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Development of the Integrated Library System in the Slovak Technical Library

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Introduction

This paper is aimed at discussion of the library and information computerization in the Slovak Technical Library, Bratislava. The history and the development of the integrated library and information system is described. The crucial problems of integration within the LAN represent the priorities of the current library automation tasks.

The paper will deal with:

- main automation strategies in STL (the wider context), especially relating to

- integration,

- networking,

- object-based modelled technology,

- adherence to standard (compatibility) (CS MARC, UNIMARC, EC, ISO),

- flexibility of hardware and software (constant innovation and dynamic change),

- retrospective conversion, quality of records and databases,

- internal technological unification,

- background (brief review of progress of the automated library processes in STL),

- recent advances in new information technology implementation (online cataloguing, OPAC, acquisitions, circulation control, periodicals control, bibliographic and online information services, administrative support and text processing),

- important problems of the integration (communication format, systems unification, organization of work, unity of technological process, modular system development),

- perspectives of new information technologies in STL (hypertext, knowledge organization and representation techniques, international standards, text processing).

Brief history (1975-1986)

The history of the library and information processes computerization in the Slovak Technical Library (STL) dates back to the early 1970s. The first system in operation was the union computerized catalogue of foreign books (the foreign books accessions - PZK) developed in 1973. Actually, it was the first computerized library system in Slovakia, followed by some pioneering steps of STL including the book-form catalogue of serials, serials circulations service, the book-form catalogue of standard, and others. Within the first decade of the information systems development an important role has been played also by the SDI service (PZK) and retrieval service (databases INSPEC, EMIS).

During the 1990s the situation has been rapidly changed and resulted in more systematic approach to the library automation. A number of national research projects has been launched, and, consequently, the local computing centre with computers of its own (SM series minicomoputer, the product of the former Council for Mutual Economic Aid, COMECON)) has been established. As a result, the automated circulation control system has been developed using SM4-20 and the local software application by the end of 1990. Then the online cataloguing project was completed and the first PC-based OPAC available in Slovak libraries, as well. At the same time the computerized union catalogue within the regional library network (in Bratislava) has been designed.

Development (1986-1991)

At present we have designed the integrated version of the STL automated library and information system. Some of the systems in operation were re-designed so that the mutual links and cooperation of sub-systems can be improved. We have been involved in the preparation of the first unified interchange format for Czechoslovakia (IKIS exchange format developed in cooperation of Matica slovenska - Slovak National Library and the National Library of the Czech Republic) (at present being revised into CSMARC). Our OPAC database has been developed as a special library application of micro CDS/ISIS, the software package distributed by UNESCO. We have accepted the IKIS exchange format regarded as the most important integration means within the library system.

The Automated Books Circulation Control was completed as an online system composed of users database and the circulation database, both making use of the bar-code identification (again being one of the first libraries in CSFR).

The special collections systems were developed comprising the SDI services of busineas and trade literature accessions, online catalogue of standards, and others. Special collections include especially business and trade literature, industrial catalogues, standards and patent - covering all technical subjects.

Our OPAC (local database) conception and realization has brought about a great success for STL within the library system of Slovakia. We have used the micro CDS/ISIS software application, which was distributed to many libraries and other institutions (more than 60) in Slovakia. The idea of mutual cooperation should in future result in realization of the union catalogue of technical literature in Slovakia (local accessions being stored in STL - either through disks or within the communication network) following the design of the cooperative cataloguing.

The online cataloguing system, as well as the acquisitions system, are now in operation covering collection building in STL. Both systems are developed using PCs (today 8 LAN workstations) and micro CDS/ISIS features of database development, search, export, import, printed outputs. The basic functioncal structure of the acquisitions system is composed of order and desiderata processing, accessions, printed listings, data transfer to OPAC and cataloguing department, directory of suppliers, international exchange of publications. Created accession records are then transferred to the cataloguing system and completed in the form of the IKIS-CSMARC Interchange Format. The retrospective conversion is developed as a parallel task, at present we have completed our database of book catalogue records comprising 6 years (1991-1986).

As for the circulation control, it is aimed at online processing of circulation transactions using databases of users records respectively of circulation records. For the identification of book numbers and users is used bar-code (here STL was again a pioneer to use bar-code within Czechoslovak libraries). The circulation system runs on minicomputer SM-4-20 and it is going to be re-designed for PCs.

The serials and periodicals control system design will also be completed within the whole library network. The present catalogue of periodicals (which has run on the external computer) has been converted into a new format on OPC. The data structure will be then integrated into the STL OPAC. The Current Contents Service of periodicals has recently been introduced. Further functions (acquisitions, circulation, cataloguing, etc.) will be designed as parts of the integrated system in LAN.

The automated reference and bibliographical services including online search services from our catalogue (SDI, retrospective retrieval services) are going to cahnge towards the use of databases available on CD-ROM products.

As for the administrative management support we have been using some word processing systems, as well as the desk-top publishing system. We hope the unified word processor can be applied in terms of our integrated system as a whole.

In line with our automation strategy the upgraded hardware was purchased last year including 3 (prospectively mutually linked) LANs, each covering the different sites (buildings) of STL places in different parts of Bratislava. However, the problem of the hardware and software innovation within the dynamic system evolution is still a permanent task.

Integration

As all the subsystems are interdependent, the integration within the internal library network becomes the most important task of STL research and automation. The question is, how to treat the outdated automated agenda so that the valuable data can be preserved and used within the new integrated system.

Another problem emerging from the integration effort and new technology implementation covering especially LANs with file servers, routers, communication nodes and workstations is connected with the internal communication format establishment. The variety of software systems used within STL represents a serious obstacle to the system'm integration. Furthermore, the present systems are marked by a variety of development stages.

Nevertheless, we have designed the model of our integrated library and information system with the intention of its further completion in terms of networking. The methodological issues of the system unification prior to the internal software application tend to emphasize the adherence to standards in the field of data creation and exchange, as well as links to the wider national or international external databases. Therefore we are now at the stage of the new approach to the methodology development including the communication format as a unified data structure compatible with national and international standards, the unified user's interface development, the unified search technology and retrieval languages application, the unified design of statistics processing etc. This approach enables us to introduce the modular principles of the information systems design and object-based requirements modelling in terms of flexibility and compatibility. In line with capacity and expandabiblity requirements the CD-ROM technology and online catalogue integration is supposed to be established.

Our system has proved the requirements of necessary changes in the organizational issues of library work as a result of automation, e. g. acquisitions (division of labour following technical processes - desiderata, order processing, accessions processing, etc.). We suppose that the successive detailed specification of modules will result in the modular object-based specification of the integrated system within the whole library. Large databases are supposed to be stored on

CD-ROM servers (general retrospective catalogue of books, periodicals and special collections). As soon as the standard methodological tools are defined (unified data structure, user interface, input and output formatting, common comand language for online interactive retrieval, unified technological processes), the application software tools within the network environment can be developed, or even purchased from vendors. The standard modules on the methodological level might be perspectively applicable in other technical libraries in Slovakia. We hope that the advanced object-based specification method could be of use for the consequent object-oriented software development.

Perspectives

Introduction of new information technology emphasizes some changes in our library work.

We suppose we should take into consideration the following issues:

- the users'requirements,
- closer teamwork outside the traditional organizational structures,
- link of our databases to the administrative an beaureaucratic systems,
- interlibrary national and multicultural communication,
- adherence to standards (European Community, ISO, CSFR standards, Guidelines for an informatics architecture).

We will go on in our bibliographic and catalogue records production and in linking our databases to other automated library systems so that the better access to knowledge in European libraries can be achieved.

We will try to establish connections of our OPACs with the European networks, our acquisitions system with the acquisitions systems cooperation (EDIFACT) with the new document supply features (cooperation of publishing houses and libraries.)

Introduction of new library and information services is another important task - e. g. hypertext technology, CD-ROM databases, desk-top applications.

In the fields of telematics for library we have started with LANs, the next stages will include transition to WANs, standard user-friendly interface, electronic mail.

It is obvious that it is no longer programming, but system planning, design, data definitions and structures, information flow and technological specification of application that form the basic parts of the forthcoming developments. We also have an intention to move from quantity to qualitative features of library (especially our databases) and automation technology (including users' needs

modelling, object oriented cognitive structures of learning and understanding - i. e. better use of information and knowledge).