Library Automation in Europe

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Library automation is probably the main challenge that libraries in Europe have to face now. Despite various achievements at regional and national levels, the European library scene is still partitioned and hampered by national borders as well as regional and local particularisms.

This swift overview on library automation in Europe is based on recent studies on libraries in Europe and on the papers presented last year in Brussels at the European Conference on Library Automation and Networking.

Five years ago, the Commission of the European Communities decided to tackle the problem of library automation in the 12 EC countries. Among its first initiatives, there were the study on library economics and 12 surveys on new technologies in libraries, summarized in 1988 by Lupovici.[3] But the main initiative will be the five year Plan of Action for the Libraries of the European Communities; this Plan should take off within a few months.

Last year in Brussels, the EFLC organized the First European Conference on Library Automation and Networking; with 700 participants, it was the largest meeting of European librarians to date, and its 50 papers, published by Saur [2] in Munich a few months ago, give a good overview of library automation in Europe. This Conference was also an opportunity for UNESCO to fund a study on interlending in Europe, produced in 1990 by G. Cornish.[1]

OVERVIEW ON LIBRARIES IN EUROPE

According to the most thorough study on library economics in Europe, there were in 1987 in the 12 European Community countries 75,000 libraries for a total population of 320 million inhabitants. Those 75,000 libraries hold 1.2 billion books in collection, receive 9.5 million current journals, employ 250,000 people, spend 4 billion US Dollars annually and lend an average of four books per years to 77 million users.

Although library budgets and acquisitions are much lower in Europe than in North America, recent studies show that there are only 9 million interlibrary transactions; compared with 20 million in the United States. The volume of interlibrary lending is 3.5 higher per inhabitant in the USA than in Europe. Among these 9 million requests, only 16% are sent across the national borders of the 28 European countries, despite their small size.

BACKGROUND OF LIBRARY AUTOMATION IN EUROPE

During the 1970's in northern Europe, many public libraries computerized their circulation systems and many scientific libraries started to use online bibliographic databases for their patrons and to computerize their catalogues as well as other housekeeping functions. However, this led to a very heterogeneous situation with a large number of quite different homemade systems and very dissimilar formats of bibliographic data. More recently, great efforts have been devoted to the development of large union catalogues and library networks. The most important ones at present are PICA in the Netherlands, SIBIL in Switzerland, and LASER in England.

However, the discrepancies between European countries are such that a few of them (mainly in Southern and Eastern Europe) have no national bibliography, no
union catalogues, no interlibrary loans. This was the case of Portugal where
the National Library successfully set up in a short period a national biblio-
graphy and a large union catalogue, which now enable Portuguese colleagues to
launch interlibrary lending between libraries throughout Portugal.

Thanks to the evolution of informatics in the last ten years, many libraries
have acquired integrated library systems and OPACs working on mini- or micro-
computers. Turn-key systems overtook homemade systems during the 1980's; most
of them were and are still sold by American companies. In many scientific
and corporate libraries, bibliographic CD-Rom became very popular and outshone
the online bibliographic databases. These new technologies, the distribution
of turn-key library systems, the lower costs of hardware and sometimes the aid
of public authorities led to the enhancement of library automation in many
European countries.

Until very recently, the efforts in library automation still had a tendency to
develop or to implement regional or national networks. Now, the trend is the
interconnection of library systems across national borders thanks to the OSI
standards, according to the library program of the European Communities.

COMPUTERIZED LIBRARY FUNCTIONS

Originally in European libraries, circulation was the first computerized
function, especially in public libraries, but now the most frequently compu-
terized function is the catalogue. Recently, several libraries have compu-
terized their catalogues rather than their circulation systems, especially in
scientific and corporate libraries. However, the catalogue and the circula-
tion systems are the most usual functions of the integrated library systems.

Book acquisition is another function of the integrated systems, but some of
the libraries prefer to use teleordering systems offered by Whitaker and
Blackwell in the UK, by Springer in Germany, or by library cooperatives in
Scandinavia.

The check-in of journals is seldom a computerized function in European
libraries; the issues are usually recorded in traditional Kardex, and very
seldom in library integrated systems or on the computers of subscription
agencies. On the other hand, an autonomous check-in system on PCs such as
Microlinx has become popular in medium sized libraries in Europe.

Interlibrary lending is usually not computerized at the local library level,
but within regional or national networks in Northern Europe mainly, and
recently also in Spain and Italy.

Other functions are seldom computerized in libraries in Europe.

INTEGRATED LIBRARY SYSTEMS

According to the EC studies on library automation in the 12 EC countries in
1986-87, there were 249 turn-key integrated library systems working on mini or
mainframe:

<table>
<thead>
<tr>
<th>Country</th>
<th>Systems</th>
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<tr>
<td>Great Britain</td>
<td>91</td>
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<tr>
<td>France</td>
<td>77</td>
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<tr>
<td>Netherlands</td>
<td>18</td>
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<tr>
<td>Denmark</td>
<td>17</td>
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<td>Italy</td>
<td>14</td>
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<tr>
<td>Germany</td>
<td>12</td>
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<tr>
<td>Spain</td>
<td>10</td>
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<td>The remainder were in Belgium, Ireland, Luxembourg, Portugal, and Greece.</td>
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At the same time, there were 1109 turn-key library systems in the U.S.A. for a smaller population. Thus, there was then one turn-key integrated library system for 200,000 inhabitants in the U.S.A. and one for 1,325,000 inhabitants (nearly seven times less) in the European Community. As there are twice as many library systems sold in the U.S.A. than in Europe every year, we can expect that this gap will widen.

In the 12 EC countries in 1987, of the 208 systems in use on six sites, at least:

- 88 (42%) had been sold by four North American companies (IBM, GEAC, CLSE, McDonnell-Douglas), and
- 120 (58%) by eight European companies (BLCMP, DS, and ALS in the UK, TOBIAS, OPSYS, and LIBRA in France; Regne-Centralen in Denmark and PICA in Netherlands).

Since then, more recent systems working on microcomputers in networks such as Datatrek have achieved a great success among European libraries, but statistics will not be available before the end of the new "Lib-2 studies" launched a few months ago in the 12 EC countries.

LOCAL AREA NETWORKS

Local area networks are now working in European libraries, either within the libraries or throughout their institutions. As described by Hastedt at the Brussels Conference last year, there are 11 local library networks in German universities: most of them use their networks for their administration and circulation systems, a few of them for teleordering books and for bibliographic searches on CD-ROM.[2] However, very often the catalogue is maintained on the regional catalogue outside the local area network. Libraries of other European countries also have their local area networks, especially in Northern Europe, but there is a serious lack of training and of library management, as pointed out by Collier.

WIDE AREA NETWORKS

The most successful wide area network in Europe is certainly JANET, the wide area network of the British universities: it enables 22 British academic libraries to give access to their OPACs and to accept interlending requests from all British universities and research institutions, as described by Stone last year at the Brussels Conference.[2] However, these connections between libraries are not interactive. JANET is also a gateway for the main bibliographic databases. According to Stone's conclusion, this free academic network successfully stimulated important changes in British university libraries in a short period.

UNION CATALOGUES

The main online shared national union catalogue in Europe is probably PICA, the Dutch library network maintaining the union catalogue of the 25 main libraries in the Netherlands with seven million bibliographic records, it handles 475,000 interlending requests per year from most of the Dutch libraries. Some of these 25 libraries are autonomous with their own integrated library systems within the PICA network.

There are of course many other union catalogues in Europe. As it is impossible to list all of them, I shall cite a few among the most important ones:
1. The SIBIL system launched by the University of Lausanne (Switzerland) is a shared catalogue of 1.3 million bibliographic records linking 83 Swiss libraries. Several French universities and the National Library in Luxembourg are also using SIBIL offering a total of 2.6 million bibliographic records.

2. LASER in London also maintains an online union catalogue with 2 million records of 1,600 libraries holding in total 40 million volumes; the LASER network handles 250,000 interlibrary requests per year.

3. CCN is a French online union list of 208,000 current titles in 2,800 libraries; this union list is distributed twice yearly on CD-Rom.

There are, of course, many other important online shared union catalogues such as the regional union catalogues in Germany and in Great Britain as well as the national union catalogues SBN in Italy, PORBASE in Portugal and the "Pancatatalogue" of the French university libraries. The first objective of these union catalogues was to facilitate interlibrary lending at the regional level, but the increasing number of computerized libraries led to a second objective: the use of machine-readable bibliographic records for shared cataloguing as well as for retrospective conversion.

Obviously OCLC does not fulfill in Europe the same functions as in North America: in continental Europe, OCLC is mostly exchanging machine-readable bibliographic records, often through national institutions, rather than being a tool for cataloguing and interlibrary requests of individual libraries.

One should also point out that there is no European equivalent to the great North American bibliographic facilities such as OCLC and UTLAS, Europe, probably because of regional, national, and linguistic fragmentation in Europe. In this situation, the present trend seems to be the OSI standards rather than to the development of transcontinental networks as it was the case for the last 15 years in North America.

**NATIONAL BIBLIOGRAPHIES**

The national bibliographies should be an important source of bibliographic data. Most European countries now have the bibliographic data of their publications in machine-readable form. According to the "Lib-2 studies" in 1987, the largest national bibliographies in machine-readable form were - the British National Bibliography with 750,000 records, the French Bibliographie Nationale with 390,000 records, and the Dutch, Italian and Danish national bibliographies with 125,000 to 180,000 records.

Unfortunately, these data are produced in different formats, different languages, and with various subject headings and classifications. As most libraries buy books from different countries, they cannot cope with incompatible data coming from different national bibliographies. Because of their incompatibilities and delay in distribution, the national bibliographies do not usually represent a major input for most of the bibliographic databases in Europe.

However, one should point out the recent distribution of the data from the British and French national bibliographies on CD-Rom. This innovation will be introduced into several other EC countries, and it should provide libraries with the software which will enable them to handle the data from the various national bibliographies.
STANDARDS OF BIBLIOGRAPHIC RECORDS

According to the "Lib-2 studies" and their synthesis by Lupovici:[3]

- 70% of the libraries in Europe use the Anglo-American Cataloguing Rules - 2nd version (AACR2), mainly the British, Irish, Dutch, Spanish, Portuguese libraries,

- 12% of the libraries, mostly French language and Italian libraries, use the rules of the French standard association, slightly different from the AACR2, but there is a current trend towards AACR2 among the scientific libraries of these countries, partly because the records are supplied by OCLC,

- 17% of the libraries, in fact all German libraries, use the German cataloguing rules, which are, and will apparently remain, incompatible with AACR2, despite the cooperation between OCLC and the Germany Library Institute.

About the exchange formats:

- 51% of the libraries, especially British, Spanish, and Portuguese libraries, use MARC formats or related formats,

- 28% of the libraries, especially French language, Italian and Dutch libraries, in fact German libraries, use the German MAB format, incompatible with the previous ones.

SUBJECT HEADINGS AND CLASSIFICATIONS

The subject headings of the Library of Congress are by far the most used in continental Europe, especially in French-speaking countries. However, the British Library is using its own thesaurus as well as the LC subject headings.

One should point out that the Bibliothèque Nationale in Paris uses French subject headings translated from the LC subject headings and that the Royal Library in Brussels does the same in French and Dutch, as described by Goossens last year.[2] This could lead to an international and multilingual list of subject headings if these lists could keep a sufficient coherence.

In Switzerland, several libraries are also attempting to provide multilingual subject access, including the Universal Decimal Classification or the American Medical Subject Headings, as described by Clavel-Merrin.[2]

Concerning classifications, most libraries in Europe use a local classification. Among internationally accepted classifications,

- the Dewey classification is used by 59% of the libraries,

- the Universal Decimal Classification is used by 5% and,

- those of the Library of Congress and the (US) National Library of Medicine by 3%, mostly scientific libraries, according to Lupovici's synthesis of the "Lib-2 studies."

Obviously, the fragmentation of the European library scene and the development of a wide North American library cooperation are promoting the American rules, standards, and formats of bibliographic data as well as subject headings and classifications among libraries in most of the European countries.
CD-ROMS AND ONLINE BIBLIOGRAPHIC DATABASES

CD-Roms are not only a new means of distribution of several national bibliographies and union catalogues in Europe, but also a way to distribute a catalogue throughout large institutions, according to Neubauer's experience.[2] However, the most popular CD-Roms in European libraries are the CD-Roms of the main specialized bibliographic databases such as MEDLINE, ERIC, etc.

Most scientific and corporate libraries in Europe have used these bibliographic databases online for the past ten years. According to the "Lib-2 studies" summarized by Lupovici in 1988, there was annually a total of about 200,000 hours of connection in these libraries (corporate libraries excluded) of the 12 EC countries to those online databases, most often through American hosts. This total is obviously very low compared with North America, even if the figure is incomplete. Among the reasons given for this is probably the higher cost of online connections in Europe and the lack of institutional funding for online bibliographic searches by students and young scientists.

On the other hand, the distribution of bibliographic databases on CD-Rom is very successful throughout the Europe, including the southern Europe, probably because of their low cost and their user-friendly search software. There is of course a strong interest in the use of CD-Roms in networks, but this is still experimental in Europe.

PILOT PROJECTS

One of the main pilot projects for libraries in Europe is the ION project, described last year by Deshamps.[2] Thanks to CEC funding, the ION pilot/demonstration project aims to implement an OSI protocol for interlibrary lending (including "search" and "ordering" functions) between three major library networks in Europe: PICA in the Netherlands, LASER in Great Britain, and SUNIST in France. This three-year project ending in 1992 should demonstrate the advantages of the OSI protocol for libraries. As ISO recently recognized an OSI standard as an international standard, the ION project could promote it in the three involved countries as well as in the rest of Europe.

Other EC-funded projects are related to the distribution of national bibliographies on CD-Roms and to teleordering between libraries and book suppliers, and various other projects should be put forward when the call for proposals of the EC Plan of Action for Libraries will be funded.

Another perspective is electronic document delivery. There is the Adonis experiment which is not yet completely successful, but also the digitalization of articles of 2,000 most requested journals by the C.N.R.S. in Nancy (France), in order to accelerate the article reproductions and also to distribute them by telecommunication.

These projects and various other initiatives will certainly contribute to the interconnection of library systems throughout the European Communities and very soon also other European countries.

BOOK PRESERVATION

A very important issue is book preservation. It is obvious that new technologies and world cooperation are necessary for preserving our common cultural heritage, as stated last year in Brussels by Clements and Rutimann.[2] Those responsible for libraries in Europe should tackle this major problem as soon as possible at European level as is the case in North America. In this perspective the main European initiative is the project of European Register of Microfilms Masters.

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IMPACT OF THE TECHNOLOGICAL CHANGE ON LIBRARIES

The impressive developments of the new technologies for libraries and library users will require teaching new skills to library staff: the technical ability to using these very changeable hardware and software, the education skill to train the end users to use efficiently these new information technologies, management skills for funding the new costs of these systems, including by the fee of the services, as described by Villard and Schoots last year.[2] Thus, there is an increasing move in library budgets, with less money devoted to the acquisitions and more resources devoted to investments in and current costs of automated systems and library networking.

Because of this important trend in library services and management, libraries in Europe will have to change into multimedia and "high-tech" information centers. This will also require overcoming the national borders in order to find the know-how and the dynamism indispensable for the challenge of the new technologies to turn our society into an information society.

REFERENCES


