of these as campus, library and collection; library, branch and collection; etc.

Three different networks are supported:
- Arcnet for the distributed terminals in the library,
- Ethernet for wide area networking within an organization, and
- Novell for PC networking.

The ADVANCE system is a comprehensive integrated library system. It supports all LC MARC formats for bibliographic, authority, and holdings

		information. Direct key, browse list, keyword, and phrase searching are supported. Extensive locally-maintained menus, command prompts, and help screens are provided.
Number of installations	:	1
Price of a standard configuration	:	ECU 30.000,--; maintenance appr. 10% annually of the list price; software appr. $ 5.000,-- per module, with a maintenance fee of 15%.

PROFILE OF ALS

System	:	ALS
Category	:	Integrated on-line library management system.
Hardware	:	ALS System 88 Multi-processor.
Supplier	:	Mr. Piet Kessels ALS Automated Library Systems Netherlands B.V. De Brauwweg 52 3125 AE SCHIEDAM Tel.: 010-4374255 Fax : 010-4374750
Features	:	Established in 1966 Automated Library Systems Limited (A.L.S.) is a British company dedicated to library automation. ALS offers a complete range of data capture terminals capable of handling all industry standard codes and the discrete ALS Booklabels. Equipment is purpose built, to maximise throughput, the terminals are ergonomic, with added intelligence to ensure excellent response time even at peak periods. ALS provides Multilingual packages using any of the following formats: MARC, MAB, PICA, UNIMARC. The System 88 Features: - circulation - cataloguing, incl. downloading of tape input from bibliographical utilities - OPAC with 1. Touch operated Browser 2. Keyboard operated terminal - gateways and OSI interconnection - acquisitions - periodicals management - stock management - community information system - CD-ROM - PICA-Link.
Number of installations	:	6 systems centres + 181 libraries connected (branches not included)
Price examples	:	Prices of ALS systems will vary as each system sold is configured to meet the individual customers requirements. ECU 150.000,-- or more (turnkey, incl. terminals). 12% annually of the purchase price for new releases and maintenance.

PROFILE OF BASIS/BASISplus

System	:	BASIS/BASISplus
Category	:	Information management system
Hardware	:	IBM mainframe, DEC VAX, UNIX
Representative (supplier)	:	Drs. Hans Richters Cap Gemini Pandata Produkten Burgemeester Elsenlaan 170 2288 BH RIJSWIJK Tel.: 070-3957128 Fax : 070-3992057
Features/functions	:	BASISplus is a complete information management system designed to handle a wide variety of text and compound document management applications. BASISplus uses an open architecture to provide information storage and retrieval facilities for applications requiring records management of document databases. Several specific document oriented record types and flexible user interfaces are available to allow the development of document and library applications.
Integration	:	All-in-1 interface available.
Number of installations	:	36
Price	:	Mainframe/minis from ECU 11.000,-- to 160.000,--. Special licences available. Maintenance: 12% of list price per year.

PROFILE OF BIB/SEARCH

System	:	BiB/SEARCH 3.0
Category	:	Textbase software
Hardware	:	PC based MS-DOS and UNIX.
Representative (supplier)	:	EPMS B.V. Postbus 1059 6201 BB MAASTRICHT Tel.: 04457-2275 Fax : 04457-2148
Features/functions	:	For database management of downloaded data from on-line files and other external databases such as CD-ROMS etc. used mainly by on-line researchers in the bio-medical field. Interactive updating of records Authority control Includes report generator and conversion module.
Number of installations	:	10
Price	:	Dfl. 2.000,-- for single user system. Optional: Setup, design, Dfl. 2.000,-- first day, Dfl. 1.500,-- extra day.

PROFILE OF BIBIS

System	:	BIBIS
Category	:	Integrated modular library automation system
Hardware	:	H-P (Hewlett Packard) with O/S = MS/DOS, UNIX (Xenix), Networking, VMS
Representative (supplier)	:	De heer Lou G. Mom Square B.V. Buitenop 5 / Postbus 329 6040 AH ROERMOND Tel.: 04750-34999 Fax : 04750-11675
Features/functions	:	The single-user and multi-user modular interactive library system cataloguing, incl. thesaurus module. OPAC, incl. on CD-ROM circulation IBL PMS administration statistics import/export (to output generator IRS (based on PBX)
Number of installations	:	97
Price of a standard configuration*	:	ECU 15.000,-- excl. hardware; prices depend on hardware (VMS, Unix, MS-DOS, networking), number of terminals and size of database (number of titles).

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

Pricing policy:

Price between 8 and 13% of the purchase price for new releases annually and maintenance.

PROFILE OF BIBLIS

System	:	BIBLIS
Category	:	Modular integrated library system
Hardware	:	IBM-PC compatible microcomputers and mid-range computers
Representative (supplier)	:	Mevrouw Princen Computer Systems De Schimmerik 11 C / Postbus 121 5500 AC VELDHOVEN Tel.: 040-543355 Fax : 040-
Features/functions	:	BIBLIS is a "off-the-shelf" and modular library system (BIBLIS stands for BIBliotheeks Informatie Systeem) with the following functions: - Cataloguing - Acquisition - PMS - Circulation for the special library market
Number of installations	:	2
Price	:	> ECU 10.000,--

PROFILE OF BIDO

System	:	BIDO
Category	:	Modular stand-alone and integrated library system
Hardware	:	MS-DOS PC's and Unix computers
Representative (supplier)	:	De heer K. Hilberink Hilberink VOF Boven Vredenburg 65 (HC) 3511 CW UTRECHT Tel.: 08380-51177 Fax : 08380-18432
Features/functions	:	BIDO software is based on the 4 GL Magic Tool dbms and written in C. There are single-user, multi-user, standard and tailor made configurations. BIDO is multilingual (up to 100 languages). A special feature is its knowledge database to make expertises accessible. OPAC Cataloguing IRS (incl. full text) Circulation (bar code) Acquisition PMS Management and statistics
Number of installations	:	5
Price of a standard configuration*	:	A module is priced appr. Dfl. 2.500,-- making the smallest full version appr. Dfl. 19.000,--. A multi-user, multilingual and Unix configuration, excl. hardware, will be Dfl. 50.000,-- and more.

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

Pricing policy:

Price plus 10-12% of the purchase price for maintenance and for new releases annually.

PROFILE OF BRS/Search

System	:	BRS/Search
Category	:	Free-text information retrieval software
Hardware	:	IBM or IBM compatible main frame computers, incl. DEC VAX and Unix family machines
Representative (supplier)	:	Mr. Leo Faber BRS Software Products "De Gelderlander" Gele Rijdersplein 16 6811 AP ARNHEM Tel.: 085-579922/600 Fax : 085-438636
Features/functions	:	BRS/Search is a free-text information storage and retrieval software for handling large databases containing formatted and full-text information. BRS/Search indexes the exact location of each index term in a document, paragraph, sentence and of each word position within a sentence. BRS/Search is used in library and documentation services, as well as in legal research, market research, newspaper libraries, etc. Examples in the Netherlands are the Rijksinstituut voor Volksgezondheid en Milieuhygiëne (RIVM) in Bilthoven and ITT World Directories (Publitec) in Amstelveen. New on the Dutch market is LOIS, but there is not yet any application at the time of the compilation of this survey.
Number of installations	:	32
Price of a standard configuration	:	ECU 100.000-125.000

PROFILE OF BUKS

System	:	BUKS
Category	:	Integrated library automation system for small and medium-sized public libraries
Hardware	:	NCR Towers computers NCR 9050 (circulation) IBM compatible PC's (cataloguing) O/S (UNIX, MS-DOS, Xenix, ITX (NCR 9050)
Representative (supplier)	:	De heer Y. Zuiderveld Centrale Bibliotheekdienst voor Friesland Zuiderkruisweg 2 / Postbus 530 8901 BH LEEUWARDEN Tel.: 058-860860
Features/functions	:	The BUKS system, which stands for Bibliotheek Uitleen- en Katalogus Systeem, has been designed to automate relative small public libraries including circulation from Bibliobusses (mobile service points). Available functions are: - Cataloguing - OPAC - Circulation - Statistics Superfile is the dbms used for the catalogue database.
Number of installations	:	1 central system + 12 connected libraries
Prices	:	From ECU 3.000 up to 240.000 for the largest systems (ECU 5.000 for a Bibliobus PC)

PROFILE OF CARDBOX-PLUS

System	:	CARDBOX-PLUS
Category	:	PC-based Information Storage & Retrieval System
Hardware	:	IBM-PC compatible microcomputers (PC-DOS, MS-DOS) VAX VMS
Representative (supplier)	:	De heer Ir. Egbert A. Parmentier IOTA Consultancy (Management & Informatica Advies) Perikweg 128 / Postbus 32 7500 AA ENSCHEDE Tel.: 053-319783 Fax : 053-301343
Features/functions	:	Cardbox-Plus (CBP) is a flexible and multitask ISR software in a single-user and network configuration, incl. a READ-ONLY version (electronic publishing) and a Multi-copy facility for searching multiple databases simultaneously. Extra features include Thesaurus and Indexing Control and a shell for a menu-driven operation, as well as integration of wordprocessing. CBO has CD-ROM applications for non-full text documents. The last feature is Picture Cardbox for combinations of images and text (graphics driven).
Number of installations	:	> 1,800
Price of a standard configuration*	:	ECU 750

PROFILE OF DATATREK

System	:	DATATREK
Category	:	"Off-the-shelf" microcomputer based library automation system
Hardware	:	IBM-PC compatible microcomputers
Representative (supplier)	:	At present no supplier in the Netherlands (used to be Samsom Efficiency bv, Alphen a/d Rijn)
Features/functions	:	DATATREK is a low-cost, high performance, standard programme for the automation of small(er) libraries. DATATREK is a menu-driven and full screen editing modular system, consisting of the following programmes: - Catalog - Circulation - Serials (PMS) - Acquisitions - Corporate documents, laboratory notebooks, A/V media - MARC conversion
Number of installations	:	2 (only PMS)
Price	:	ECU 3.500,--

Pricing policy:

Price plus 20% of the purchase price for new releases annually, incl. maintenance.

PROFILE OF dLIB

System : dLIB

Category : PC-based library automation system

Hardware : IBM compatible PC's

Representative (supplier) :

D.R.F. van Bremen
Informatica Advies B.V.
Stadhouderslaan 12
2517 HW DEN HAAG
Tel.: 070-3624777
Fax : 070-

Features/functions : dLIB is a modular library automation system which provides the functions

- cataloguing, via STRIX (see Profile of STRIX) using a "bridge".
- acquisitions (BA, FA), incl. loose-leaf publications
- PMS (CT, TA, TC)
- Circulation (UA)
- Management
- a separate module exists for thesaurus management (TT).

Number of installations : 130

Price of a standard configuration (acq., circ., PMS) : ECU 4.500,--

Pricing policy:

10% of the purchase price for new releases and maintenance annually.

PROFILE OF DOBIS/LIBIS

System	:	DOBIS/LIBIS Version 2
Category	:	Integrated library system (for stand-alone or network)
Hardware	:	IBM 9370 and upwards / 370 Architecture IBM 4361; runs on IBM 9370, System/370 model 135 and larger, 303x, 43xx processors or equivalent, under MVS, VM/VSE and VSE.
Representative (supplier)	:	local IBM Office
Features	:	IBM, under contract to the Dortmund Library System (DOBIS) in Germany and the Leuven Library System (LIBIS) in Belgium, developed an automated library system called (DOBIS/LIBIS) in 1978 with the aim to provide an interactive on-line library system combining all repetitive records and operations. It was designed as a "total on-line library system", including acquisitions, cataloguing, circulation, serials, periodicals control, catalogue search, as well as the production of catalogue cards, COM catalogues, full-text search, OPAC, notices, and statistics required for circulation and acquisitions, report writer and electronic mail. The system is designed to be used in university, public, special, and national libraries. The circulation module supports a great number of functions for charge-out, check-in, loan policy, fine policy, overdue policy, and so on. Registration is based on barcode labels. Acquisitions management includes functions for ordering, receiving, acquisition status, vendor information and invoices. Periodical control supports functions like binding and bindery orders in addition to all standard functions. The cataloguing functions include integrated name authority files as well as catalogue maintenance. The database is updated in real-time. The searching facility supports Boolean operators and limitation of search results by data, circulation status and so on. A simplified search with explanatory screens is provided for borrowers.

The system supports MARC (Machine readable cataloguing) and other record exchange formats

User group	:	The International DOBIS-LIBIS user group maintains a permanent link between its users in order to distribute the most recent informations related to DOBIS/LIBIS, A newsletter is published three times a year. A permanent secretariat is responsible for its publication and the organisation of an annual meeting and keeps track of all publications about DOBIS/LIBIS.
Number of installations	:	5
Price	:	Price information is available from local IBM representatives. Monthly (appr. ECU 2.000) or a one-time charge (appr. ECU 100.000) is available. Discount price for universities is available. No extra charge is made for maintenance. Periodicals control (appr. ECU 40.000). These prices do not include hardware.
Multilinguality	:	Simultaneous, in all major languages.
Networking	:	Ability to build up a common database in a network structure with: Machine readable interfaces by MARC records, as well as an ISO/OSI-based File Transfer and Application Management (FTAM) protocol.

PROFILE OF EBSCO INTERFACES

System	:	EBSCO interfaces
Category	:	Interfaces with the major library automation systems (CLSI, Geac, TECHLIB) for acquisition support, incl. PMS
Hardware	:	-
Representative (supplier)	:	Rudy Houtison EBSCO Industries Inc. te Amerika p/a Postbus 204 1430 AE AALSMEER Tel.: 02977-23949 Fax : 02977-23156
Features/functions	:	On-line interface for acquisition and PMS with the installed library automation systems of major vendors, where EBSCO serves as information provider for: - serial information - account information - bibliographic information

PROFILE OF GEAC LIBRARY INFORMATION SYSTEM

System	:	GEAC LIBRARY INFORMATION SYSTEM (GLIS)
Category	:	On-line integrated library system
Hardware	:	Geac 3000, 6000, 8000, 9000
Representative (supplier)	:	Geac Computers bv Herengracht 481 1018 BT AMSTERDAM Tel.: 020-273666 Fax : 020-258324
Features	:	Functions and Description: Acquisitions, AV materials booking, cataloguing, circulation (incl. ID Systems barcode-scanners), fund accounting, on-line public access catalogue with authority control, serials control, office automation, report generator/ multi-lingual approach, and local area networks (LAN) for interconnection with other administrative university functions and networking of all libraries on campuses. Basic service includes systems analysis, hardware, applications software, maintenance of hardware and software, and full facilities management. Data compression techniques allow storage of large amounts of data in a given amount of disk space. OCLC, tape and UNI/MINIMARC interfaces are available. The EBSCO/RETRO service download MARC records into the Geac System for database creation. The MARC records are supplied free of charge by EBSCO for serials which the library orders through EBSCO and which have beem matched to the MARC/CONSER database. Electronic mail and networking. DataWay X.25 access to remote hosts (for on-line searching). Geac has implemented a full sevenlayer OSI-connection between the Central Dutch Cataloguing System, PICA, and the Geac Library Information System at the University of Utrecht. Staff at the University of Utrecht Library can now search the PICA catalogue through their own Geac system, thanks to the compatibility of the user interface. When a required bibliographic record is found, it can be transferred to the library's database, indexed on-line, and made immediately available for use. In the past Geac has been willing to modify its turnkey system to meet the individual requirements of customers.

		Geac's terminals have been programmed to read Plessey's bar-coded lables.
Price indication	:	ECU 150.000,-- ; maintenance appr. 10% per annually of the list price; software appr. ECU 20.000,-- per module, with a maintenance fee of 25%
Number of installations	:	1 + 70 libraries connected to PBC's (branches not included)
Connectivity	:	OCLC, PICA, videotext/Prestel, community information access, on-line and CD-ROM interfaces. Communication standards include: OSI, LSP, CCITT, ANSI, JNT and X.25, as well as SNA and TCP/IP protocols (X-400 electronic mail).

N.B. Geac Computer Corporation has also Advance.
Advance provides integrated library systems which operate in the Unix and Pick environment (see appropriate sheet).

PROFILE OF HEADFAST

System	:	HEADFAST 1.3
Category	:	Textbase software for special libraries
Hardware	:	PC-based MS-DOS and Digital VAX
Representative (supplier)	:	EPMS B.V. Postbus 1059 6201 BB MAASTRICHT Tel.: 04457-2275 Fax : 04457-2148
Features/functions	:	Headfast includes main library functions such as: - On-line Cataloguing - Orders Management - Serials Management - Loans Management - Interactive updating of records - Authority control via HEADSET - Extremely user-friendly interface for OPAC - Customised screens and help-screens
Number of installations	:	> 47
Price	:	Dfl. 7.300,-- for 5 nodes and Dfl. 8.700,-- for 8 nodes. Optional: Setup, design, Dfl. 2.000,-- first day, Dfl. 1.500,-- per day extra.

PROFILE OF INMAGIC

System	:	INMAGIC 7.2 plus Biblio
Category	:	Textbase software for special libraries
Hardware	:	PC-based MS-DOS and Digital VAX
Representative (supplier)	:	EPMS B.V. Postbus 1059 6201 BB MAASTRICHT Tel.: 04457-2275 Fax : 04457-2148
Features/functions	:	INMAGIC includes main library functions such as: - On-line Cataloguing - Orders Management - Serials Management - Loan Management - Report generator - Interactive updating of records - Authority control via EPMS utility MagicKey Note: producers can be automated through macro procedures using extra EPMS FLASHUP utilities.
Number of installations	:	> 68
Price	:	Dfl. 5.000,-- for 5 nodes and Dfl. 7.700,-- for 10 nodes plus Dfl. 750,-- for Biblio module. Optional: Setup, design, and training Dfl. 2.000,-- first day, Dfl. 1.500,-- extra days. EMPS Flashup utility Dfl. 500,--. MagicKey utility Dfl. 595,-- single user and Dfl. 1.595,-- network usage.

PROFILE OF ISOBAS

System	:	ISOBAS
Category	:	Integrated On-line Library System
Hardware	:	HP3000, HP955
Representative (supplier)	:	De heer Charles de Weert RAET Applicaties B.V. RAET Industrie & Handel Eendrachtlaan 10 / Postbus 2382 3500 GJ UTRECHT Tel.: 030-829611 Fax : 030-887882
Features/functions	:	ISOBAS, which is based on the MINISIS software (see also under MINISIS) by the Agricultural University Library of Wageningen (BLUW). ISOBAS consists of the modules - cataloguing (MINISIS) - ISR (MINISIS) - OPAC - PMS - circulation
Number of installations	:	7
Price of a standard configuration*	:	ECU 80.000,-- excl. hardware

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing/information retrieval software, circulation and acquisition.

Pricing policy:

Upgrade price minus the purchase price within the first year, after 1, resp. 2 and 3 years 2/3, 1/3 and no price difference.
10-15% charge for maintenance.

PROFILE OF KAMBIS

System	:	KAMBIS
Category	:	Micro and mid-range computer-based integrated local library system.
Hardware	:	IBM System 36 and 38 and IBM AS/400 (multi-user)
Representative (supplier)	:	Mr. J. Hoekstra KARMAC B.V. Bronsweg 7 / Postbus 212 8200 AE LELYSTAD Tel.: +313200-49094 Fax : +313200-44244
Features/functions	:	KAMBIS stands for KARMAC Modulair Bibliotheek Informatie Systeem with the cataloguing module as starting point. Its functions are: - cataloguing - circulation (using KAMBISCAN) - PMS - statistics - administration - acquisition in conjunction with the KARMAC Book Supply Division. A special feature is its remote diagnosis/control system.
Number of installations	:	2 (public libraries of Stadskanaal and Enschede)
Prices	:	ECU 30-150 K

Pricing policy:

Price plus up to 20% of the purchase price for new releases (updates) and for maintenance annually, plus a help desk (obligatory).

PROFILE OF LIBRA

System	:	LIBRA
Category	:	Central and local library system
Hardware	:	ICL PC-Quatro and S39 (central system)
Representative (supplier)	:	E. Sternheim PBC Gelderland Zeelandsingel 40 / Postbus 9052 6800 GR ARNHEM Tel.: 085-860911 Fax : 085-820019
Features/functions	:	LIBRA has been developed jointly by the PBC and ICL in the eighties and became operational in 1988. Communication with libraries is by diskette (revised system with online connections is foreseen in 1992). Functions available on the central system are: - circulation - cataloguing - management/statistics Local systems have their automated catalogue only.
Number of installations	:	1 central system + 64 connected libraries
Price of a standard configuration	:	Total development costs ECU 2.500.000,--. Costs to libraries connected start at ECU 5.000,--.

PROFILE OF LIBS100

System	:	LIBS100
Category	:	Integrated on-line library system
Hardware	:	Altos 2000 Series minicomputers (UNIX), Sequent Symmetry parallel computers, variety of work-stations
Representative (supplier)	:	De heer Coen Endenburg CLSI Startbaan 5 1185 XP AMSTELVEEN Tel.: 020-6473010 Fax :
Features/functions	:	LIBS100, a modular integrated system based on INGRES, a relational database. Modules are: CLMARC cataloguing in MARC format CLCAT OPAC, helpscreens, dial-out, various languages CLCarc circulation control, reports, statistics CLAcq acquisition PLSerials periodicals management CLPcat OPAC, also on CD-ROM CLDatalink external database access Report generator Authority control PICA conversion to MARC SQL queries Community Information system Management Reporting system CLSI is part of the worldwide TBG group of companies with headquarters in the Netherlands.
Number of installations	:	1 central system + 132 connected libraries
Price of a standard configuration*	:	ECU 50.000,-- (or more for other configurations)

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

Purchase price includes new releases.
10% charge for maintenance on hardware.

PROFILE OF MICROCAIRS

System	:	MICROCAIRS
Category	:	documentary information system (IRS)
Hardware	:	IBM compatible PC's
Representative (supplier)	:	De heer Drs. Ing. J.W. Poelen IDE Kamerlingh Onnesdreef 7 3146 BG MAASSLUIS Tel.: 01899-23711 Fax : 01899-25394
Features/functions	:	MicroCairs is a relational IRS, incl. thesaurus application, and is used notably in a research environment
Number of installations	:	sites with appr. 12 licenses
Price	:	Dfl. 5.000,-- (single-user) Dfl. 9.000,-- (multi-user + license costs per application)

Price plus 9-15% of the purchase price for new releases annually, incl. maintenance support.

PROFILE OF MICROLINX

System	:	MICROLINX
Category	:	PMS
Hardware	:	IBM-PC compatible computers
Representative (supplier)	:	De heer Karsjen Bos Faxon Europe Postbus 197 1000 AD AMSTERDAM Tel.: 020-5659300
Features/functions	:	Stand-alone or local serials control system with access to the Faxon Linx network
Number of installations	:	25
Price of a standard configuration*	:	ECU 4.500,-- (non-Faxon customers)

PROFILE OF MICROSAILS

System	:	MicroSails
Category	:	PC-based PMS
Hardware	:	IBM-PC compatible computers (mid-range computer version in development)
Representative (supplier)	:	De heer Leo Vittali / Vic Keilnar Swets Subscription Service Heereweg 374 B 2161 CA LISSE Tel.: 02521-35111 (35346) Fax : 41325
Features/functions	:	Acquisitions and PMS of serials of multiple vendors
Number of installations	:	1 (on an experimental basis by the Public Library of Rotterdam)
Price of a standard configuration	:	Price indication when available for purchase ECU 10-14.000,--

PROFILE OF MINISIS

System	:	MINISIS
Category	:	Information Storage and Retrieval System
Hardware	:	HP3000
Representative (supplier)	:	De heer Charles de Weert RAET Applicaties B.V. RAET Industrie & Handel Eendrachtlaan 10 / Postbus 2382 3500 GJ UTRECHT Tel.: 030-829611 Fax : 030-887882
Features/functions	:	MINISIS is an interactive system for the on-line compilation and consultation of databases based on a relational dbms, which creates data independence. Special features: - data definition processor - inverted file access - bit mapping - multilingual thesaurus applications - data exchange according to ISO 2709 - SDI module
Number of installations	:	8
Price of a standard configuration*	:	ECU 50.000,-- excl. hardware

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing/information retrieval.

Pricing policy:

Upgrade price minus the purchase price within the first year, after 1, resp. 2 and 3 years 2/3, 1/3 and no price difference.
10-15% charge for maintenance.

N.B. See also ISOBAS.

PROFILE OF NIJHOFF CONSOLIDATED SHIPMENT SYSTEM

System	:	Nijhoff CSS
Category	:	PMS
Hardware	:	-
Representative (supplier)	:	De heer D.J. Rochât / B. Guyt Martinus Nijhoff International Postbus 269 2501 AX 's-GRAVENHAGE Tel.: 070-3469460
Features/functions	:	Consolidated shipments with serials control and circulation data for libraries using Nijhoff's in-house automation system

PROFILE OF OCELOT

System	:	OCELOT
Category	:	PC-based integrated library system
Hardware	:	IBM-PC compatible computers with MS-DOS and PC-DOS and PC-DOS O/S
Representative (supplier)	:	Martin H. Disberg en Bruno Tran ADIA (Adviesbureau Documentatie Informatie Archief) Hoge der A 31 9712 AE GRONINGEN Tel.: 050-124618 Fax : 050-120592
Features/functions	:	OCELOT - developed in Canada and written in Pascal (Microsoft), C and Macro 86 - is a stand-alone and multi-user (MultiLink) system with the following functions: - cataloguing, incl. thesaurus/IRS/OPAC - union catalogue set-up - circulation - acquisition - management and statistics (batch process) - PMS Installation in LAN's (Banyan, Novell, PC-LAN, 3COM) is possible. Its retrieval is based on a special OCELOT dbms.
Number of installations	:	46
Price of a standard configuration*	:	ECU 15.000,-- (ƒ 30.000,--)

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

Pricing policy:

Price plus 10% of the purchase price for new releases and maintenance annually.

Profile of Pica LBS3

System : Pica LBS3

Category: Integrated online Library System

Hardware: Client/Server-concept consisting of a combination of MSDOS, UNIX and VAX/VMS based hardware/software.

Supplier: Centrum voor Bibliotheekautomatisering Pica
de heer J.M. Feijen
Schipholweg 99
2316 XA LEIDEN
tel. 071-257257
fax. 071-223119

Features

Pica LBS3 is a complete online library sytem which is fully integrated in the Pica open library network (OBN) and which is based on the SYBASE relational database management system. The system in build around the powerfull "full Boolean" OPAC which is available in two versions: as a command-driver staff catalogue and as a menu-driven Public Catalogue. The OPAC module not only gives access to the local catalogue but also to remote catalogues of other libraries in the network and to the central Pica Retrieval databases. Communication with other systems is OSI-based.

The following functions are supported:
- Cataloguing remote through the central GGC system
- OPAC menu-driven or command-driven
- Acquisitions including Serials registration
- Electronic mail function (X.400)
- Circulation control including closed stock management
- Community Information function integrated with OPAC and with seperate local Cataloguing Module

The Pica LBS3 system is multi-lingual and screens can be tailored to user requirements.

Integration of a CD-ROM network solution is foreseen for the near future.

Staff access to the Pica LBS3 functions is through the PC-based Intelligent Bibliographic Workstation (IBW) which offers a powerfull and friendly user interface with both mouse and functionkey features for efficient operation.

Numbers of installation

17 medium and large-size systems
(medium = 10-32 terminals/ws, large = 32-200 terminals/ws)

Pica indication

Prices start at ± Dfl 100.000,-- and includes hardware and software but excludes local network, PC's, printers and barcode readers.

Annual fee for maintenance, support and further development starts at about Dfl 30.000,-- for a complete medium size system.

PROFILE OF POLYDOC-MIKRO/MIKRO-POLYDOC

System	:	POLYDOC-MIKRO/MIKRO-POLYDOC
Category	:	Full-text information storage and retrieval software.
Hardware	:	IBM-PC compatible microcomputers
Representative (supplier)	:	Not for sale anymore (used to be Samsom Kantoor-efficiency b.v., Alphen a/d Rijn)
Features/functions	:	PolyDoc-Mikro is available as single-user and network (3COM, Novell and others) software for full-text ISR applications in special libraries, documentation centres, MIS, etc.
Number of installations	:	124
Price of a standard configuration*	:	ECU 2.500,--.

Pricing policy:

Price plus 20% of the purchase price for new releases annually.
Maintenance is included.

PROFILE OF ROTA

System	:	ROTA
Category	:	Periodicals Management System (PMS)
Hardware	:	IBM-PC compatible computers
Representative (supplier)	:	Martin H. Disberg en Bruno Tran ADIA (Adviesbureau Documentatie Informatie Archief) Hoge der A 31 9712 AE GRONINGEN Tel.: 050-124618 Fax : 050-120592
Features/functions	:	ROTA is a stand-alone system for PMS, notably for circulation. It is menu-driven and written in Clipper.
Number of installations	:	7
Price of a standard configuration	:	ECU 3.000,--*

* Price plus 10% of the purchase price for new releases and maintenance annually.

PROFILE OF SHELF

System	:	SHELF
Category	:	Total library system for special libraries
Hardware	:	IBM mainframe, DEC VAX, UNIX
Representative (supplier)	:	Drs. Hans Richters Cap Gemini Pandata Produkten Burgemeester Elsenlaan 170 2288 BH RIJSWIJK Tel.: 070-3957128 Fax : 070-3992057
Features/functions	:	SHELF is a total library system consisting of modules for cataloguing, patron access (OPAC), acquisitions, circulation, serials and inter-library loan with integrated thesaurus support. SHELF can easily be customized and expanded to meet users' specifications.
Integration	:	All-in-one integration possible.
Number of installations	:	2
Price	:	Mainframe/minis from Dfl. 50.000,-- to Dfl. 250.000,--. Special licences available. Maintenance: 12% of list price per year.

PROFILE OF SISIS

System	:	SISIS
Category	:	Microcomputer-based integrated library system
Hardware	:	SIEMENS: mini's (MX300 and MX500) and PC with O/S SINIX (UNIX) in multitask version up to 256 workstations
Representative (supplier)	:	Mr. Ing. R.J.M. Hoogland Siemens Nixdorf Informatiesystemen bv W. van Pruisenweg 26 / Postbus 16068 2500 BR DEN HAAG Tel.: +3170-3332626 Fax : +3170-3332470
Features	:	The modular SISIS system, based on the dbms BVS under O/S system 2000, consists of - SISIS-SIKIS (cataloguing) - OPAC (as part of SIKIS) - Synonym dictionary (within SIKIS) - IRS (SC-XDOC) - SISIS-SIERA (acquisition of monographs and PMS) - Statistics (as part of SIERA) - SISIS-SIAS (circulation inclusive stock control) - CD-ROM interface - import of data (SIKMASS) - on-line searching (REKOM) - OPAC SISIS is supplied turnkey.
Number of installations	:	1 central system + 39 connected libraries
Price	:	ECU 25.000,-- and more (excl. hardware)
Price policy	:	For new releases and mainteance 10% of the purchased price

PROFILE OF STAR

System	:	STAR
Category	:	Information Storage and Retrieval Software (ISRS) with library modules
Hardware	:	Mid-range AlphaMicro (AM) and PC (non MS-DOS with AM)
Representative (supplier)	:	De heer F.C. Verbeek OMEGON Computersystemen B.V. (STAR) De Schutterij 27 / Postbus 775 3900 AT VEENENDAAL Tel.: 08385-40404 Fax : 08385-28616
Features/functions	:	STAR is a multi-user database/management and information retrieval system. Without programming or programmer assistance, libraries can define up to 1,000 databases, each with up to 2 million characters per record. Records and fields are variable-length, which means that there is no wasted disk space. STAR is being used principally by libraries to provide reference and retrieval services on in-house data (e.g., technical reports, special collections) and to support acquisitions, serials management and circulation. Special design documentation for library users is available to help libraries to design their own "integrated" system with the help of OMEGON. STAR components are: - cataloguing - acquisition - circulation - PMS - thesaurus - index of key words
Number of installations	:	6
Price of a standard configuration*	:	ECU 20-30K and larger multi-user configuration will cost up to 75K

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

Pricing policy:

Price plus 10% of the purchase price for new releases/maintenance annually after the second year of purchase (first year hardware maintenance only).

PROFILE OF STATUS

System	:	STATUS
Category	:	Full-text retrieval IRS software
Hardware	:	PC's, PC-networks, mini's, mainframes
Representative (supplier)	:	Samsom-Veldkamp B.V. Wibautstraat 129 1091 GL AMSTERDAM
Features/functions	:	Full-text retrieval and Database Building Publishing of CD-ROM databases
Number of installations	:	Mainframe 3, Network 4, Single user 44, Read-only 17.
Price	:	From Dfl. 14.250,-- to Dfl. 21.000,--. Software only. Single user: Dfl. 5.500,--.

Pricing policy:

Price plus 15% of the purchase price for new releases and maintenance annually.

PROFILE OF STRIX

System	:	STRIX
Category	:	Information Storage and Retrieval system with library components from dLIB (see dLIB)
Hardware	:	MS-DOS PC's and mid-range computers running under UNIX and VMS (VAX)
Representative (supplier)	:	D.R.F. van Bremen Informatica Advies B.V. Stadhouderslaan 12 2517 HW DEN HAAG Tel.: 070-3624777 Fax : 070-
Features/functions	:	STRIX is an information storage and retrieval system for free-text and formatted text applications. These applications can be single-user (MS-DOS) or multi-user under UNIX or VMS. STRIX features: - 32,000 characters per document (appr. 10 pages A4) - a maximum of 520,000 documents per database - 200 fields per record - variable record length and is menu-driven.
Number of installations	:	300
Price	:	1 workstation ECU 2.000,-- 20 workstations ECU 15.000,-- 128 workstations ECU 55.000,--

Pricing policy:

10% of the purchase price for new releases and maintenance annually.

PROFILE OF TECHLIBplus

System	:	TECHLIBplus
Category	:	Integrated on-line library system for special libraries
Hardware	:	IBM mainframe, DEC VAX, UNIX
Representative (supplier)	:	Drs. Hans Richters Cap Gemini Pandata Produkten Burgemeester Elsenlaan 170 2288 BH RIJSWIJK Tel.: 070-3957128 Fax : 070-3992057
Features/functions	:	TECHLIBplus is an integrated modular library system built in BASISplus. The system handles cataloguing, patron access, acquisitions, circulations, serials and interlibrary loan for books and other document types. Multiple libraries are supported. Site specific procedures can be integrated into TECHLIBplus menus. See also SHELF.
Integration	:	All-in-one integration possible.
Number of installations	:	1
Price	:	Mainframe/minis from Dfl. 31.000,-- to Dfl. 147.000,-- (including BASISplus runtime). Special licenses available. Maintenenace: 12% of list price per year.

PROFILE OF TINLIB

System : TINLIB

Category : Modular integrated library system.

Hardware :
- PC-DOS and MS-DOS micro computers
- multi-user systems under DOS and UNIX, incl. networks (TINNET) and LAN
- Unix-based hardware: DEC, HP, NCR, SUN, UNISYS, VMS VAX and MicroVax.

Representative (supplier) :
De heer P. Emmen
Bureau IMC
Mathenesserlaan 294
3021 HV ROTTERDAM
Tel.: 010-4780204
Fax : 010-4780872

Features : Integrated library system based on the retrieval software TINMAN. Modules:
- On-line catalogue
  - cataloguing
  - retrieval (browsing and navigate)
  - OPAC
  - Thesaurus
  - OPAC
  - authority control
- circulation
- acquisition
- periodicals management
- data import/export
- ILL
- record conversion

Browse and navigate makes it possible to search and edit index-datasets. Indexes can be searched in a window while cataloguing.

Number of installations : 7 TINlib systems;
15 museum systems (TINMAM), in which part of the TINlib functions is integrated;
8 TINMAN IRS applications;
9 TINTERM thesaurus applications.

Price : Price of a standard configuration: from ECU 10.000,-- (MS-DOS).
Standard software maintenance is 12% of the purchase price and is mandatory in the first year. It includes updates of software and documentation.

PROFILE OF TOBIAS

System	:	TOBIAS
Category	:	Integrated on-line library system
Hardware	:	Datapoint mid-range computers (DP7XXX), ACER (MS-DOS) microcomputers and Motorola Unix computers
Representative (supplier)	:	De heer P.M. van der Goor Datapoint Nederland B.V. Kampenringweg 47 2803 PE GOUDA
Features/functions	:	Datapoint's TOBIAS system covers the following functions: - Acquisition - Cataloguing - On-line Public Automated Catalogue - Information Retrieval Software (based on a relational dbms) - Circulation control - Management and statistics (administration) - Community Information System - ICD-ROM, CD-I and Multi-media systems - Gateway and kiosque functions to on-line services (ASCII/OSI (PICA and VT)) - Wordprocessing and Office Automation functions - Videotex (Biblitel) - Networking capabilities TOBIAS is a turnkey system running on Datapoint (authorized) supplied computers. CD-ROM applications are either stand-alone or in a network with a CD-server. From the standard cataloguing database data are downloaded real-time for the other modules. IBM-PC compatible microcomputers can be integrated in Datapoint's ARCNET infrastructure. A TOBIAS User Group provides guidance to Datapoint's staff for new developments. The Public Library of Almelo was the first library ever automated in the Netherlands (1978). Almelo now features one of the first CD-ROM networks. BIBLITEL allows remote consultation of the library catalogue (and on-line and videotext hosts) from the home.
Number of installations	:	39
Price	:	starts at ECU 45.000,--. 10% of the purchase price for new releases and annual maintenance.

C. PROFILE OF VUBIS

System	:	VUBIS
Category	:	Integrated On-line Library System
Hardware	:	Independent of type of hardware; systems running under DOS, Unix, VMS (VAX), etc. VUBIS is written in MUMPS
Representative (supplier)	:	Hélène van Buytenen-van Eck ODIS Nederland B.V. Piazza 403 5611 AG EINDHOVEN Tel.: 040-433605 Fax : 040-434145
Features/functions	:	VUBIS is a modular and integrated on-line library system, menu-driven and with self-programming capabilities (in MUMPS), e.g. for screen or print lay-outs. VUBIS is considered by librarians as "user-friendly" (OPAC), fast and flexible. The PC-version is available as stand-alone and multi-user version. VUBIS covers the following functions: Cataloguing } one module, incl. thesaurus OPAC IRS Acquisition Circulation PMS M/St and is multilingual. Extra features are PICA-link, DION-link, CD-ROM products (for OPAC and union catalogue applications). VUBIS 3 will be available in the next 5 year. The PDP versions (most of the installed systems) will be replaced by sequent parallel processing computers and NCR Tower computers (DOS/Unix).
Number of installations	:	44 central systems + 10 connected libraries
Price of a standard configuration*	:	Pricing depends on configuration and number of users (terminals) in simultaneous use from ECU 11K (PC) up to ECU 125K; the requested "standard" configuration is appr. ECU 18K. N.B.: prices do not include hardware.

* Price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

Pricing policy:
A charge of 20% of the purchase price for new releases and for maintenance annually.

Background information to the survey LIB-2 Update

The draft Plan of Action for Libraries in the EC was endorsed in Luxembourg in March 1989. In order to be able to carry it into execution the studies to determine the state of the art (LIB2) undertaken in 1986 in the Member States should be reviewed.
These studies focus at the extent to which catalogues existed in machine readable form, the role of library networks, the level of automation of housekeeping functions, the use of computer-based user-related services and the nature and level of inter-library transactions and activities. The studies were set in the context of national and institutional policies and frameworks. They revealed wide discrepancies between Member States, not only in the implementation of the new technologies but also in the provision of basic library services.
The review of the studies from 1986 should provide updated information that is also better applicable in the context of the Plan of Action.

The first LIB2 study will be used as a starting point for reassessment. The reassessment study has to be carried out with three limitations in mind:

- the study is an update, not a full scale recapitulation of the original study
- the results have to be useful as a basis for comparison, so that the study should broadly conform to the UNESCO categories for libraries
- it is a selective update, intended to emphasise the areas of greatest relevance for the Plan of Action

For the collection of update data the most efficient viewpoint is:

- the collection will be done as much as possible by desk research, i.e. by using published, grey andwhere easily possible unpublished written sources; the results will be tuned to what is available to an extent of 70 % of the effort; the data that *will* be collected are the data that *can* be collected
- it need not be the organisation itself that we will turn to, but to the suppliers of library automation systems, machine readable records and subscription agents; this will take no more than 20 % of the effort
- some key persons will be interviewed; the interviewing will be used for information about the latest developments, an overall view etc.

The Nederlands Bureau voor Bibliotheekwezen en Informatieverzorging in The Hague was asked to provide for the carrying out of the research in the Netherlands. The survey itself will be undertaken by Afra Wamsteker-Meijer and Johan van Halm (subcontractor).

We thank you for your cooperation. As a token of our appreciation the name of your company will be mentioned in our report.

Please give a short description of the hardware and software of the functions you offer and a profile of your company in the attached standard format as well as on the reference list.
Could you indicate your turnover in hardware and software for all functions. Could you give a price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.
Could you give your opinion about the following main trends for libraries in the Netherlands.

QUESTIONNAIRE/INTERVIEW GUIDE FOR THE UPDATE STUDY "LIBRARY AUTOMATION IN DENMARK"

1. USER BASE

Would you please list your customers (libraries) and give information regarding the following functions; which might have been installed. We distinct primary functions like

I	Acq	= Acquisition
	PMS	= Periodicals Management System
	Cat	= Cataloguing
	OPAC	= Online Public Automated Catalogue
	IRS	= Information Retrieval Software
	Circ	= Circulation control
	M/S	= Management and statistics

and more additional functions, like

II	CIS	= Community Information System
	CD/MM	= ICD-ROM, CD-I and Multi-media systems
	G/Kiosque	= Gateway and kiosque functions
	WP/OA	= Wordprocessing and Office Automation functions
	Vtex	= Videotex
	Netw	= Networking capabilities

1.I Primary functions

Name of the library: Acq PMS Cat OPAC IRS Circ M/St

Could you categorize or group your customers in the above list as follows:
- national library
- university/general research libraries
- public libraries
- special libraries

1.II Additional functions

Name of the library: CIS CD/MM G/Kiosque WP/OA Vtex Netw

Could you categorize or group your customers in the above list as follows:
- national library
- university/general research libraries
- public libraries
- special libraries

1.III Do you supply mainly to

o academic (scientific, university) libraries,
  o yes for ......%
  o no

o special (corporate, governmental) libraries
  o yes for ......%
  o no

o public libraries
  o yes for ......%
  o no

1.IV Market vs. related issues

1. Could you indicate your turnover in hardware and software for all functions: f_____

2. Could you indicate your market share in % per library category f_____

3. What is your estimate of the total market size f_____

4. Which vendors do you consider as major players.

5. Which companies do you consider as market leaders.

6. Which developments in the market place do worry you most.

   1.
   2.
   3.

7. Which developments in the market place do you favor most.

   1.
   2.
   3.

2. PROFILE OF YOUR COMPANY

Could you give a profile of your company on one page (A4) by indicating amongst others:
office locations, agents, systems, software packages you supply, as well as special services, short history, etc.

System :

Category :

Hardware :

Representative (supplier) :

Features/functions :

Number of installations :

Price of a standard configuration* :

* Could you give a price for a standard configuration of a local library system consisting of processor, 6 terminals and software (modules) for cataloguing, information retrieval software, circulation and acquisition.

What is your pricing policy?

Price plus ....% of the purchase price for new releases annually (other, please specify).
What % .... do you charge for maintenance.

c. References

The references listed here are a selection. They are listed chronologically.

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D. List of abbreviations

see also the profiles of integrated library housekeeping systems, appendix A

ACQ	acquisition functions
ADION	bibliographic and documentation database of the Ministery for Education and Science
ADONIS	project for electronic document delivery
AGI	Actuele Groningen Informatie, a local information project
AGRALIN	Dutch network with MINISIS aimed at agricultural industry and institutions of the Agricultural University of Wageningen
AGRONET	international agricultural network
ANP	Netherlands Press Office
AUBID	library automation project with DOBIS/LIBIS of the Library of the Technical University of Delft
BIP	Brabants Informatie Project, a local information project
BIZA	Ministery of Home Affairs
BLDSC	British Library Document Supply Service
BNTL	Bibliograpy of Netherlandish language and literature studies
CADIST	library cooperation in France
CAT	cataloguing function
CD/MM	compact disc/multi media
CBS	Netherlands Central Bureau of Statistics
CD/ROM	compact disc read only memory
CIP	cataloguing in publication
CIS	community information system
CLC	Centrale Landbouw Catalogus, agricultural union catalogue
CTC	Centrale Technische Catalogus, technical union catalogue
DATANET-1	PTT network for datatransmission
DISTEL	program for document delivery of the Library of the Technical University of Delft
EBIN	Eindhovens Bibliotheek Informatie Netwerk, a local network

EBSCO	a periodicals supplier
EC	European Committee
EIDOSTAS	European Infrastructure for Document Supply in the field of Technology and Applied Sciences
FAO	Federation of Agricultural Organizations
GGC	Gemeenschappelijke Geautomatiseerde Catalogisering, shared cataloguing facilities and database of PICA
G/K	gateway and kiosque functions
GLIN	database of grey literature in the Netherlands
HANS	Haags Informatie netwerk Stadsinformatie, a local community information project
HBO	higher vocational education
IBL	Inter Bibliothecair Leenverkeer, system for interlibrary lending
IHOL	infrastructure for higher education in Limburg
ION	Interlending OSI Network
IPA	Informatie Project Almelo
IPH	Informatie Project 's-Hertogenbosch, a local information project
IRS	information retrieval system
ISBD	International Standard Bibliographic Description
ISO	International Standards Organization
IT	information technology
JANET	university network in the UK
KUB	Katholieke Universiteit Brabant
LAN	local area network
LBS	Lokaal BIbliotheek Systeem of PICA
LIA	project for community information in Amsterdam
MARC	format for machine readable cataloguing
MISTEL	program for document delivery and the technical union catalogue for monographs of the Library of the technical Universitiy of Delft
M/S	management and statistics functions
NBLC	Nederlands Bibliotheek en Lectuur Centrum, association of the Dutsch public libraries

NCC	Nederlandse Central Catalogus, Netherlands general union catalogue
NCC/IBL	see IBL
NESTOR	Netherlands Educational and Scientific Titles for On-line Retrieval
NEON	host organization of the NBLC
OBN	Open Bibliotheek Netwerk, program for future networking of PICA and SURF
ODIN	Oosterhouts Digitaal Informatie Netwerk, a local network project
OPAC	on-line public automated catalogue
OSI	Open Systems Interconnection, an ISO standard
PAD	Pocket Assembler Disassembler, a telecommunication facility
PARAC	database of Parliament Proceedings and other related information
PBC	provincial library centre
PICA	Project for Integrated Catalogue Automation, foundation for library automation in the Netherlands
PIGA	Publieks Informatie Gemeente Amsterdam, a local community information project
PMS	periodicals management system
PTT	organisation for post, telephone and telcommunication in the Netherlands
RABIN	Council for Libraries and Information Services in the Netherlands
RCC	former State Computer Centre, now an commercial firm
ROBIN	Rotterdam Bibliotheek en Informatienetwerk
SDU	former State Publisher, now a commercial one
STCN	Short-Title Catalogue Netherlands, a cataloguing project for books that were printed between 1540 and 1800
SURFnet	Netherlands university network
SZW	Ministery of Social Affairs and Employment
TACO	database of NBLC with documentation records on behalf of the public libraries
THES	thesaurus function
TUD	Technical University of Delft
UK	United Kingdom
VISCOUNT	interlibrary lending system in the UK

VTP	Virtual Terminal Protocol
Vtex	videotex functions
V&W	Ministery of Transport and Public Works
WORM	write once, read many times, electronic medium
WP/OA	wordprocessing and office automation functions
WSF	Wetenschappelijke Steun Functie, libraries with a regional support functions for scientific literature on behalf of non-university students
WVC	Ministery of Welfare, Health and Culture