

The *Knowledge Portal*, or, the Vision of Easy Access to Information

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Abstract:

Purpose:

The development of the "Knowledge Portal" is the attempt to develop a central access system in terms of a "single point of access" for all electronic information services. This means that all these sources - from the library's catalogue and full-text in-house applications to external, licensed sources - should be accessible via one central Web service.

Design/methodology/approach:

The Knowledge Portal is a piece of software and a real library application, based on Primo, a commercial product, which has been enhanced through a cooperative project from ETH Libraries (Libraries of the Swiss Federal Institute of Technology Zurich) and ExLibris. The new portal will be the result of integrating this new metasearch and the library's homepage.

Findings:

The paper gives an overview of the general idea behind this complex and clearly user-oriented project and shows which steps are necessary for its launch.

Originality / value:

The paper gives an example of how to organize cooperation between quite different project partners and shows the complexity of setting up a portal as the single point of access.

Paper type:

Case study

Keywords:

Library portal; Academic libraries; Meta search

1. Introduction

Like many other academic libraries, ETH Libraries and Collections, a specialist information provider for science and technology, are offering their users an extensive choice of different information services. All researchers, all scientists and also all students have access to nearly all relevant information. This is the positive side of the coin. On the other hand, every vast service portfolio of a library is by definition heterogeneous and quite difficult to use. This is especially relevant for those customers who use library services only occasionally. This means that the more information services and information channels there are, the more complex it is for the customer to find what they need for their scientific work. This was also the situation at ETH Zurich.

The vision, the main goal of the project "Knowledge Portal" is to develop a central access system in terms of a "single point of access" for all electronic information services. This means that all these sources - from the library's catalogue and full text in house applications to external, licensed sources - should be accessible via one central Web service.

2. The library's environment

In terms of its numbers, the ETH Zurich, the Swiss Federal Institute of Technology Zurich, although one of the most important research institutions in Europe, is a relatively small university. There are about 13,000 students, 370 professors and about 7000 research and support staff. In relation to the size of these primary user groups, the library itself is quite a big institution, with about 7 million items and a complete portfolio of all the usual electronic services provided by science libraries these days.

Besides serving the primary target groups within the university, ETH Libraries also serve as the Swiss centre for scientific and technical information, which means that the interested public should also be considered in discussions about new ways of giving access to library information.

ETH Zurich has a strong research focus in the engineering sciences and architecture, in system-oriented sciences, as well as in mathematics and natural sciences. Because of this, the library is more or less a specialist library in these fields. From the library's point of view, the humanities and the social sciences do not play a relevant role.

3. The starting point

For quite a few years the discussion about the assumed necessity of creating and developing library portals has become more and more important. One trigger for this development is the popular success of search engines. The possibility of searching in a clear and simple way has also changed the search behaviour of library users. When they use library services, they want to have the same searching possibilities as they have with Google and other search engines. Even if we think that the results of these alternatives may be poor, or at least not satisfying from a professional point of view, we should accept that the users „vote with their feet“.

A second reason for the prominence of library portals is the increasing electronic service portfolio of nearly all science libraries, which ranges from ubiquitous electronic journals, via bibliographic and full-text databases, audiovisual media and digitized visual material to full-text documents from institutional servers. Many occasional users do not really know how to find the „needle in the haystack“, which means that they are not able to search successfully.

These, among other reasons, which cannot be discussed here, formed the starting point for thinking about the possibilities for giving all users better and easier access to the electronic library portfolio.

4. [myETH@ethz.ch](http://myETH.ethz.ch) as a forerunner of the Knowledge Portal

After substantial preliminary work, in 2003 ETH Libraries and Collections decided to set up a library portal. In this situation four aspects were of special importance:

- library-specific content should be presented in special information packages, which could come from different sources;
- it should be possible to configure the application according to group and/or individual interests;
- the authentication processes should correspond to a single-sign-on procedure;
- the integration of sources internal and external to the university should be possible.

With these and further basic conditions in mind, the library started a cooperative project with the computer sciences and the public relations departments. The major goal was to set up a university portal, in which the library services would be central, but not the only aspect. In total there were about 30 different information packages, coming from all over the university. Looking back after some years, the project partners had to admit that they had not been very successful, and that they had not attained the desired. The library in particular had to acknowledge that their services were not well used via this channel. Many users went to the electronic applications directly via the library's homepage, as they had been accustomed to doing for years.

This is not the place to discuss the reasons and motives in detail, but it was quite clear that the library would have to rethink its strategy. In doing this, two possible future perspectives emerged: the first would have been the improvement of the existing application (improvement of access and usability; enhancement of layout; further marketing activities; etc.) while the other was the possibility of basically restructuring the whole idea and of going back to a fairly clear library-focussed approach, where library-related information packages were at the centre of all efforts. Unsurprisingly, the library decided to choose the second approach.

5. The vision *Knowledge Portal*

The general goal of the project Knowledge Portal was and still is the setup of a central and simultaneously integrated access system to the heterogeneous information portfolio of ETH Libraries and Collections (e.g. e-journals, databases, digitized in-house documents, audiovisual materials etc.). For this reason a working group defined some basic preconditions which would have to be fulfilled in order to have a satisfactory access tool for all library users. In this context the most relevant, but not necessarily very new, aspects were:

- integration of the applications *library homepage* and *access via myLibrary*;
- a consistent and „simple“ search screen for internal and external users;
- presentation and functional layer are at the same level;
- user-relevant content can already be searched at the presentation level;
- the portal screen consists of the homepage and additional search functions;
- there are metasearching abilities for the whole product portfolio;
- single-sign-on for all users.

This list shows that a large proportion of these issues were already relevant for the project myLibrary. On the other hand there is a remarkable difference compared with the situation some years ago: Now there are new software applications on the market, which allow new ways of searching heterogeneous data. Today we try to integrate as much data as possible into central indexes and this is a clear difference to the times of distributed searches.

6. Realizing the project Knowledge Portal

The first steps for the project Knowledge Portal occurred in the years 2006/07, when a small working group started with preliminary tasks to prepare first ideas for a presentation model and to produce proposals for obtaining the necessary money. The kick-off meeting took place in November 2007 and the first content-related tasks started with the definition of a catalogue of requirements for a portal in January 2008.

Generally speaking, there are always at least two choices: First a library can develop its own application on the basis of a commercial or an open-source search engine. In this case it is necessary to have IT specialists, as well as organizational and intellectual know-how, which means that the risk of failing is great. The second possibility is to buy a commercial software tool, which can be adapted to a certain extent. In this case there is almost always a lack of flexibility and in addition, the library needs adequate financial resources.

For this project we decided to follow the second route. After finishing the catalogue of requirements we evaluated potentially relevant software tools with the explicit purpose of choosing a product which would allow us the opportunity for cooperative development with the vendor. One main decision criterion was how well a new software tool would fit into our existing IT environment.

In parallel with these activities, the project leaders visited some relevant applications in the USA and the UK to get a detailed impression about the project results from other libraries. The final decision on a product (in our case the Primo software from ExLibris) was taken in June 2008, followed by its installation on a test server in September 2008.

7. Technical aspects

Consequently, one major track of the project was the implementation of the software Primo to provide searching, display and delivery of the heterogeneous information sources. The normalization of metadata is an important aspect in such a project and this is one of the strengths of the Primo software. Metadata with different formats, coming from heterogeneous information sources, can be configured for a user-oriented search and a user-oriented view. Besides this, the user can recognize immediately from the list of results, whether or not access to the full text is possible.

To get this user-friendly view, metadata (e.g. catalogue data in the MARC format) has to be transformed from the source format into the so-called PNX format (= Primo-normalized XML), following defined rules. At this point it is important to mention that the normalization rules are configured using a web-interface, which means that there is less need for technically trained librarians. This example is also a showcase for the change of the librarian's work.

Another aspect which should be mentioned in this context is the fact that the Technical University of Denmark (DTU) runs a huge database called DADS (Digital Article Database Service) with about 40 million metadata sets of articles from relevant publishing houses. Via a so-called „Third node“ it is possible to link this database with the Primo application of ETH Libraries, which means that every search in the Knowledge portal also creates a search in the

DADS database, and the search results are presented via the local Primo installation. This fast and comfortable process marks considerable added value for all users.

8. Portal design

The second major track is the design and development of the Web portal itself. Right from the beginning, the user-orientation of the whole project was a main goal. The general idea was the vision that the user should themselves define which range of functions they need for an efficient search for relevant information.

The whole procedure is based on an *analysis of the actual situation*, on a *user-centred design process* and on *integrating Primo into the web portal*.

The description of the *status quo* (= analysis of the actual situation) is a complex and time-consuming process, in which the project group defines for which subjects information packages exist and how this information is presented.

The *user-centred design process* is essentially a kind of usability test. Depending upon the specific needs of the main target groups, this process tries to find out - with the help of an iterative process - which presentation format will be the best. As a first step a prototype structure of the future portal is created as a paper version, which already shows the most important content and functions. The second step in this context is currently done by the project group and primarily covers the final definition of the information structure. This work is based upon interviews with so-called typical users. For this purpose the person undergoing the test is asked typical questions on searching for information and then describes the way to finding the relevant information.

At the end of the process the actual Knowledge portal is the result of the seamless integration of the Primo software, in particular the services lying behind it and the library's webpage, forming a new information product (see figure 1 and 2).

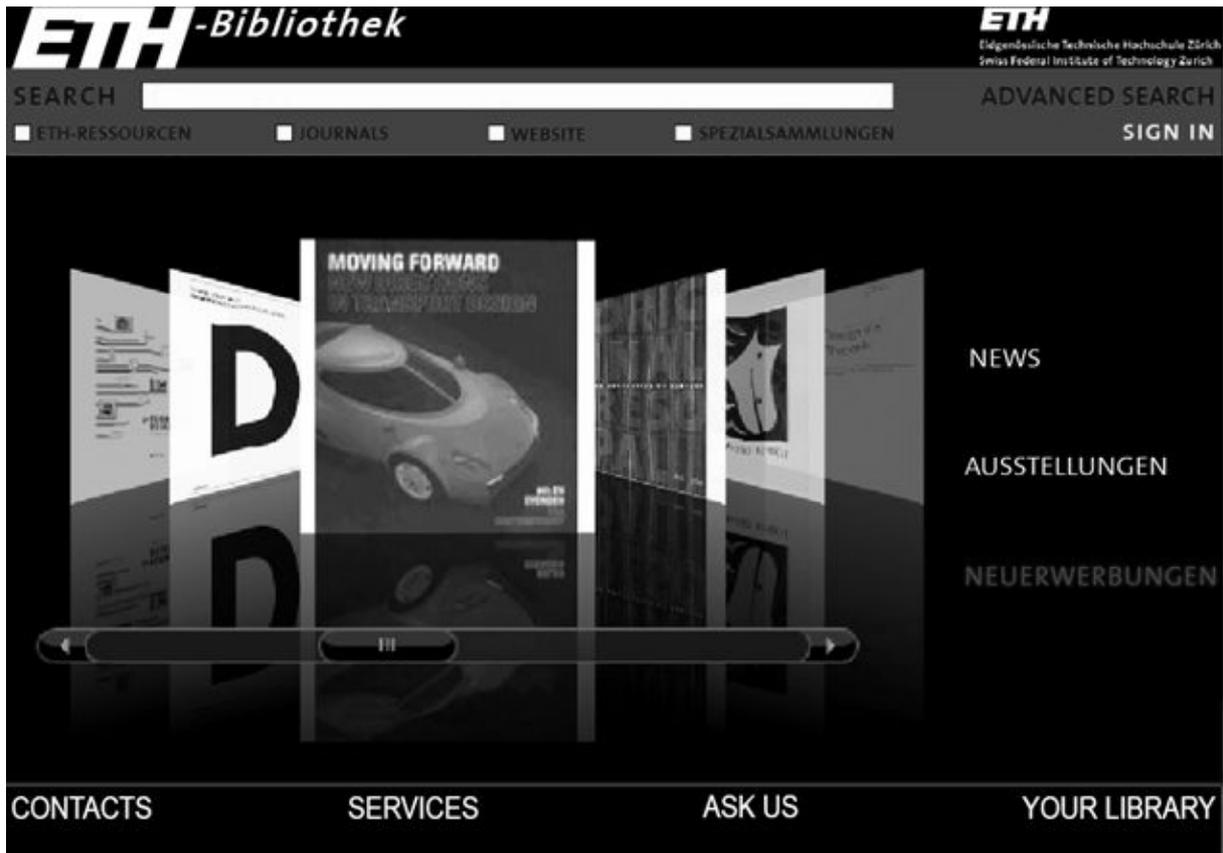


Figure 1. Mock-up of the first screen of the Knowledge portal, version 1.



Figure 2. Mock-up of the first screen of the Knowledge portal, version 2.

9. Project schedule and version control

As already mentioned, the complexity of the project Knowledge portal involves a step-by-step process in realizing the overall vision. This means that we plan to introduce different versions, which will be upgraded and enlarged step-by-step in form and content (see figure 3).

Following the present schedule this process will need about 18 months.

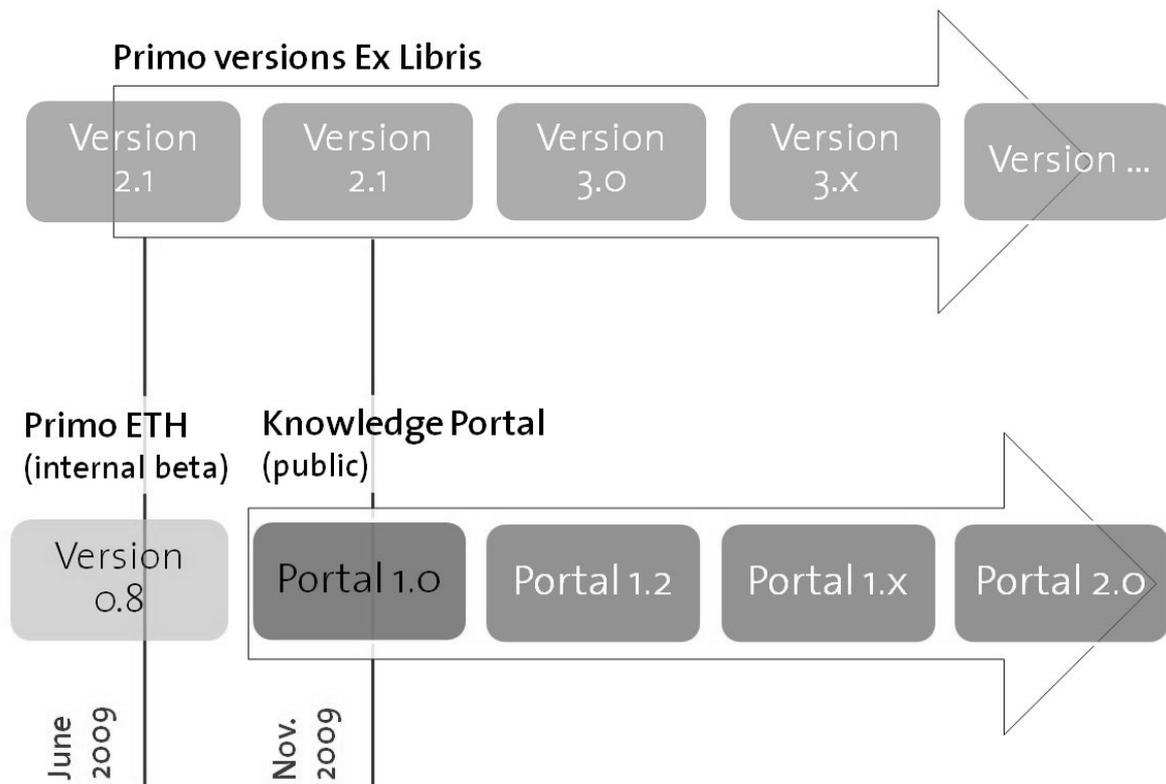


Figure 3. Project schedule and version control of the project (version: May 2009).

The first publicly accessible version will have the following features:

- web portal with an integrated Primo system for searching and access to relevant information resources;
- all library-internal resources, the catalogue database (NEBIS) and the picture database (E-pics) are accessible;
- library-external resources, relevant journal articles are accessible via Metalib and Third node;
- the single sign-on procedure is realized (with Shibboleth);
- there is a solution for the trilingual Universal Decimal Classification (UDC).

10. What are the challenges and risks of the project?

As with almost all library-related IT projects, there are quite a lot of challenges which have to be met, if a complex project like this is to be realized successfully.

- The general possibility of customising the Primo software, which means the ability to follow user needs in a very flexible way, is very time and resource consuming. All enhancements, all necessary or useful adjustment of the basic settings have to be realized

by the library's own staff.

Besides this we should always bear in mind that customizing a new IT application in a library always means finding a balance between a pragmatic approach from a user's point of view and the perfectionism of the librarian.

- If you have a union catalogue, where the catalogue information comes from many partners, then the heterogeneity of the data will be visible at this moment. There will be obvious system discontinuities, there will be faults in using the cataloguing rules, there will be changes in the catalogue vocabulary and all this has to be optimized (= normalization) with reasonable effort.
- The trilingual thesaurus (German, English, French) of the Aleph catalogue should also be used in the Knowledge Portal. In faceting the information, the Primo software is actually existing only in a monolingual version, which means that this is part of the formal cooperation between ExLibris and the library.
- Creating a single sign-on strategy for the portal should be realizable for the university-internal user, but what is the solution for external users? New ideas and visions are needed.
- If a library develops a project of this size and of this relevance to the university community, it is indispensable to have commercial partners. In our case one of these partners is the software vendor ExLibris. Cooperation here not only means purchasing an out-of-the-box software tool, but it also means cooperating in developing a new application, a new product, so to speak. This private-public partnership is by definition not always without frictions.
- One of the central points of the vision Knowledge Portal is the request that the software tool should seamlessly fit into the library's homepage. This is a novelty which has probably not been realized in other libraries before now. We did not want to have a vendor application; we wanted to create a portal which would be the library's brand.
- The integration of external information packages is a challenging task, which needs discussion and a lot of technical preparations with our partners (i.e. DTU, Technical University of Denmark).

11. Looking ahead

Library journals and books are full of expressions of opinion about the future of information work in the sciences. On the other hand, nobody really knows what kind of library we will have in 10 or 15 years time. The only real checkpoint is the statement that the library of the future will be quite different from that we have today.

The project described is an important step in focusing all library activities on giving better and easier access to a quite heterogeneous service portfolio. The more complex and sophisticated our electronic services are, the more simple must our searching systems be. After years of accumulating electronic content, it is time to focus on the integrative aspect. The Knowledge Portal is an important step in this direction.

References

Ciccone, K. (2005), "MyLibrary@NCState: A library portal after five years", *Journal of Library Administration*, Vol. 43, No. 1/2, pp. 19-35.

ETH Libraries (2008), "Annual Report 2007", available at: <http://e-collection.ethbib.ethz.ch/eserv/eth:24060/eth-24060-09.pdf> (accessed 23 May 2009).

McGeary, T. (2005), "MyLibrary: the library's response to the campus portal", *Online Information Review*, Vol. 29, No. 4, pp. 365-373.

Morgan, E. L. (2003), "Putting the "My" in MyLibrary", *Library Journal*, Vol. 128, No. 17, pp. 24-26.

Neubauer, W. (2006), "From library catalogs and knowledge portals", *Bibliothek. Forschung und Praxis*, Vol. 30, No. 3, pp. 275 – 284 (in German).

Tennant, R. (1999), "Personalizing the Digital Library", *Library Journal*, Vol. 124, No. 12, p. 36.

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