

Bibliotekportalen - the Library in Cyberspace

By Pål H. Bakka

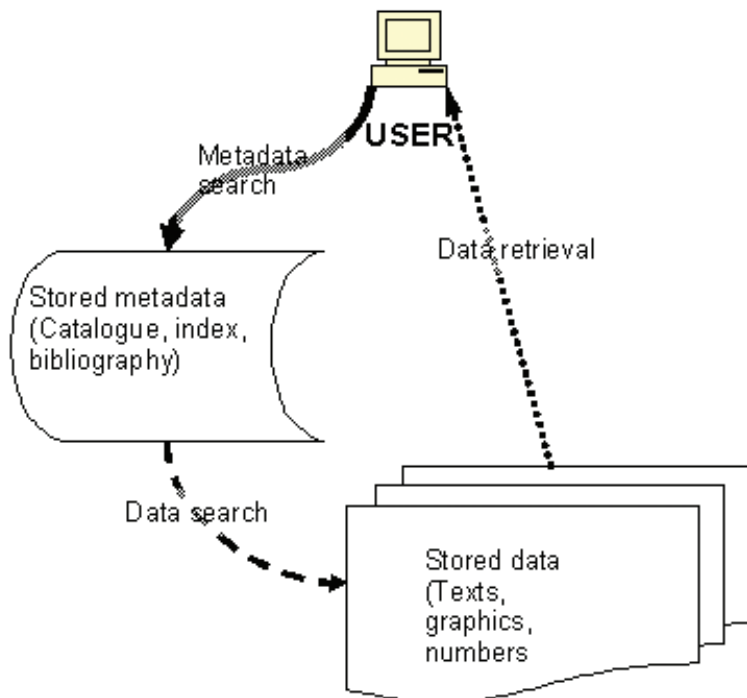
Why a Portal?

There are two ways of looking for information. Searching and browsing. Searching is looking for something you know is there. Browsing is “unstructured searching” – looking for something somewhere that may or may not be there. In the library context a “search” means looking up metadata in a catalogue, index or bibliography. Browsing is going directly to the shelves. The joy of searching is finding what you’re looking for. The joy of browsing is finding something you really need.

Browsing is, needless to say, frowned upon by real librarians. Open stack libraries and good subject indexes facilitate browsing; which may be why they are relatively new to the Norwegian academic library system.

Schematically searching looks like this:

Fig. 1: Librarians search:
The search process

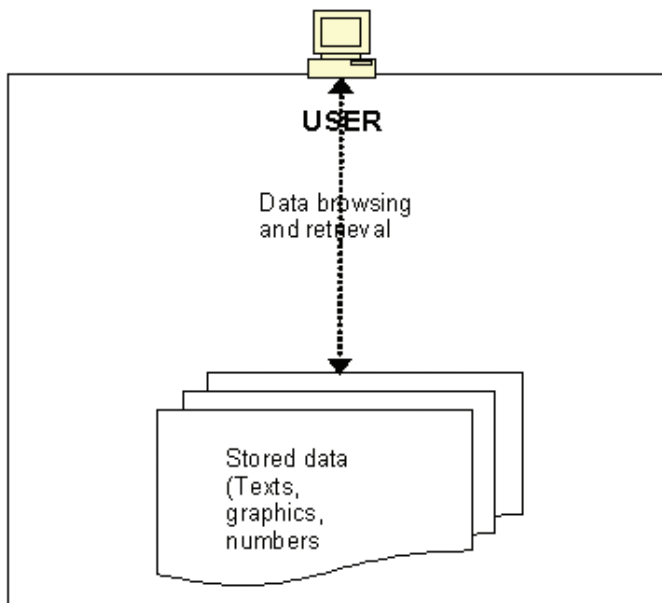


The traditional library search is, using modern information science terms, a “metasearch” – searching for data about data. Conventionally the kind of data found in catalogue entries describing the objects containing the information (data) needed. Metadata searching never identifies the entire amount of information contained in the described documents. The librarian’s rule of thumb is that half the information stored in a collection will never be found using the catalogue only ; which is why users prefer browsing for information in the data sources themselves by going directly to the stacks or the reference works.

Libraries have always offered facilities for browsing by organizing its data holding objects by content, book collections arranged by subject, or systematic catalogues or subject indexes.

Schematically browsing looks like this:

Fig. 2: User browse: The direct data search



The difference between searching and browsing is that the latter is performed directly on the information itself without going by way of predefined metadata; increasing the chance of finding useful information even where a metasearch has indicated a very low chance of success. It may lead the user into very fruitful digressions or make him waste his time in searching for something not there. The major problem with browsing is that users actually are satisfied with what they get and stop looking. Finding what they think they need, they are satisfied.

Even if what they find is not the best available information. Browsing the shelves is, after all, infinitely more satisfying than searching the catalogue. Both are necessary in the process of procuring scientific information. But browsing is in fact vital in establishing the knowledge necessary to perform informed metadata searches. Uninformed searching will always be afflicted by GIGO¹ and may be a total waste of time.

Why a Portal

Twenty-odd years of academic librarianship at the University of Bergen Library – most of them spent in the Social Science Faculty Library - has lead the author to the conclusion that Norwegian academic librarianship really is about logistics. A library is a warehouse, its task document delivery. The core library activity is the production of metadata used to retrieve the documents stored. The only unique “data” produced by a library in its cataloguing efforts, the minute biographical document description, is the shelf signature that indicates exactly where a document is found on the shelves. The sheer bulk of the catalogue rules indicate that, in libraries, cataloguing rules.

The information stored in the warehouse has never been subject to the same attention. The effort put into subject indexing or opening the collections to browsing has, at least in the University of Bergen Library, been far less. Ensuring data quality as opposed to metadata quality – or data access as opposed to document access – never was a major concern. Not because it was considered unimportant. It was not regarded as a problem. Quality was ensured through collection development, the users of the small elite university knew their needs. The library was inwards looking to the where my old professor, Stein Rokkan, lambasted the University of Bergen Library as a “book mausoleum”.

Since “librarians search” in order to deliver documents, metadata are quite sufficient for the library as an institution. That users don’t find is a minor problem compared to the chaos ensuing if metadata quality suffers. Library logistics are immensely complicated because libraries are extremely complex warehouses containing literally millions of unique objects. Like any good storekeeper a librarian should properly be more concerned with keeping order in the warehouse than with the use to which the objects are put. Dissemination of knowledge, research or education for information literacy is at best auxiliary activities compared to the maintenance of collections and document delivery systems.

¹“Garbage in, garbage out.” It refers to the fact that computers, unlike humans, will unquestioningly process the most nonsensical of input data and produce nonsensical output”. (http://en.wikipedia.org/wiki/Garbage_in,_garbage_out, Mar. 14th 2006)

That being said, the major priority of any library has always been prompt delivery of documents, for preference from its own collection. And as the good shopkeepers we are, librarians have always had a keen interest in the contents of the warehouse. We like to know what is hidden on our shelves. We need to know in order to provide our customers with documents containing the information they need. And we know better than anybody else that it is there – somewhere.

The existence of the World Wide Web means that “somewhere” no longer need be a shelf in some library. It’s out there on the Web. Which means it’s in there – three clicks away.

Or should be. In an ideal world.

The Internet contains everything. WWW really means the Whole Wide World. More prosaically, it contains a lot of unstructured and ill described data in addition to the minute quantity of metadata provided by libraries. At the same time these accumulated metadata are the only quality-controlled bits of information freely available on the Web. The rest has not and never will be subject to quality control. Searching the Web is best left to search engines. But it is a browser’s paradise.

To an academic library the Web is an opportunity. To its parent institution it is equally a threat. The Web is information overload come true. You can browse for years and not find a single piece of relevant information. If students do not drown in the ocean of raw data, they may come up with erroneous data or worse. They may even use it for cribbing – just like they used to use books.

For libraries the challenge of the Web is dual:

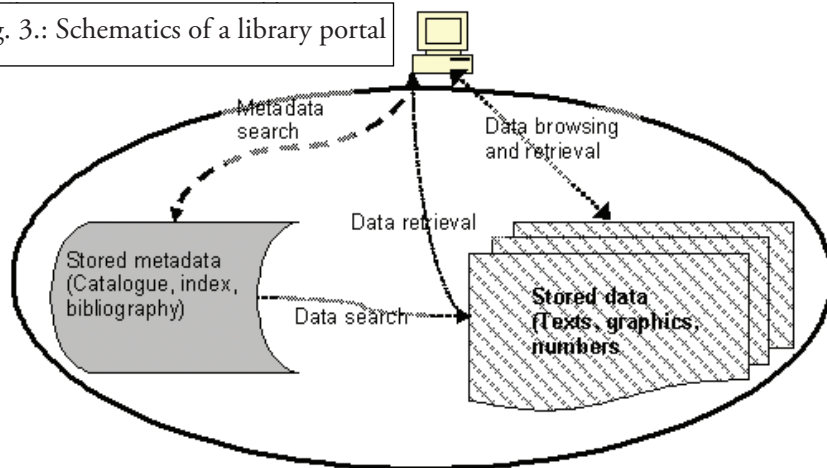
- To integrate their metadata with the data available on the Web in a system that allows simultaneous searching and browsing.
- To ensure the quality of the data made available to their users.

To meet the first challenge libraries world-wide have adopted gateway or portal technologies.

A portal is an interface that integrates metadata searching with Web browsing. It is a search engine in which the components of the virtual library are presented, indexed and made cross-searchable as an integrated whole; usually linked to an automated document delivery system that enables all users to download documents directly.

Schematically a library portal looks like this:

Fig. 3.: Schematics of a library portal



The diagram looks very neat and tidy – as is a functioning portal. Getting a portal to function is not as neat and tidy. Libraries should, as always, heed Napoleon’s dictum “*tous est dans l’execution*” – everything is the execution.

Implementing a Library Portal: Institutional Constraints

It looks very easy on the Web. Enter any word into the search window and any search engine will come up with thousands of results. But only hits from Web pages indexed – made searchable in the search engine used – will be found. The major problem confronted when implementing a library portal is that the content libraries need to present comprise an aggregate of digitized information sources dating from various stages in the development of digital information systems.

There are four major classes of information sources that must be cross-searchable in a library portal. By historical order of appearance these are:

- Metadata collections: Library catalogues, subject and article indexes, bibliographies
- Data archives storing statistical information in numerical form
- Digitized text databases, spanning from collections of legal, technical and official documentation through electronic books and journals to reference works
- Web-pages

The coming of digital electronic information technology in library world was very gradual and very smooth. The first steps were taken by commercial metadata

publishers. Excerpta Medica launched its first database, Embase, in 1960². Even more important was the work done by bibliometric visionary Eugene Garfield who in 1960 founded the Institute of Scientific Information that began publishing the Science Citation Index in 1964³. The Social Sciences Citation Index went online in the Dialog system in 1972⁴. In Norway, however, the introduction of digitized external databases accessed through dial-up connections did not change the way libraries searched. The introduction of the Bibsys online catalogue in the early 1980s neither changed cataloguing nor searching nor document delivery. It just made everything far more efficient. More documents could be catalogued, found and delivered. The introduction of the Z39.50⁵ protocol in the late 1980s enabled online cross-searching of library catalogues, revolutionizing interlibrary lending operations. Libraries still processed metadata and the systems merely made things easier.

The development of digitized data archives such as the NSD on the other hand was undertaken by professional associations and statistical institutions without the library system being involved at all⁶. Digitized texts have been around ever since Michael Hart embarked on Project Gutenberg in 1971⁷. Newspaper text archives emerged in the 1980s as a by-product of the introduction of a new technology in that industry⁸. Specialized text databases serving special professional needs, such as *Lovdata*⁹ emerged at the same time. Large scale, and more importantly, commercial, production of digitized texts only began with the advent of cheap electronic word-processing technologies in the early 1990s.

The Major problem confronting any library is Space. While active collections development will husband Space, the time will inevitably come when the information warehouse is full and no further acquisitions can be made without seriously compromising the integrity of the collection. This is particularly so with periodicals – the putative lifeblood of scientific communication. While librarians may wonder whether this actually is the case, “ours is not to wonder

² (www.reedelsevier.com/index.cfm?articleid=113). Now owned by the publishing conglomerate Reed-Elsevier - the most hated corporation in the library world.

³ (www.garfield.library.upenn.edu/overvu.html)

⁴ (http://en.wikipedia.org/wiki/Citation_index), ISI and Dialog were bought by information science giant Thomson – the second most hated corporation in the library world - in 1992

⁵ (<http://en.wikipedia.org/wiki/Z39.50>)

⁶ NSD – The Norwegian Social Science Data Archive – stores survey and ecological data for research purposes. It was established in 1971 and is part of the Inter-University Consortium for Political and Social Research. (www.nsd.uib.no/english/PresetasjonE%27032.pdf). The paradox is that such archives store the digitized versions of data libraries hold in paper form.

⁷ www.gutenberg.org/about/history

⁸ The Norwegian Atekst-service owned by the Schibsted Publishing House, now run by Retriever Norge AS, thus has archives going back to 1984. ([/www.retriever-info.com/about_us.php?section=about&subsection=1&lang=en](http://www.retriever-info.com/about_us.php?section=about&subsection=1&lang=en))

⁹ (www.lovdato.no/info/lawdata.html)

why". We do not know whether they really earn their keep to justify the expenditure of 90 % of our acquisition budgets. Ours is just to deliver the documents. But given the proclivity of journal publishers to respond to the imperatives of publish or perish by launching more journals and increasing the number of pages, by the 1990s academic libraries were literally meeting the wall; running out of shelf-space. No wonder the first major digitized journals archive, the JSTOR, was library initiated¹⁰.

The online journal was a godsend that saved the academic library from itself¹¹. But it also meant that for the first time in its history a sizeable and growing part of its collection was as accessible in its original form, as data, as it previously had been as metadata, catalogue entries.

The technology needed to disseminate the online journal, the World Wide Web, was only invented in 1989¹² and launched as a commercially available technology in 1994-95; coinciding with the launch of the first major e-journal collections by commercial publishers such as Elsevier, Springer and Bell & Howell¹³

The WWW is any reference librarian's dreams come true. It provides immediate and unlimited access to information, access to far more such sources of information than any academic library could dream to hold in paper form and it makes reference materials as easily accessible to the patron as it used to be to the experienced librarian. More prosaically the Web enabled libraries to organize single interfaces for their disparate databases and replace print and CD-ROM resources with online as well as to save space by replacing official publications and statistics in printed form with links on their websites. The explosive growth of the Web as the chosen means for the dissemination of information also meant that the commercial supply of online reference sources skyrocketed.

But the supply of free sources of information increased even more dramatically. This was, in part, a good thing. Official information, publications from international organizations and from research institutes as well as gray material that had taken days and weeks of painstaking work to verify and localize was there for the downloading¹⁴. But so was everything else. By 2000 the spectre of information overload seen on the horizon in the 1980s had become real. Ninety percent of everything is crap. Reflecting on the content of the Internet

¹⁰ (www.jstor.org/about/background.html)

¹¹ There have been worries about archive access. In the case of an irreparable breakdown global telecommunications, access to back volumes of Social Text will be the least of this author's worries.

¹² (www.w3.org/Consortium/history)

¹³ ScienceDirect (www.sciencedirect.com/), SpringerLink (www.springer.com/sgw/cda/frontpage/0,11855,5-117-2-140681-0,00.html) and ProQuest (www.proquestcompany.com/about/history.shtml)

¹⁴ It is not a tale of universal progress, however. The Norwegian parliamentary records online are less easy to search and use than the paper version.

one is tempted to revise that number upwards. But the world is wide, and the Web is but a window on the world.

For an academic library this poses a problem. While we are in the business of storing information we also sift information in our decisions on collection development. While we will produce any document on demand, we will not store all of them. Standards of academic integrity apply. We will after all, never knowingly recommend a bad book and we do have a responsibility to ensure that the information we deliver is factually correct. With the Web the library responsibility for ensuring quality of content inherent in any collection development decision suddenly expanded to include the Whole Wide World. At a more practical level it should be remembered that while librarians search, patrons find. Commercial search engines very often lead patrons astray by producing a virtual fog of information in generating a five digit numbers of hits. And most commercial search engines do not index the resources libraries pay for.

Each of the components required in a library portal has its origins in distinct and different institutional requirements. The online catalogue is the product of the automation of library operations. Its strong point is that it is a structured catalogue that in most cases can be searched using a single protocol. The online journal is a response both to the real need of academic libraries to save space and increase journals usage, the need of the academic community at large for better means of scientific communication and of the publishing business to make money. Online and virtual reference sources, on the contrary, represent incremental adaptation of preexisting material forms to new material types; i.e. print or CD-ROM to online. The content of the Web is a byproduct of the incremental technological adaptation of institutions and persons using the Internet to publish the products of their own activities. The Web was a technological leap; a fanzine, however, remains a fanzine.

Due to their disparate institutional origins and age, each of these types of digitized materials present special problems for the implementation of a library portal. In particular the “legacy” databases, those well established prior to the invention of the WWW, present problems not easily overcome. The grandfather of them all, the Web of Knowledge, was not meant to be cross-searchable when launched as the Science Citation Index. The same applies to all commercial databases launched prior to 1998. The only legacy systems that are cross-searchable are the library catalogues. That is because libraries always have pooled and exchanged metadata in union catalogues because all libraries require other libraries in order to deliver the documents their users need.

The rule of thumb is that the further removed a source of information is from the library world, the more intractable it is to configure in a library portal. And in order to be cross-searchable, resources must be searchable in the portal

interface. If not, they can only be accessed in their own, “native”, interface on the web – which of course defies the object of the entire exercise: To enable searching across a range of disparate information sources using a single interface. If not a library portal is merely a glorified link collection.

It should come as no surprise that library produced metadata collections are the easiest to configure in a library portal. Neither should it be surprising that electronic text collections from major commercial publishers are among the resources tailored for portals. The most intractable are the “legacy” databases¹⁵. These are a major problem to the libraries because they very often are the mainstays of scientific communication in their fields. But a lot of commercial information sources are not easily integrated into a portal. Web pages very often can only be configured using screen-scraping techniques.

But that is just what we ought to have expected. The WWW is not a library.

It can be argued that the problems libraries confront in attempting to integrate Web resources in their portals is of their own making. Library standards for document description and control are extremely high. At the very least adapting to more widely used commercial standards, even if not of the accustomed quality, is the way forward towards better integration of digitized information provided by institutions more than one step removed from the library world.

Fragments of the History of the Digital Library in Norway

The development of the Norwegian automated academic library system, Bibsys¹⁶, started in the Trondheim university library system in 1972. The University of Bergen Library joined in 1980, becoming the fourth participant in the system. After overcoming the inevitable teething troubles of going digital, the University of Bergen Library by 1995 was a fully automated and integrated university library with a reputation for efficient document delivery and very high cataloguing standards. It was expanding rapidly from a centralized closed stack library into a decentralized open-stack one; happily looking forward to getting its collections even closer to its users.

Then somebody invented the Internet.

The first inkling of things to come came with the introduction of a Windows interface with Internet connection for Bibsys III in 1994¹⁷. Searching

¹⁵ In the Metalib Central Knowledge Base the Web of Science has its own unique configuration that must be manually updated whenever the publishers make a change in the interface. Others defy all attempts at configuration and cannot be cross-searched.

¹⁶ Bibsys started as a library automation project in the Trondheim University Library System in 1971. (www.bibsys.no/om/bibsys-status-e.htm) The University of Bergen Library became a member in 1980.

¹⁷ BIBSYS-III - hva er nå det? and Nye søkemuligheter In Bibsys Nytt 1994-1 (www.bibsys.no/)

Bibsys on the Web was a reality in 1995¹⁸. In 1996 Bibsys became the host for the ISI-databases¹⁹, enabling article searches using the regular library interface. The Z-search functionality bundled in Bibsys enabled searching in foreign OPACS as well.

The Web and the e-journal make their first official appearance at the University of Bergen Library in 1998, with the board minutes making the first references to the Intranet²⁰ and the first consortium for electronic journals²¹ and formal guidelines for uploading library Web pages²². In 1999 Web resources started appearing in some numbers, with 700 electronic journals available²³. The need for a portal solution was readily apparent from the very beginning. The Web is a disorderly place.

Schemes abounded. The Bibsys subject gateway made its debut in 2000²⁴. In 2001 the National Electronic Library was the buzzword²⁵; in 2003 the Norwegian Digital Library²⁶.

The Norwegian library system is a two-headed monster. The academic libraries are part of the system of higher education that answers to the Ministry of Education. The public libraries with the National Library at the apex answer to the Ministry of Culture. "Library policy" is thus under the Ministry of Culture, even when it affects the academic library sector. The Ministry of Education is sublimely indifferent to its libraries; regarding them as the responsibility of their parent institutions. The absence of any central direction means that the different segments of the Norwegian library sector tend to act alone. Bibsys proved incapable of meeting the requirements of the big university libraries in accommodating their wholesale transition from print to electronic resources, just like the library bodies under the Ministry of Culture failed to meet the challenge of web-publishing. The visions of a national digital library receded in the face of the university libraries' commitment to their parent institutions - and owners. This became all the more pressing as the reform of Norwegian higher education

[bibnytt/94-1/bnytt941.html#biii](#)).

¹⁸ World Wide Web and Post frå fansen In Bibsys Nytt 1995-1 (www.bibsys.no/bibnytt/95-1/bnytt951.html#worl)

¹⁹ ISI-databasen in Bibsys Nytt 1997-1-Mars (www.bibsys.no/bibnytt/97-1/97-1.htm)

²⁰ Minutes of Staff Meeting, Feb.23 1998 published on the Web. University of Bergen Library Board Minutes, S20/1998a (www.ub.uib.no/felles/organ-styr/styre/1998/sr980402.htm)

²¹ The offer in question was for Swetsnet. University of Bergen Library Board Minutes, S50/98d (www.ub.uib.no/felles/organ-styr/styre/1998/sr981209.htm)

²² Proposed guidelines for UB's Web pages. University of Bergen Library Board Minutes, S10/1999.

²³ University of Bergen Library. Annual report 1999. Sec 3.9. Vidareutvikling/effektivisering av bibliotektenestene, med særleg vekt på elektroniske tenester (www.ub.uib.no/felles/dok/aarsmelding1999-UB.html#_Toc487611074)

²⁴ Bibsys Emneportal in Bibsys Nytt 2000-1-Mars (www.bibsys.no/bibnytt/00-1/)

²⁵ www.ub.uib.no/prosj/nuu/dokument/ELF_sluttrappport.pdf

²⁶ University of Bergen Library Board Minutes, S02/2003f. The link to the report published by *ABM-utvikling* is rotten.

in 2001 for the first time required the university libraries to actually concern themselves with teaching activities²⁷.

While the university libraries in 2003 reached agreement in principle with Bibsys and the national professional body, *ABM-utvikling*, on developing a portal²⁸, they were also open for other possibilities. This led to the consortium of the four “old” Norwegian university libraries inviting tenders for a library portal from other suppliers, and in June 2004 the major Norwegian university libraries decided to accept the offer from Bibits for the Metalib/SFX-system produced by Ex Libris²⁹.

Implementing *Bibliotekportalen*

So far as it goes the Metalib portal represents “tried and tested” technology. It is in use at several American and British institutions and has been adopted for the Finnish national library portal *Nelli*. It consists of a search and registration program/engine, Metalib, with a Central Knowledge Base of preconfigured (ready indexed) resources and programs for configuring Web-resources (screen-scraping), and a program for registering, searching and retrieving data from electronic journals, SFX³⁰.

Four Norwegian university libraries, Oslo, Bergen, Trondheim and Tromsø, are currently members of the portal “consortium”. As each library has its own interface and its own resources, the joint activities of the consortium are limited to sharing the same technical host, the USIT at the University of Oslo, and cooperating very closely in solving the inevitable problems encountered in implementing and running what remains brand new technology. No data system ever ran smoothly on the first try. There are still bugs to be ironed out and updates to integrate. As each update and patch creates new problems the Portal will never, ever, be “finished”.

To implement the portal at the University of Bergen Library a working group under the very capable leadership of Senior Academic Librarian Dr. Hege Folkestad was set up in the autumn of 2004. The group consisted of seven persons drawn from all of the departmental libraries representing all its professions³¹. The

²⁷ Cf. Action plan for ICT-supported learning in the new study programs. www.ub.uib.no/felles/organ-styr/styre/2003/S09-2003-h.doc University Library of Bergen Board Minutes, S09/2003h www.ub.uib.no/felles/organ-styr/styre/2003/sr030403.htm

²⁸ University Library of Bergen Board Minutes, S15/2003f,i,j.

²⁹ University Library of Bergen Board Minutes, S21/2004e.

³⁰ For information on the Ex Libris portal solution, cf. www.exlibrisgroup.com/

³¹ The members of the implementation group were Dr Hege Folkestad (Science Library), Ms. Regina Kufner Lein (Medical Library), Ms. Britt-Inger Bjørsvik (Law Library), Ms. Hilde Wedvich (Psychology Library), Ms Anne B. Aasmul (Arts & Humanities Library), Mr Stephen Olson (Acquisitions department), Mr. Leif Magne Iversland (IT-department) and Dr. Pål H. Bakka (Social Science Library).

author is proud to have been a member of this select group.

The task assigned to the group was very simple: To create a library portal for the University of Bergen. This entailed naming the beast, the local interface, deciding on and configuring the content in the portal, including registering several thousand electronic journals in SFX, and not least, since the University of Bergen Library chose *nynorsk* as the default language of its portal, doing the pioneering work of translating the entire portal into that language; the latter a task never undertaken at any Norwegian library. The target date for the opening of the portal was set to May 3rd 2005.

After some discussion in the implementation group and an open contest the University of Bergen Library Portal was officially named *Bibliotekportalen* (The library portal).

In retrospect the implementation went smoothly. Configuring the international resources present in the CKB – and thus the majority of the important information sources – went as smoothly as could be expected. In retrospect the library ought to have been prepared for the problems encountered in trying to configure legacy databases and national Norwegian information sources. As the Norwegian legal information system is based on such databases this was, and remains, a serious problem that awaits solution. But it meant that the intended and hoped for full integration of online legal sources in the portal was not achieved. Given the very high quality of the preexisting web-based legal information system embodied in *Juridisk nettviser* this is less of a problem than a beauty spot, however. But similar problems were encountered with other and newer, Norwegian sources such as the key electronic periodicals database Idunn.no³² and the newspaper archive produced by Retriever Norway AS³³. Sources with a direct institutional link to the global library system and with an international audience were easy to configure. The others were more of a challenge. It should be kept in mind that configuring a Web-resource for searching in Metalib is sometimes as time-consuming as cataloguing an intractable old book. A decision was made early to configure the Bibsys Subject gateway content in the portal. This means that several thousand web pages hide behind the 500-odd single resources in *Bibliotekportalen* at the time of writing

The configuring the electronic journals benefited from the fact the large suppliers like ScienceDirect, JSTOR, Blackwell, Proquest and Springer, are international and that libraries are their major customers. But beyond the English language

Valuable work was also done by the two project assistants Ms. Kristine Fjone Godal and Mr. Jan Haugseth. In the summer of 2005 Ms. Aasmul was replaced by Ms Ellen Solvik as the member for Arts & Humanities Library.

³² The Idunn database is the technically worst e-journal interface on the global market.

³³ Both Retriever Norway AS and Universitetsforlaget, publisher of Idunn.no, have indicated a willingness to meet library-compatible standards in their upgrades.

oligopoly the e-journal business is fragmented. The configuring of say, French e-journals, remains a challenge. The portal therefore reinforces the dominant position of English as the international academic language. The problem of data exchange between SFX and Bibsys has not yet been solved either. At the time of writing 14572 journals are available *Bibliotekportalen*.

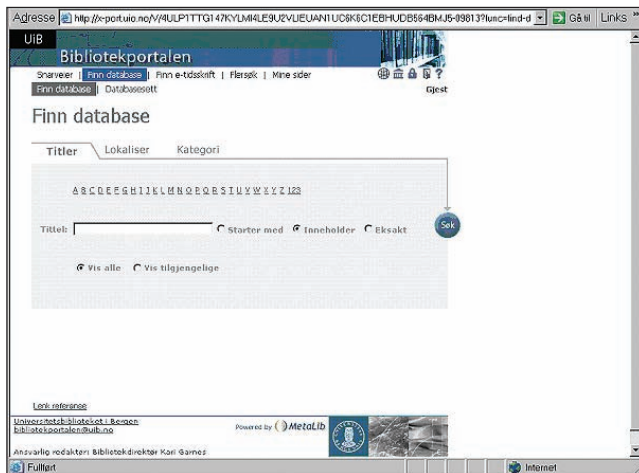
The strength of the *Bibliotekportal* lies in the system's ability to retrieve articles from electronic journals using the SFX link server. The ability to access any article of any subscribed journal regardless of where on the Web it is found justifies the entire investment. The potential for cross-searching databases remains hampered by the fact that too many of them are impossible to configure because not intended to be searched in any other engine than, say, Google – if at that.

The Portal Described

The author would really have liked an animated icon – a heavy double door opening – for the *Bibliotekportal*. Though the icon that was designed by the implementation group is excellent:

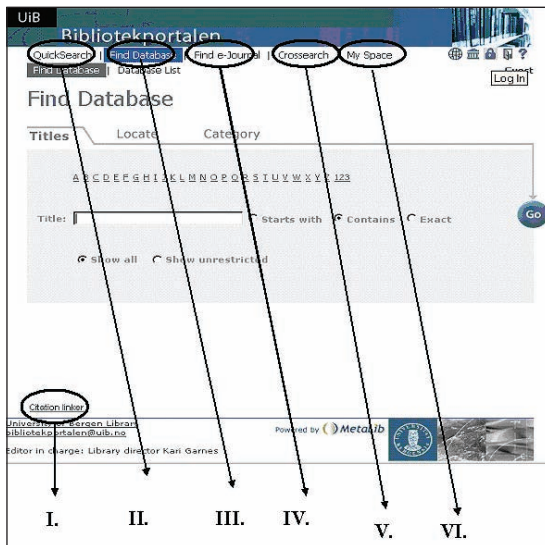


Clicking the icon brings up this screen:



The visitor is always greeted as “guest” – as indicated by the name in the upper right corner. Any person surfing the Web can use the portal to find the information the library has organized in the portal. The guest, however, will not be able to read and download resources that the host, the University Library of Bergen,

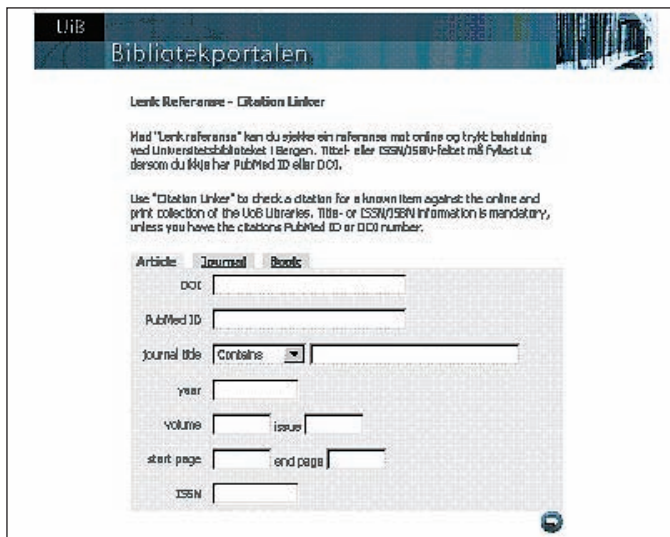
pays for. To do so the guest must log in clicking the padlock icon. The user exits the portal by clicking the door icon. Clicking the globe icon allows her to change the interface language. The default value is *nynorsk*. Clicking the temple icon allows a user to enter the portals of the other consortium members, even if Web access to licensed resources is based on the IP-address of the surfer's PC, the log-in facility enables the use of personalized features in the portal. It is thus possible for the library to tailor the content of the interface, the predefined QuickSearch sets and contents of My Space, for the need of any user group. Before proceeding to log in a brief description of the rest of the interface is in order.



The portal has six basic features:

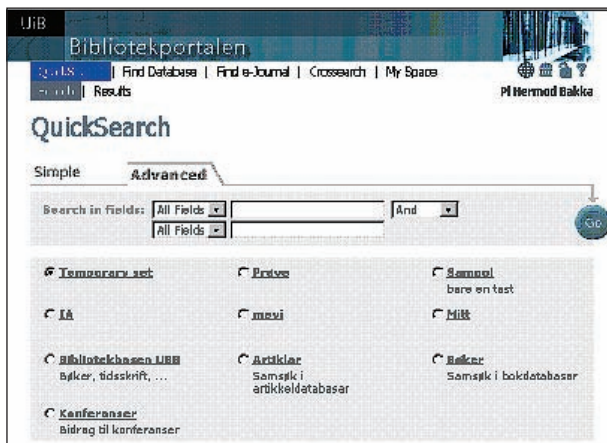
- I. The Citation linker is a “document finder” for locating verified documents using regular metadata in the SFX interface
- II. QuickSearch enables the user to (cross)search in library predefined database sets
- III. Find database enables the user to browse and search in the databases of her choice
- IV. Find e-journal enables browsing and searching for e-journals
- V. Crosssearch allows the user to search the any chosen set of databases
- VI. My space is where the logged-in user stores the databases and/or e-journals he feels he has regular use for.

I. The citation linker is, paradoxically not part of the “Portal”. It is a user interface for the SFX-facility and looks like this:

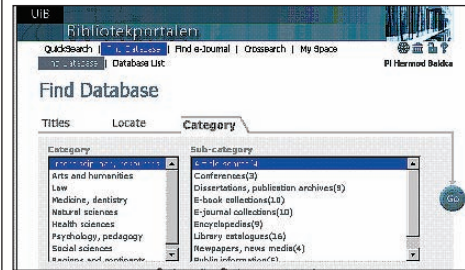


The most important added functionality of a portal compared to the catalogue is the ease with which electronic journals can be accessed. The open URL protocol allows a user to enter a normal reference into the form and go directly to the document itself. While journals and books can be searched for, it is primarily an “electronic article finder”.

II. The **Quicksearch** screen for a logged-in user may look like this:



The author’s interface contains his personal database sets (upper two lines) and the sets predefined for all users. As the sets shown are linked to the user profile this facility enables the library to show predefined database sets based on the known needs of specified user groups: i.e. bachelors’ or masters’ or PhD students.



III. The **Find Database** screen is the default access interface. It allows for browsing by database title or by library defined category.




The content of the portal may be arranged in any way the library desires. The University of Bergen Library has chosen to organize its categories in a hybrid and eclectic manner –but one which seems to satisfy the needs of our users. One important consideration is simply that the number of resources in any one category ought not to be too high. Once the number of entries in a list exceeds that which can be shown in a single full screen, portal functionality is degraded.

Categories can be divided into sub-categories such as the interdisciplinary “librarian” categories shown. Again, sub-categories can be arranged according to the needs of the library and its patrons. The Social Science category is thus arranged both by department and subject. The list for the sub-category Comparative politics at the time of writing looks like this. As the screenshot shows it is already too long.

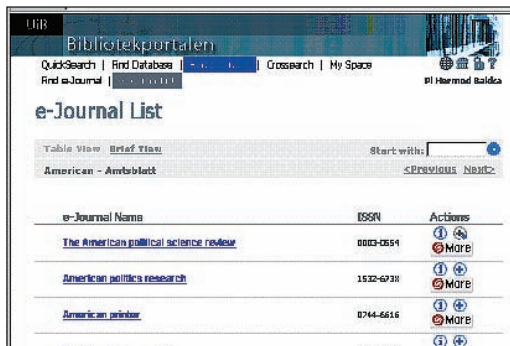
Table View		Brief View	
African - World		Go to Crosssearch <Previous Next>	
Database Name	Type	Actions	
African American Studies - JSTOR JSTOR	E-Journal		
African Studies - JSTOR JSTOR	E-Journal		
Asian Studies - JSTOR JSTOR	E-Journal		
BIBSYS biblioteksystemet	Library		
BIBSYS biblioteksystemet	Library		
EconLit (ESP)	Index		
Economist Intelligence Unit (EIU)	Subject Gateway		
Europa World Yearbook Online	Subject Gateway		
Global Development Finance	Index		
History of Science - JSTOR JSTOR	E-Journal		
IBSS - International Bibliography of the Social Sciences	Index		
Institutt for Samfunnsforskning	Subject Gateway		
International Encyclopedia of the Social & Behavioral Sciences	Encyclopedia		
ISWeb of Science	Index		
Journals	Subject Gateway		
Latin American Studies - JSTOR JSTOR	E-Journal		
Middle East Studies - JSTOR JSTOR	E-Journal		
MUIP - Moravskému ústavu pro mezinárodní vztahy	Subject Gateway		
Oslo	Subject Gateway		
Political Science - JSTOR JSTOR	E-Journal		
Politics and International relations	Subject Gateway		
Politics and International relations	Index		

The brief view presents journal name in the form of a stable URL, the ISSN number and three action options.

Clicking the title brings the user directly to the journal homepage. The type indicates the nature of the database.


The actions icons provide information  about the database, allows for saving  it in My Databases, while the presence of a magnifying glass  indicates that the database can be searched in the portal interface. This is important as only such databases can be crosssearched.

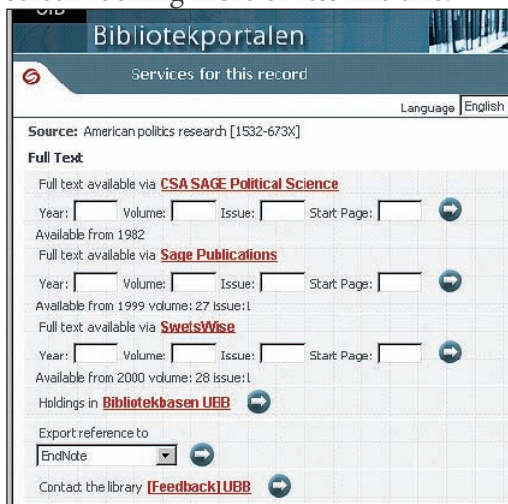
IV. At the time of writing the **Find E-journals** interface only allows alphabetical searching and browsing by title.



The screenshot presents a search result. The brief view presents journal name in the form of a stable URL, the ISSN number and three action options.

Clicking the title brings the user directly to the journal homepage.

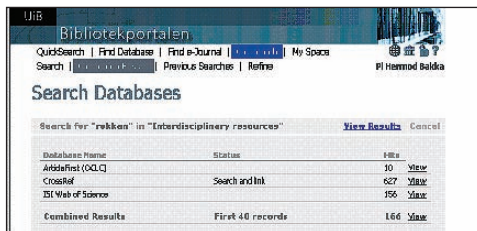
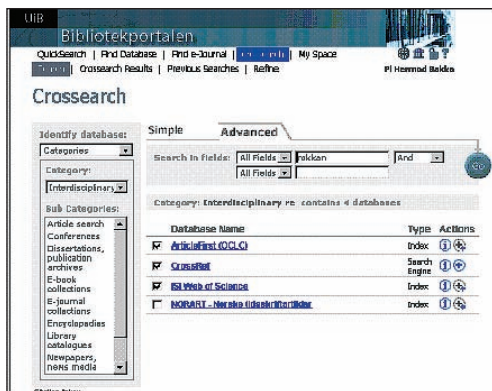
In this list the  is replaced by the key feature of the portal, the SFX-button "More". Clicking this button anywhere on the internet will bring up a screen looking more or less like this:



The SFX-screen gives the user three choices:

Filling in the form with the correct article reference and going directly to the article, searching the local OPAC or exporting the reference to a reference management system.

V. It is the **Crosssearch** functionality that brings out the innovative power of the portal. The default crosssearch screen in Bibliotekportalen invites users to perform an article search in four major databases.

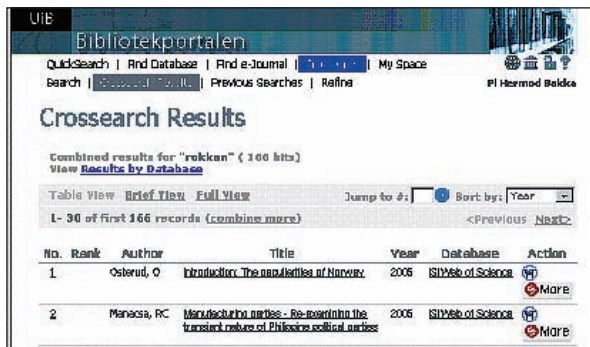


But any of the preconfigured databases can be crosssearched, as can any personal selection of databases a user defines as a database set.

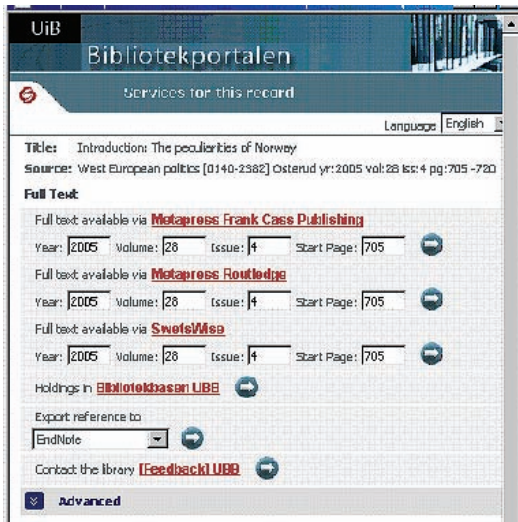
The search shown is for the term Rokkan anywhere in the content of the three databases. Two, OCLC and the Web of Science, are metadata bases, the third is the CrossRef Google full-text article search portal.

Of the 793 results 627 were found In CrossRef, a Web resource. While it can be searched using the portal interface, the results have to be viewed in the native, Web, interface.

Viewing and combining the results in the portal interface produced this list:



Clicking the SFX-button of the first entry on the list produces the screen below:



The full references for the article have been filled in and the contents are only one click away. The three separate but identical entries are due to the fact that the Bergen University Bergen Library has electronic access to the periodical in question through three different corporate channels of distribution. And that Routledge bought Frank Cass in 2003.

Clicking the blue arrow to the right of the top entry will produce this result: As each e-journal platform has its unique presentation system, getting to the text may be confusing. In the case of Metapress text is access by clicking in somewhere in the bottom right corner.

Returning to the search result it was observed that the results of the Crossref search must be displayed in the native interface; which looks like this:



Clicking the link to the article in Blackwell Synergy leads to the appropriate page in the Scandinavian Political Studies:

The screenshot shows the Blackwell Synergy interface. At the top, there are navigation links: Home, Browse, Search, My Synergy, Register, Help. Below this is a search bar and a 'You are at' breadcrumb trail: Home > List of Issues > Table of Contents > Abstract. The main content area features the journal title 'Scandinavian Political Studies' and the article title 'Commitment and Government in Norway: Accountability in Network Politics' by Anne Lise Finnseth. Below the title is an abstract snippet. To the left, there is a 'REFERENCES' section with a 'GO TO:' dropdown and a 'Go' button. The references list several articles, each with a 'More' button. To the right of the abstract, there are buttons for 'Reference manager', 'View article in HTML', and 'Download PDF'. At the bottom of the references, there are 'Reference' and 'PDF (62K)' buttons. On the far right, there is a 'QuickSearch Inc.' sidebar with search options like 'Synergy', 'CrossRef', and 'OR'.

The Synergy interface requires the user to access the text through clicking the PDF icon below the abstract.

It is, however, as fruitful to click the right hand, reference, button to find that the references contain SFX-buttons for immediate access to the cited articles. Even hardened librarians cannot fail to get excited over the possibilities inherent in this aspect of portal functionality.

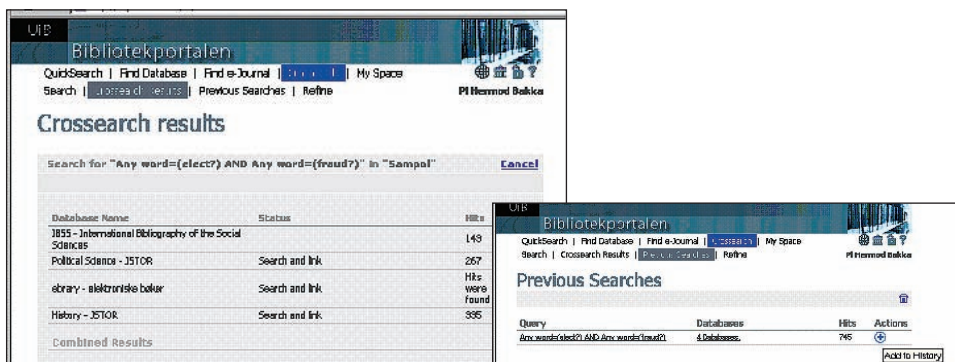
VI. To get the most out of the Bibliotekportal it is necessary to use the **My Space** function. The default interface looks like this:

The screenshot shows the Bibliotekportalen website. At the top, there are navigation links: QuickSearch, Find Database, Find e-Journal, My Space. Below this is a search bar and a 'Crossearch' section. The 'Crossearch' section has a 'Simple' and 'Advanced' search mode. The 'Simple' mode has a search bar with 'All Fields' and 'And' options. Below the search bar, there is a table of databases with columns for 'Database Name', 'Type', and 'Actions'. The table lists several databases, including 'ISS - International Bibliography of the Social Sciences', 'Political Science - JSTOR', 'Library - elektroniske bøger', and 'History - JSTOR'. To the left of the 'Crossearch' section, there is a smaller inset showing the 'eShelf' interface, which has a search bar and a 'Folder/Basket (0)' button.

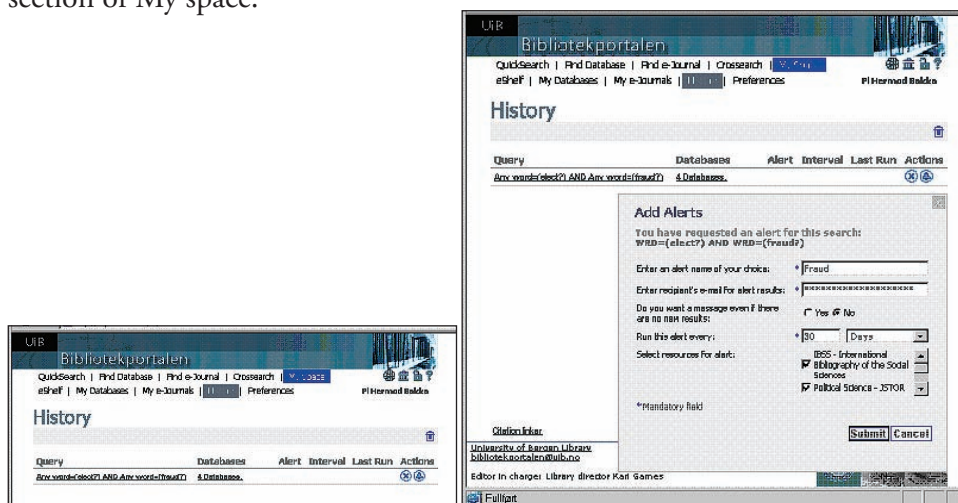
The eShelf is used for storing electronic documents, My Databases and My e-Journals are for the preferred and frequently used databases and journals, History

is where very large or permanent searches are stored while Preferences allow for the modification of the user profile.

Crosssearching my database Sampol for literature on “electoral fraud” or “fraudulent elections” in different types of resources I get far more hits than I can explore in session.



Accessing the Previous search function the search can be stored in the History section of My space.

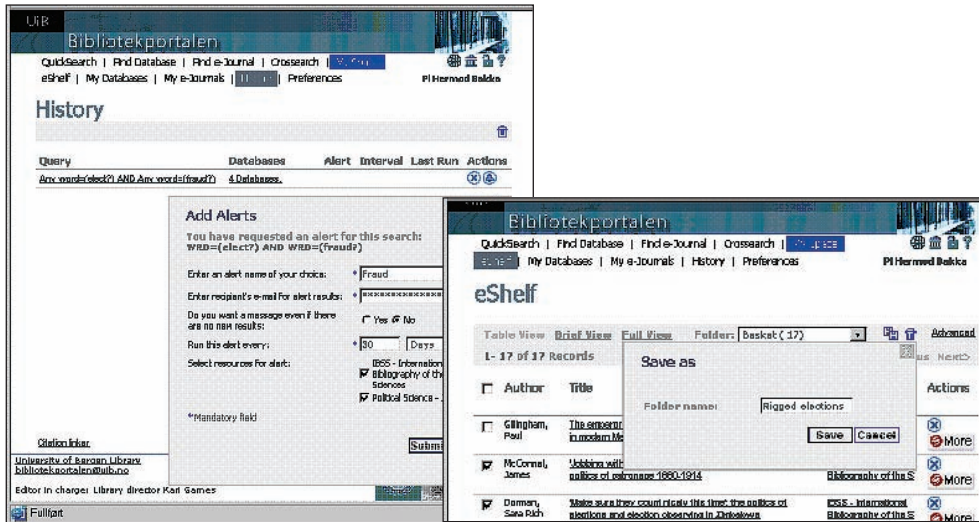


The search can be frozen or made into a permanent search clicking the Alert function (the bell icon).

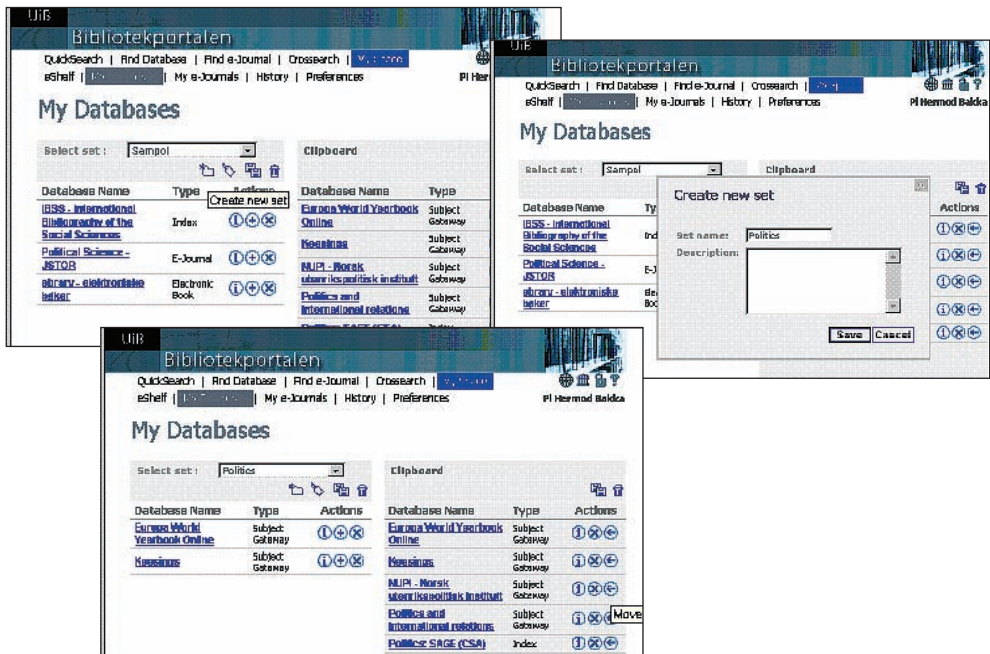
This opens the screen below, allowing for the naming the permanent search and specifying its frequency.

Clicking the link reactivates the search.

Opening the results screen allows for the references found to be put in the basket and transferred to eShelf for further treatment.

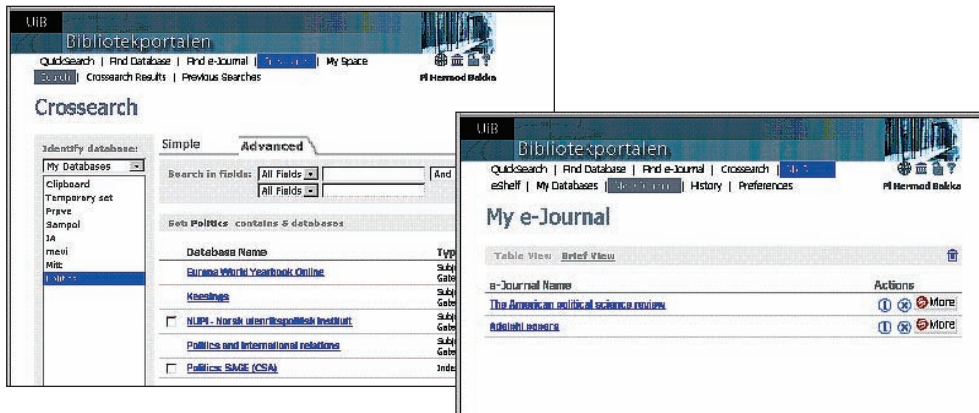


Items found in the search for electoral fraud can be saved in a separate folder, in this case “Rigged elections”. Any number of references can be stored.



The My Database facility allows users to create their personal QuickSearches in their preferred databases. Databases found can be moved to a clipboard in My Databases and stored as Quicksets.

The user may only create 13 sets on his shelf. While any limitations are unfortunate, 13 sets are probably sufficient for most users.



New sets can be Crossearched, subject to the limitations imposed by the possible lack of compatibility between the portal and native interfaces.

My e-Journals are created in exactly the same way as My Databases.

There are regrettably still some limits to what can be done in the *Bibliotekportalen*. The interface problems have been noted. The most irritating one is that individual e-Books from the major commercial suppliers cannot be stored on My Shelf. Individual e-journals cannot be crosssearched with databases. But these are all **technical** limitations. Such limits exist to be overcome.

Challenges and Possibilities.

At the time of writing *Bibliotekportalen* has been operational for 10 months. It works far better than Bibsys did at the same point of time in its implementation 22 years ago. A library is a work in process. It is not a project. It is never “finished”. Content will be continually added. New functions will be added as well. The current technical and content limitations should not blind us to its potential as our means of organizing information for our users in a rational, easily accessible and cost-efficient manner.

The near term challenge is of course to educate our patrons into using the portal. Not by preaching, but by example. Like library and information competence education in general this is no doubt an uphill struggle. While SFX is much appreciated, faculty still relies on their personal link collections for accessing electronic periodicals. It is equally hard to wean students away from Google. But it took time to wean them away from the card catalogue also.

For *Bibliotekportalen* to become the information tool of choice for the University of Bergen community three hurdles must be passed.

The *Bibliotekportal* must become more visible on the Web, more closely integrated into the faculty Intranet and the Student Portal.

A real single sign-on system for all university ICT-resources must be introduced. At the moment full use of its potentials require no less than five separate sign-ons – which are four too many. Off-campus access must become easier as well.

The final hurdle is making students and faculty comfortable with the full range of electronic information sources. But their continuing love-affair with the printed book probably reflects the ambivalence we all feel towards the Brave New Digitized World.