

# SCIENTIFIC INFORMATION COMPUTER SYSTEM OF THE TECHNICAL UNIVERSITY OF GDANSK

LECH ZIĘBORAK

*Main Library*

*Technical University of Gdańsk*

*Narutowicza 11/12, 80-952 Gdańsk, Poland*

*zieborak@pg.gda.pl*

**Abstract:** The Scientific Information Computer System at the Library of the Technical University of Gdansk has been presented in the article. The system includes: Computer System of Catalogue Information and Supplying Publications APIS-ZB, Information System on Scientific Research at the Technical University of Gdansk APIS-NB and Network System of Providing Data Bases on CD-ROM InfoWare CD-III.

The basic systems function as well as prospect of their development have been presented. The problem of using the Internet as information source and its supplying tool has been discussed.

Common tasks of libraries at technical universities in Poland, which would facilitate the scientific information transfer between them, have been stressed.

## 1. Introduction.

The essential task of scientific library activities at universities is providing scientific information in all presently available forms, with the help of suitable means and devices. Undoubtedly, the most modern form of information are computer data bases, and the means facilitating the effective usage are the computer systems.

Currently, in the majority of university scientific libraries in Poland, computer systems are in use for different sorts of information and library processes. The range of their function and functional possibilities can differ. Generally, the extend of the implementation of particular systems can differ from one library to another.

The final target of computerising implemented in libraries is creating the scientific information system adequate to the needs of the recipients and contemporary technical standards. Its complicity requires the solution of very complex substantial issues, joint organisational efforts and considerable financial means.

Therefore, the information exchange as to the systems capacity, as well as experience and opinions on library computerising, systems implementation is of great practical importance both for libraries just beginning their computerisation works and for those advanced at these process. Those very issues based on the example of the Main Library of the Technical University of Gdansk are the crucial objectives of this paper.

## **2. Scientific Information Computer System at The Main Library of the Technical University of Gdansk.**

For a number of years the Main Library of the Technical University of Gdansk has been consequently creating and developing scientific information computer system. At present it comprises the following computer systems, operating data bases:

- APIS-ZB — Computer System of Catalogue Information and Supplying Publications,
- APIS-NB — Information System on Scientific Research at the Technical University of Gdansk,
- InfoWare CD/HD — Net System of Providing Data Bases on CD-ROM.

In order to indicate the role and tasks of those systems in the scientific information system at the Technical University of Gdansk it is essential to characterise them briefly.

Two of those systems, APIS-ZB and APIS-NB, play a double role. Firstly, they are systems which facilitate the primary library processes – cataloguing and supplying publications (books), as well as creating documents on the scientific research. Secondly, they are the systems creating data bases and supplying available information.

The third of them, InfoWare CD/HD, is a typical example of a system giving access to data bases, bases prepared by professional bodies, elaborating technical scientific information whose distribution is of commercial character.

### ***2.1. Characteristics of The APIS-ZB System.***

The APIS-ZB system fully computerises the essential activities of the Library, as to providing service for readers as far as publications availability is concerned. That includes a variety of tasks ranging from book cataloguing to supplying books to readers. The system improves a number of activities connected with library services, which concerns, among others, providing registers, statistics and monitoring.

#### ***The APIS-ZB system consists of three crucial subsystems:***

- KANAB  
Kanab subsystem operates functions concerning book cataloguing. Catalogue descriptions are being created in keeping with USMARC standard.
- CATALOGUE  
Katalog subsystem facilitates a reader with a set of functions which allow independent access to computer catalogues (OPAC) and ordering books to be lent. It also enables checking individual readers' accounts.
- LOANING  
Loaning subsystem facilitates all the functions connected with readers' services.

The three function groups are as follow:

- registration of readers' data — functions: New, Modification, Show, Denied Access, Settlement of Accounts.
- registration of data on loaning — functions: Loaning, Return, Prolonging, Note of Admittance to other libraries, Temporary Computer Catalogue, etc.
- system administration — functions: Service Statistics, Current Order Position, History of Book Loans, Admonition Printouts, Statistics Statements, etc.

All together, there are dozens of functions within a system, connected with a reader service. However the presentation of these functions is not the task of this paper; it seems to be important to draw your attention to some of these functions, which in the context of readers' service are a complete novelty, comparing to traditional systems. Generally, the point is not only technical means being applied; but mainly, adopting the other, alternative from traditional, functional solutions.

Every day, having set the system APIS-ZB in motion, it automatically checks the dead-line of receiving books ordered by readers and the dead-line of the right time of returns. All the book orders which await being loaned longer than a fixed period of time are automatically cancelled and a register of books due to be returned to the store-room of the library is being printed.

All the books taken by readers, which were due to be returned the previous day, obtain the status of 'overdue', causing — at the same time — the denied access to respective readers' accounts. These readers cannot make orders or loans within the system as well as hand-written forms until the overdue items are returned or period of loan is extended.

The restricted access also arises in the case when the library card is expired. Moreover, in regard to each overdue book the system will automatically impose fines for overdue. The Loan Regulations of the Library indicate the amount of money to be paid as a fine.

The system also prints out forms, urging the readers to return books, accounting to the periods of 30, 60 and 90 days.

In regard to the readers from outside of the University, the system facilitates registration and settlement of deposits for loans, according to the Library Regulations.

The system also issues notes of admittance to other libraries. It enables the full control of readers' accounts, which is vital as far as the readers' settlement of accounts is concerned.

### ***Management of The System***

Maintaining of the system APIS-ZB is being controlled by a set of parameters, defined at the beginning of the implementation works at the library. The reference values of parameters can differ throughout the period of exploitation of the system, keeping with the library needs.

They concern among others:

- extend of authorisation to a specified collection of books, for instance old prints,
- maximum number of books on loan,
- the period of library card validity,
- the book loan period,
- the necessity of receiving the deposit. etc.,
- faculties of the university,
- readers' institutions of origin,
- fines to be paid for overdue,
- amount of money for deposits.

The system 'guards' the whole set of data, which makes library officials' work substantially easier.

Parameter values can vary not only globally, but also individually for a particular reader. Also in the case of library's loan regulations changes they can be immediately introduced for all readers.

Moreover, the system enables current monitoring of the whole library's work as far the readers' loan orders are concerned. Therefore, anytime it is possible to obtain information concerning:

- the number of the loan orders (the number of computer orders),
- the number of printed orders (accomplished in the store-rooms),
- the number of books, transferred from the store-room to the Loan Department,
- the number of loan denials,

These data created independently of the typical library statistics enable the management of the library to currently control the most complex tasks of library activity.

### ***System Created Data Bases***

Data bases created and operated by the system include:

- Computer Catalogue of Books (KK).

Currently it includes catalogue descriptions of over 120.000 of volumes. Those are the catalogue data:

- all the books purchased by the Main Library and the branch libraries, starting from September 1991,
  - all the manuals, acquired by the library.
- Temporary Computer Catalogue of Books (TKK).

Temporary Computer Catalogue includes abridged catalogue descriptions of books, which were on loan through the APIS-ZB system, but their catalogue descriptions are in the traditional card catalogue and in the future they will



belong to the Computer Catalogue. There are about 10.000 of abridged catalogue descriptions.

- Readers' files — include personal data of readers and the state of their loan accounts.

### *Net Services*

The **APIS-ZB** system provides catalogue information included within book computer bases and enables placing readers' orders through the computer net of the Technical University of Gdansk, as well as TASK, on the basis of the following protocols:

- **IPX/SPX** — Server Novell: **library\_tug**, account: **czytelnik**;
- **TCP/IP** — through: **telnet apis.bibl.pg.gda.pl**, account: **apis**.

Catalogue information is also available at the Webside: **<http://sunlib.bibl.pg.gda.pl>**

### *The prospects of the APIS-ZB System development*

It must be said, on the basis of previous exploitation experience, that the system works properly both in the view of functional possibilities and the speed and work reliability. Nevertheless, constant improving of software is being introduced, as a number of computer system authors have been employed at the library since September 1993. The APIS-ZB system development is of permanent character and is carried out dually: system function development and net service development.

The program design works currently carried out in the field of function system development, concern other subsystems:

- PERIODICALS
- ACQUISITIONS

**Periodicals** subsystem is applied when journals and publications of the following function are at issue:

- accession,
- creating the computerised catalogue of periodicals,
- searching the periodicals and publications in the computer catalogue.

The **Acquisitions** subsystem will enable:

- creating the computerised file of books and publications orders,
- preparing and registration of the orders despatches to suppliers,
- order processing control:
  - registration of financial documents and supplies,
  - monitoring of delays of supplies,
  - creating of the overall financial reports, as well as purchases reports,
- computerised inventory books keeping.

Subsystem software works are scheduled for the beginning of the next year.

## ***2.2. APIS-NB Information System on Scientific Research at the Technical University of Gdansk.***

APIS-NB Information System on Scientific Research at the Technical University of Gdansk completely computerises scientific research documentation at the Technical University of Gdansk.

### ***The basic APIS-NB system functions include:***

- creating data bases on scientific research,
- creating standard indexes files,

The implementation of records to data bases is being controlled by the following standard files:

- authors — the authors' personal identifiers,
  - key words,
  - forms of publication,
  - countries of publication,
  - languages of publication,
  - department's symbol.
- Searching for information.
- Searching for information enables achievement, among others, of the following functions:
- SEARCH — finding out publications according to conditions required by the user,
  - INDEXES — finding out publications within the data bases on the background indexes files,
  - SORT — sorting the previously obtained result,
  - SHOW — projection of the following data records (publications), which have been selected during the previous searching. If there is function SORT before, the printed records will be properly arranged.
  - PRINT — printing of records, which have been selected during the last searching,
  - FILE — copying of records, which have been selected and transmitted during the last searching to the file of the particular local drive.

### ***Parameters of the search for available information within data base system***

There are the following parameters (indexes), which have been applied within the system:

- author (authors) of publication,
- title of publication (first 70 sign),
- key words,
- forms of publications,

- countries of publications,
- languages of publication,
- department's symbol,
- author's personal identifiers,
- publication register number within the system.

### ***Data bases created by the system***

Data bases on Research at the Technical University of Gdansk is the basic data base of APIS-NB System. This base includes bibliographical description (including, in majority, scientific works with abstracts), concerning approx. 45,000 scientific research. Undoubtedly, it is a unique collection, covering the entire author's achievement of scientists at the Technical University of Gdansk, which is of considerable and substantial value.

The basic part of this base has been transformed from the Evidence of Research System, which has been used at the Technical University of Gdansk since 1978.

The Main Library has prepared APIS-NB information-searching system, enabling the net creating of data base and providing information included within the system.

Information included within the system is available within the entire University Computer Network.

### ***2.3. InfoWare CD/HD - Net System of Providing Data Bases on CD-ROM***

InfoWare CD/HD System of Providing Data Bases on CD-ROM, from Info Technology Supply, has been installed and started in January 1997.

The system includes:

- Computer with a configuration:
  - Pentium 130 MHz Processor — 2 items,
  - RAM 64 MB,
  - HDD 9 GB — 2 items,
  - Windows NT operating system.
- Ultra\* Net 2.0 NT Server Software.

This system has been financially supported by SOROS Foundation (Stefan Batory Foundation), based on the Project prepared by the Main Library of the Technical University of Gdansk. Ultra\* Net 2.0 NT Server Software enables copying on server's hard disks at least 27 complete CD-ROM disks (about 600 MB each) of any data base.

Once those bases have been copied they are available at the Technical University of Gdansk network, as well as TASK for 255 users (clients) at the same time.

The computers, giving the net access to CD-ROM bases, have to be equipped with Ultra\* Net Client Software.

The net communication between server and client's computers operates basing on one of the following protocols: TCP/IP, IPX/SPX, NetBEUI and NetBIOS.

### ***Data Bases on CD-ROM***

The Main Library has at its own disposal CD-ROM bases comprising:

Science Citation Index,  
Social Science Citation Index,  
Compendex Plus,  
Applied Science and Technology,  
Journal of Applied Physics,  
Environment Abstract,  
ASFA — Aquatic Sciences and Fisheries Abstracts,  
Toxline Plus,  
Perinorm,  
Springer in Print,  
Microsoft Art Gallery.

This broad access to InfoWare CD/HD System is the following stage of the computerising process of scientific information for the needs of the Technical University of Gdansk, as well as scientists and students of Tricity Area.

### ***2.4. Other Sources of Scientific Information Employed at The Main Library***

One of the most important sources of information of Scientific Information System at the Main Library of the Technical University of Gdansk is the Internet. Appreciating the important role played by the Internet in providing and exchanging information the Main Library of the Technical University of Gdansk has become the co-author of the Tempus JEP+ Project, NR 7853, co-ordinated by the Main Library of Cracow University of Technology. The main target of this project was to create the grounds for the computerised information systems exchange within the main libraries at nine most important technical universities in our country.

It concerns the following universities:

The Main Library of the Technical University of Gdansk,  
Cracow University of Technology,  
Warsaw University of Technology,  
Wroclaw Technical University,  
Poznan University of Technology,  
Lodz Technical University,  
Stanislaw Staszic Academy of Mining and Metallurgy,  
Kielce University of Technology,  
Rzeszow University of Technology.

The Main Library of the Technical University of Gdansk has been co-ordinating the implementation of the two main Project's subjects, concerning:

- computer hardware selection for the needs of libraries taking part in the Project,
- working out the interface exchange of information between library computer systems of Project's participants.



As a result of the implementation of those two themes, the libraries included in the Project, achieved the following targets:

- the USMARC standard has been implemented as the standard exchange of catalogue information throughout the libraries,
- WWW servers (Websites) including catalogue information of particular libraries have been created. WAIS has been chosen as a tool for serving those servers, which enables simultaneous selection of the searched information in all libraries. It is also possible due to the wide spread use of USMARC standard.

Having been connected to our Website it is possible to view the catalogue information of all the libraries mentioned above.

The Main Library of the Technical University of Gdansk is also using other available data bases, whereas e-mail is a widely used tool of communicating throughout the libraries.

### **3. Conclusion**

The paper at issue is an attempt of distributing the condition of the computerised scientific information system at the Main Library of the Technical University of Gdansk.

It is worth to pay attention to the fact that this system is undergoing permanent development and a number of improvements have been made throughout the last year. That has facilitated a wide-spread Internet access to information resources and main functions of user's services.

Those gains have been achieved due to the efforts of the management, as well as the staff of the Library.