A MODEL OF CROATIAN NATURAL SCIENCES INFORMATION SYSTEM

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Abstract

The attributes of an efficient library automation system. An information system tailored to the field of natural sciences. Croatian libraries in the field, their problems, achievements, and goals. Advanced searching techniques in the context of the Croatian library networking project. The challenges facing science libraries today.

Introduction

Ever since their very beginnings, libraries have been the places where human knowledge has been stored as well as disseminated and shared. They have served for preservation of culture and as such they have been irreplaceable in the process of education. Computers and new information technologies have brought changes into all segments of social activities, particularly into the institution of library. Moreover, it sometimes seems their survival has come into question due to the development of computer technology. However, libraries are in a sort of transitional period undergoing dramatic transformations. Conventional libraries in which users have to go through a number of drawers filled with catalog cards, subsequently trying to find their information along many rows of dusty shelves, repeating the same procedure in various different libraries on different locations, have become an obsolete concept. The information explosion has often made the process of searching for a subject of interest in traditional card catalogs and other paper indexes seem frightening. The user of today is different, his requirements have changed, and thus has his perception of a library. To meet the needs of the patrons, offering library collections on the Internet, stepping out of the library walls instead inviting patrons to come to the library, has become the motto of the modern library information service. Transformation of libraries has become indispensable (Webb, T.D., 1995).

In libraries, new technologies are used for improving the quality of already existing services, as well as for providing new kinds of services (new forms of information - multimedia and hypermedia, safety of information, access control, ensuring an efficient and quick information retrieval, attending to copyright protection, etc.). The new form of information will change library activities along with the users' perception of the library itself. New forms of library are being created - a virtual library as an electronic superstructure of traditional library („library without walls"), and a digital library which offers its resources completely digitized. By means of his/her personal computer and via Internet, now the user can search the catalogs of books, periodicals, and other library material from his/her own home or office.

The motivation for applying new technologies in library systems arises from three main sources (Rowley, J.E., 1984):

(1) the need that the existing library resources be more accessible to users,
(2) the need that resources be used in a way which is more suitable for the environment,
(3) the need to make the job of library staff easier.

What do we want to do with such a system?

Our main goal was to organize a system with an efficient way of access, with as few mediators as possible, covering natural sciences and technical information, i. e., to provide access to the sources of information contained in the holdings of corresponding libraries in Croatia within a thematic field (natural sciences). The system was supposed to induce and organize the creation of local information resources (data bases, online catalogs, reports etc.) so as to make them available for retrieval to the users all over Croatia and the world. The system would also have to ensure access to foreign information resources relevant for the field of natural sciences. Moreover, the information system for the field of natural sciences had to incite the development of similar systems in other fields or disciplines.

Further, prior to their participation in the project, some libraries have built their own data bases of their property (books, periodicals etc.). However, access was possible only

(a) to the library staff,
(b) on the computer, and
(c) with an interface which could in no case be considered suitable for the user.

Taking into consideration the existing infrastructure (CAR-Net - Croatian Academic and Research Network) and information resources within libraries, it was necessary to organize a system which would

- connect those libraries which have not yet had any connection to CARNet and Internet, so as to provide quick communication and solution to users' inquiries by searching local and foreign data bases and data banks, and to make the inter-library loans faster, etc.;
- make the existing data bases (of books, periodicals, bibliographies, theses, master's degree papers, as well as of other material) available to the scientific public via a network;
- develop data bases in those libraries which so far had no data bases at all (due to lack of staff, hardware and/or software), in the following order of preference:

  (1) catalog data bases,
  (2) bibliographical data bases (which would have to grow to eventually become data bases with an integral text),
  (3) factographic and referral type data bases;

- attend to continual training of the library employees (permanent professional training, specialized courses and workshops in the country and abroad);
- coordinate the acquisition of monographs, periodicals as well as data bases on all the media;
- work on concluding contracts with the world commercial suppliers;
- establish a data base of current research projects in the field of natural sciences in Croatia;
- establish a bibliographic data base of scientific papers in the field of natural sciences;
- develop a union catalog of serial publications in the field of natural sciences;
- develop a union catalog of publications-monographs in the field of natural sciences;
- render all the data and information in a digital form aiming at a virtual library for the field of natural sciences.

When commencing the work on the project of natural sciences virtual library, we have wished primarily to include such libraries which were:

(a) well organized,
(b) equipped with computers,
(c) already embarked on the process of developing local data bases,
(d) willing to implement new technologies in their environments, and
(e) ready to invest at the beginning at least an ancillary effort in working with these technologies.

At the moment, this project involves seventeen libraries listed below which with their holdings entirely or partly cover the field of natural sciences:

- the Rudjer Boskovic Institute Library, Zagreb
- Faculty of Chemical Engineering, University of Zagreb – Library and Information Center
- INA Research and Development, Zagreb – INDOC Center
- Faculty of Natural Sciences and Mathematics, University of Zagreb – Department of Mathematics – Library
- Faculty of Natural Sciences and Mathematics, University of Zagreb – Central Chemical Library
- Faculty of Pharmacy and Biochemistry, University of Zagreb – Library
- KONCAR, Zagreb – INDOC
- Faculty of Biotechnology, University of Zagreb – Library
- Faculty of Natural Sciences and Mathematics, University of Zagreb – Central Library of the Department of Physics
- Faculty of Natural Sciences and Mathematics, University of Zagreb – Central Library of the Department of Biology
- Faculty of Natural Sciences and Mathematics, University of Zagreb – Central Library of the Department of Geography
- Faculty of Natural Sciences and Mathematics, University of Zagreb – Central Library of the Department of Geophysics
- Faculty of Natural Sciences and Mathematics, University of Zagreb – Central Library of the Department of Geology
- Faculty of Agriculture, University of Zagreb, Central Library
- Faculty of Agriculture, Josip Juraj Strossmayer University in Osijek, Central Library
- Croatian Natural Sciences Museum, Zagreb, Library
- Institute of Geology, Zagreb, Library.

In future, we plan to include all libraries which either completely or partly cover the field of natural sciences and, naturally, which are willing to collaborate on such a project. Some of the libraries already involved in natural sciences would in due course have to become either the cores or participants of other thematic subsystems.

In Croatia, we have to deal with the problem of physical dislocation of thematically related holdings in relatively small specialized libraries, which forces the user to wander from library to library in search for information. We shall try to solve this problem within the scope of this project by setting up a virtual library of natural sciences which will unify the data on holdings of corresponding libraries.

What have we done already?

At the beginning of this project, early in 1995, only one library had an online connection and had had previous experience with network services (the Rudjer Boskovic Institute). At the time, some libraries were making effort to develop local data bases, whereas one of them not even

had a computer. Generally, we have drawn a conclusion that, due to a number of economic, cultural, and sociological reasons, the libraries in the Republic of Croatia were equipped extremely inadequately indeed.

By mid-year of 1995, the libraries participating in the project were equipped with the indispensable equipment, i.e., hardware (personal computers and printers), and early in 1996 they were all of them connected to the network (either via Ethernet or via modems). In addition to the CDS/ISIS software package, which most of the libraries had already been using, we purchased the software package for processing the serial publications (SandPlus). With the work station (SUN Station 20) and scanner HP (ScanJet IICX) we have immediately started work on developing the WWW servers, thus making all the data available to the users.

Now, each of the libraries is represented by a WWW page on CARNet and Internet, thus offering to users all the information on their library which is required: library online catalogs, its structure, the corresponding central ..tution, a description of the library collections, information on the working hours, staff, the e-mail addresses, contact telephones, and everything users might need in the retrieval of primary information which is still, unfortunately, mostly placed locally either on paper or on a disk or CD-ROM.

During 1995 we have intensely worked on the input into the data bases of earlier monographs (books mostly), whereas during 1996 and 1997 our work has mostly been focused on the input into the data bases of serial publications, thus introducing a novelty into the libraries. For the time being, SandPlus software package which is used for the input of serial publications has just a few modules (Acquisition, Current Arriving, Catalog, Export/Import, Print, Back-up). It provides complete processing of serial publications and, what is most important, in some later phases, over the network, the users will have an insight into current periodicals which would be arriving at the l'" ary. The data bases of periodicals are organized by y ...s.

Now, in the union catalogs there are about 70,000 monographs and the data on 2,000 publication titles of three to six years ago (depending on library). We have also worked on the data bases of dissertations, as well as Master's and Doctor's theses, and local bibliographies. Taking into consideration the absence of an integrated online library system, a software package which would unify, i. e., integrate all the activities of a library and which would simultaneously be transparent to the users for all kinds of searching, reservations, orders etc., the distributed local data bases shall be unified, i. e. integrated on the server „nippur.irb.hr.", indexed, and made available to the users on the Web. Although the searching is not sophisticated, it has been our estimate that for the time being it satisfactorily meets the requirements of our users. Besides, these data bases are relatively small, and thus simple and easy to search.

Inasmuch as there are there are no standards in Croatia for specific Croatian characters, the users have been left with the option of choosing the type of font in which their personal computers had been preset. A selection of four code pages used most frequently in Croatia has been foreseen:

1. ASCII
2. ISO8859-2
3. CROSCII
4. CP125.

Thus, we have achieved that users would not have to be concerned about the codes hidden behind „their" Croatian characters as seen on their screen. Users can simply type in, for instance, a surname using one of the code pages, and the program takes further care of whether the searching results are in corresponding units or not, although originally the data base itself may have used a code different from the one installed on the user's computer.

In the participating libraries, the librarians themselves update their data bases using the network, the same as any other information and documents, whereas the union catalogs work in such a way that they search the most updated versions of the data bases. The librarians have also mastered the HTML language for designation, so that they create their own documents and present them in the format adjusted to the WWW network space. The main idea is that the entire system is maximally distributed, as much as possible considering the limitations of the hardware and software used.

Other resources on CARNet and Internet are also being regularly gathered and updated, and then offered to the users following the thematic subgroups relevant for the field of natural sciences.

Our plans

In the forthcoming period we plan to complete the processing of serial publications, as well as to work out the bibliographies in those institutions where this had not been done before. Further, we plan to continue the input of monographic publication holding, as well as that of dissertations, master's theses, and diploma papers. Our aim is to transfer the complete data within the natural sciences library holdings into local data bases.

Furthermore, it is necessary to solve the question of library software, because with the software packages we use now, it is impossible to achieve any further progress in the quality offer of resources. Besides, transferring the specific format data from personal computers, then transferring them on to the Unix station and processing, requires an additional time consuming and unnecessary effort. There are various different integrated online library systems for all kinds of operating systems; they are numerous and their quality is improving, while at the same time their price continues to drop (Cibbarelli, P., 1996). We have to find a sponsor and purchase one such system.

In the future, we shall particularly emphasize the digital information, data bases, and documents with integral texts. Natural sciences are rich with a variety of resources,

the multimedia display of which would be both useful and attractive on the network. Further, for the purpose of preservation, protection, and an improved user access, the question of digitization of ancient and valuable books as well as of other precious resources should be considered.

We shall continue to use our union catalogs in order to coordinate the acquisition and thus save considerable amounts of money which could subsequently be invested in the purchase of data bases (online and CD-ROM).

Our library staff will be regularly trained, particularly with regard to new technologies, especially network services. This is the only way if the libraries are to keep their users and to offer them the services they expect.

The challenge

The information has changed, the user has changed, and if the library still wants to keep the role it had in the past, it has to change, too. Even if we speak of a new, changed, electronic/digital/virtual library of the present and the future, two approaches are possible:

- ❖ the conservative approach, seeing computers in libraries,
- ❖ the visionary approach, seeing libraries within computers.

Both these approaches are mutually interwoven in the concept of virtual library this project aspires for. Possibilities offered by a virtual library represent a strong incentive for development in the sphere of librarianship, but the librarians in our country should also become active participants and initiators of changes and not just passive observers. In the time of increasingly sophisticated network tools for information retrieval, it might happen that libraries would become more and more frequently avoided by users.

The hope for survival of libraries and librarianship derives from yet another point: today we already face a situation where the enormous quantities of information incoming on our screens have considerably surpassed our capacity for storage, administration or searching. „Infoglut" – the information overload, is a chance the library experts must and can use for their affirmation.

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