

# BIBSYS - an Information System for the Norwegian Academic Community

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*BIBSYS*

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## **BIBSYS - AN INFORMATION SYSTEM FOR THE NORWEGIAN ACADEMIC COMMUNITY**

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### **BIBSYS history 1972 - 1997**

BIBSYS celebrates its 25-years anniversary this year. This is quite a respectable age for a library information system.

BIBSYS started as a project in 1972 initiated by the two University libraries in Trondheim together with the Computing Centre at the University. After some years of planning, the first part of the system, the acquisition and search modules, were put into operation in 1976. In the very early days BIBSYS was a one-user system. The two libraries each used the system two days a week, and half day Friday! Further modules were added to the system, cataloguing 1980, circulation control and OPAC 1983. The last module was serials control, added in 1994.

The goal was that BIBSYS should contain all the modules necessary to manage the routines in a scientific library.

### **A centralised system**

BIBSYS started, and has continued, as a centralised system for all the participating libraries. One of the foundations of BIBSYS is of course the idea of sharing for example bibliographic data. During BIBSYS 25 years there has been an ongoing discussion about the need to distribute or decentralise the functions or the database. At one point in our history there were plans to have some local parts in the system, for example circulation control. It has become clear, however, that much of the data previously thought to be of interest only to a local library, is indeed of interest also for the other libraries. If you plan to borrow a book from another library, it is of course of value to know if the book is already lent out or not. This is one example of local information that is also important to other libraries.

The question of decentralisation of the database was also much connected to the question of the quality of the data network. At the moment, the Norwegian Academic Network (UNINETT) has high capacity and is very stable, we therefore think that a centralised database is the best solution.

In any case, if we should decentralise the database, we would keep central cataloguing, followed by a copy function to the local base. This is the best way of ensuring good quality of bibliographic data (minimisation of duplicates).

## The member libraries

BIBSYS has grown from a system for a few, but large, university libraries to a system that takes care of approximately 60 libraries. They vary in size from 0,5 man-years in the library to more than 300 man-years. In addition BIBSYS now covers a variety of libraries with different needs and usergroups, Universities, the National library branch in Rana, regional colleges and research institutions.

In the years to come the system will have to be remodelled to take more care of the very small libraries. There one person has to do work in many of the modules and the necessity for specialisation is much less than in a large university library.

## Hardware

When we started to plan the present version of BIBSYS in 1984/85 it was decided that a commercial database should be used as the foundation and that the application programs should be written in a 4th generation language. BIBSYS decided to use the database ADABAS and 4th generation language NATURAL from the German company Software AG.

The BIBSYS II system was taken into use in 1989. It ran on an IBM mainframe and had approximately 80 concurrent users. In 1996 the whole system was moved to a UNIX platform, without much reprogramming. The functionality remained mostly as before. The system now runs on a cluster of IBM RS-6000 machines. The system is called BIBSYS-III, it is still centralised, but a client/server architecture is used.

At the moment we have 2 database servers and 3 client machines that together manage approximately 1.200 concurrent users at peak time. This is a large on-line Unix installation, and we have put much work into the maintenance of the database. Compared to a mainframe solution the hardware is less robust and the need for disk space much greater. We now have about  $\frac{3}{4}$  Terabyte of disk available.

## Organisation

BIBSYS is organised as a co-operation between the participating libraries. It is still called a project - after 25 years.

For many years, work has been going on to give BIBSYS a formal organisational platform. We hope that a final decision will be taken in some months' time.

BIBSYS is a non-profit organisation and most of the costs are split between the libraries according to their size. When a library has paid its share, it can use the system as much as it wishes, that is, there is no taximeter system.

The head-office is in Trondheim, but BIBSYS also has some employees in Bergen and Oslo. In total, about 35 people work in BIBSYS.

## BIBSYS - a network of competence

The history of BIBSYS is also the history of library information in Norway.

The present BIBSYS system was made on the basis of user-written specifications. We also have specialist groups for each module. The groups meet once or twice a year, discuss possible changes to the system and suggest what should be the priority of these changes.

BIBSYS maintains a help-desk staffed by three persons. Each day they handle many questions from our users. This is one of the ways we try to keep close contact with our users.

This working method has resulted in a librarian-to-librarian network of great importance. A library information system is not only a question of a working database, but to a great extent of how you produce the data. When many libraries do the production they must co-operate.

Library information is a speciality of its own, and BIBSYS is proud that it has been possible to keep a high level of competence in the BIBSYS group.

For a small country as Norway with a language of its own, it is a great advantage to have a high degree of competence yourself and not having to rely on foreign systems.

## Research documentation

BIBSYS does not only consist of a bibliographic database. We also have a database of research documentation (FORSKDOK). It consists of two parts: information about research projects (FORSKPRO) and research results (FORSKPUB).

Information about ongoing research and the results of the research is needed both in the academic community, by the government and by the research communities. Such databases are also promoted at the European level at the moment. The BIBSYS research documentation databases use the European registration standard CERIF. BIBSYS also participates in the European ERGO project.

## The involvement of libraries in research documentation

Why does a library information system have a research documentation database? The reason is that our institutions need such data and the libraries should become heavily involved in organising such data. They should keep track of the ongoing research in their own institution. They should make the results, the documents, available to other users. The researchers move, but a copy of an article, for example, will have to be found anyway. It should be found in the library. Even more important is that the library knows how to handle metadata, how to describe the data consistently. In addition, libraries have experience in co-operation on an international level, and in the use of registration standards.

## Not only metadata: the ISI-database

BIBSYS does not only give access to metadata (bibliographic records and research documentation), but also to information on the article level. Last year a consortium of Norwegian libraries leased data from the Institute of Scientific Information (ISI).

The data currently consists of 5.3 mill. records from 1992 and onwards.

The raw data from ISI is loaded into the database BIBSYS has established for this purpose.

The data not only consists of author and title information but also to a great extent of abstracts. In addition the citations are searchable. The database is accessible by WWW for the academic staff and the students of the participating institutions.

From July 1, 1997 a consortium of Swedish libraries has started to use the BIBSYS ISI-database, and they will have access to the holdings of the Swedish LIBRIS database. This is an example of reuse of investments on a Nordic basis.

BIBSYS ISI-database is linked to the holdings in the BIBSYS bibliographic database, making it easy to order copies of the articles from the libraries that have the periodicals in question.

### Not only metadata: fulltext

Already it is possible to gain access to certain fulltext documents when you search the BIBSYS bibliographic database by WWW. The URL of these documents is registered in marcid 856. There are not more than approximately 400 such documents at the moment. A list of fulltext documents in the database can be found at URL: <http://www.bibsys.no/marc856/eks856.html>

There is an ongoing discussion about which documents to include. Until this has been finally decided, only records originating from BIBSYS institutions are included. The reason for this is of course the necessity of being able to have a stable document source. If a library only includes documents from their own institution, one can be more secure that the institution will continue to make the documents available. In addition, with such documents there will usually be no problems with copyright.

### Standards

The BIBSYS databases are based on standards. This means that exchange of data with other institutions is facilitated. The network is based on TCP/IP. Bibliographic records are registered in BIBSYSMARC which is our internal variant of the official Norwegian NORMARC standard. NORMARC, by the way, is based on USMARC.

Records are registered according to the Norwegian cataloguing rules, based on AACR2. One of the search modules in BIBSYS (GENSØK) is command-driven and is based on the common command language (CCL, ISO 8777).

BIBSYS is also accessible via a Z39.50 server, and the BIBSYS libraries can access other databases via the BIBSYS Z39.50 client.

## Digital teaching material

In addition to research documentation BIBSYS plans to incorporate other records that are not bibliographic. Many of BIBSYS institutions now develop digital teaching material which they also some times share with other institutions. The software should also be used by students living far from campus. BIBSYS plans to start a project of developing the necessary metadata elements for describing such objects, thereby making it possible for the institutions to register digital teaching material in a central database. The material itself will be stored locally at the institutions or centrally at BIBSYS. This database will be linked to BIBSYS other databases.

## International projects

BIBSYS is a small institution, and one of the ways we can keep up with the ongoing development is to co-operate in larger projects, Nordic or European. BIBSYS participates in the EU projects ONE (<http://www.bibsys.no/one.html> and <http://www2.echo.lu/libraries/en/projects/one.html>) and UNIVERSE (<http://www2.echo.lu/libraries/en/projects/universe.html>) in addition to the Nordic Metadata project.

## International co-operation

The creation of records is costly, BIBSYS therefore wishes to share resources with other library systems. This has now become much easier because of the Z39.50 standard. The problem will soon no longer be a technical one, but a question of permission to do copy-cataloguing.

In some cases BIBSYS will have to buy records from commercial companies, in other cases we hope to exchange records for free with other libraries.

## The digital library

The digital library is now slowly emerging. The BIBSYS board has decided that BIBSYS should start a large project in this field.

What do the libraries expect BIBSYS to have in the coming years? BIBSYS has to start the development of new services now, so that they can be available when the libraries expect such services. The digital library can consist of many parts; fulltext, pictures, digital teaching material, etc.

The problems connected to the digital library are also many. Copyright and the question about the role of the publishers are central. The question of security and payment for services must also be given much attention. BIBSYS will not initiate projects in all these areas, but we will build on our own knowledge and that of our institutions, to obtain results that can be of practical use to the libraries - soon.

## The interface

Even if the libraries move in the direction of the digital library, the need for traditional library services is increasing. This puts pressure on the BIBSYS databases and on the infrastructure and methods of the libraries themselves.

For example the present interface of the registration modules in BIBSYS has become old-fashioned. It has been discussed if we should develop a client program that could be run on the libraries' PCs, giving the registration programs the necessary Windows functionality. This would require us to distribute the software to several thousand users. We have therefore decided instead to use commercially available interfaces, for example web or JAVA-based clients. In any case for registration programs the question of security will be central. The internal library users have other needs than the ordinary user who already can use a web interface.

## How to reach BIBSYS

BIBSYS bibliographic databases can be searched as follows. The BIBSYS homepage on WWW also contains information about the other access methods.

### WWW

URL: <http://www.bibsys.no/english.html> (Homepage in English)

<http://www.bibsys.no/search/pube.html> (Search form in English)

### TELNET (VT100)

Address: orion.bibsys.no

Login: bibsys

Password: bibsys

### Email

Address: [genserv@bibsys.no](mailto:genserv@bibsys.no)

Send an email message to this address with the word INFO in the Subject: field, the mail server will then return a user's guide in English.

### Z39.50 server

More information can be found at URL: <http://www.bibsys.no/z3950n.html>

## From library system to information system

BIBSYS has gone a long way from a system only taking care of the internal household need of the library. The goal was first to make a best possible working tool for the librarians. Now the needs of the users of the libraries, the academic community and students, are in focus. They request more than metadata from their libraries. In an

age where they think they find much relevant information directly on the web, the library (and BIBSYS) should be able to provide them with high quality data in a way that is also linked to the libraries traditional services.

In the years to come BIBSYS wishes to «make knowledge available» (as is the title of our strategy) by developing new services and utilising links between our different databases. This will reduce the costs of the libraries. We reuse our knowledge in the development of the new services. We have a long experience in effective handling of data on a daily management basis. Last but not least, reuse of data is of prime importance as the creation of metadata is expensive.

BIBSYS wishes to go into the next 25 years with the goal to develop new services in close co-operation with our member libraries, continuing the co-operative tradition from our first 25 years.

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### Short biography

Born in San Pedro, California, USA in 1952, have lived in Norway since 1959.

Cand.real. degree in theoretical atomic physics from the University of Bergen, 1981.

Research work at the Institute of Physics, University of Bergen in several periods 1976 -1981. Several publications in atomic physics.

Research librarian 1982- 1985 and senior research librarian 1985 - 1988 at the University library of Trondheim. Several positions in BIBSYS from 1982, director since 1989.

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