Research report online as portal to a wider CRIS

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Introduction

The aim of CRIS is to give an overview to research activities to present it to the public, to find new partners for research or transfer into industrial practice. Local databases coupled with WWW will be a portal to a net of information of different levels for a new type of CRIS. First level is clearly structured short information about research projects and persons that take part. Second level is publishing of results (in printed or in electronic form). Next level is further information about the institution that is doing research, ideas evolving on further research, equipment to do research and ideas to transfer scientific results into society and economy. For users looking for documents concerning a special topic it is possible to retrieve all the data available in different databases or on different webpages on different web-servers. Therefore, future innovative research information systems should work out a context of an intensive text-facts-environment[5].

CRIS will be no longer a database concept, but primarily a search engine coupled with WWW presentation.[2] Local databases about research are often existing. In the meantime they are as a rule connected with WWW. This new CRIS needs intelligent architectures of local databases coupled with WWW. The system "Forschungsbericht online"[3] (research report online) developed at University of Kassel is an attempt to construct the above mentioned portal. Looking into our database you can have public information (not only) about research at each level of University: departments (faculties), groups (institutes), units (chairs).

Easy handling of input

To make such a system work first requirement is an easy handling of decentralised input by scientists that are doing research at institutions. This is prerequisite for authenticity and topicality of information, because scientists like to do research but not to write reports! Input about research projects is enabled at the level of chairs by using a WWW mask and password. What kind of information is required?

Names, phone, fax, e-mail of persons
Title of project (in German and/or English)
Abstract (in German and/or English)
Keywords (in German and/or English)
Link to more detailed information about research project available in WWW (to German and/or English webpages)

Running time
Status of information
- Public
- At work (not public)
- Archive (could not further be corrected)
Financing by third means
Co-operations
Publications

One of the advantages of bilingual input is, that only text-fields have to be translated (title, abstract, keywords). The other fields will be "connected" to either German or English fields. The user has not to care how the organisation of database will manage this.

Let's say something about persons, publications and archive

Persons

Working with relational databases has many advantages. You have to give in personal data only once. This information will be connected to all projects or publications, where concerned persons have contributed to. If any information is changing (phone, fax, e-mail etc.) you have to correct this only once in the database-table "persons".

Second advantage of a separate database-table "persons" is, that personal data are a central interface for whole information network of our university[1.] So you can connect different "activities" such as programme of lectures, further education catalogue, transfer catalogue etc by using a central database-table "persons".

Publications

Constructing "Forschungsbericht online" one of the aims was to establish bibliographic systems. Therefore a separate database-table "publications" was established. This separate table has two advantages.
- You can connect different publications with different research projects (or not).
- You can get a personal (or institutional) bibliography by using investigation module of publications. We are working to establish an output-format, which can be used for multiple purposes.

In the following you will see, that we build up a link structure to library to get information about availability of publications too.

Archive

Database systems as a rule show topical status of information. They are often constructed in a way that the history of activities gets lost. But sometimes you want to know what was done in the past. Therefore "Forschungsbericht online" has three possibilities of information storage as mentioned above:

- Public (everyone who wants can see it in the Web)
- At work (not public, but available for all those who have access by password)
- Put project to archive (information could not further be corrected)

You can retrieve projects which were put to archive using status "looking for turned out projects too" at investigation module of projects.

Special architecture

To build up well structured webpages frame technology is most preferred. It allows good embedded navigation in a resource saving way. But this rises the problem how to find the "content" part of the frameset using links. Therefore all webpages of "Forschungsbericht online" can be got by calling an URL as "http://cgi-Server/cgi-Path/FrameSet-Script?Parameter=Value". This URL leads as well to the left frame containing graphics and navigation tools as to the wanted "content" frame on the right side.

Working with frames will help to reduce problems. Scientists can give input into the system using HTML. If they make mistakes (tables without tags, that shows "end of table", unknown tags etc.), the whole text will be shown in a wrong way or you can see nothing else. But navigation-frame can be seen all the time. So you will not loose orientation.

Another advantage of frames is as follows. Without using frames some search engines would possibly show content of navigation-links and/or fields of tables trying to give a summary of the webpage, because this sort of information you will see at source text in front of real interesting content.

Connecting different levels of Information

To establish a well working portal for a new kind of CRIS there is a second requirement. You have to build up structures, that different levels of information network can be found and connected by external "visitors" without problems as mentioned at the begin of the paper. Therefore you do not want to find only pure information about projects. Following the links you can also find more detailed information about persons, more detailed information about projects, research activities and potentials of whole institutions and to results of research projects that are published. This means that "Forschungsbericht online" will be a portal to all webpages of scientists and institutions.

Service

But making research reports should not only be hard work for scientists. There should be involved some services useful for them. That will motivate to give topical input into system

Scientists can make links from their own WebPages to their special part of "Forschungsbericht online".

E.g. the starting page of Physics Department (FB 18):
<A HREF="http://www.uni-kassel.de/forschungsbericht/de?ENR=180000">FB 18</A>

or to unit English studies – Linguistics at FB 8
<A HREF= "http://www.uni-kassel.de/forschungsbericht/de?ENR=80101">FB 8 - Anglistik - Linguistik</A>

or to a special project at Physics Department (FB 18):
<A HREF= "http://www.uni-kassel.de/forschungsbericht/de?PNR=90"> Berechnung plasmarelevanter atomarer Daten</A>

Therefore they have not to do things twice (reporting about their research on their own webpages and in "Forschungsbericht online" too).

To be recognised at the Web

But establishing a well developed link-structure is the one side. The other is that being in the Web doesn't mean to be recognised by others in the Web[4]. In the meantime you have to spend good ideas and much work, that your special webpages and web-directories will be found and "accepted" by search engines. One of the further problems is to manage, that these engines will look periodically and to all the webpages belonging to the different directories. Simplest way is to announce webpages at search engines. But it is hard work and you have to repeat it regularly. And you have to look that your starting page contains characteristic features which are important for search engines.

Another more important problem is how to lead WWW search engines to webpages "hidden" in databases? They don't "exploit" information from databases. We found out a solution to lead these engines to webpages topical generated by scientists through our database. We are announcing "Forschungsbericht online" with a special page, which contains the URLs of all webpages topical generated in our database. To lead search engines (which can't operate with framesets) to the proper webpage and to give them the right title, key words and description of the content frame we are using the "noframes-tag" on all available framesets of "Forschungsbericht online".

Search engines looking to the home-page of "Forschungsbericht online" will find there a link at noframes-tag leading to the above mentioned page:

http://cgi.hrz.uni-kassel.de/~db2www/db2www-anon-direct.cgi/dbforber/suma-start.d2w/report

On this "search engines starting page" all institutions and projects are listed as follows:

<A HREF="...?ENR=XXYYZZ">name of institution</A>
<A HREF="...?PNR=xxxx"> title of project</A>

These links point to all frameset-pages which:

- contain the desired "content-frames"
- repeat for all search engines at no-frames-tag text of "content-frame" but with simple formatting (no tables for design or navigation). Also further leading links will be made accessible to search.
- and show at head-tag meta-tags with descriptions of the shown "content-frame"

Preparing "Forschungsbericht online" in the above demonsrated way it is a service for scientists too. If any scientist wants to spend so much time to develop his or her webpages, that search engines can easy find and explore them, there will remain not much time to do research. But our portal opens the way to webpages of scientists for search engines.

Connect one database with another

An important problem is to connect different databases by the way, that the output of the one is the question to explore the second. Looking to a special research project you will find a (list of) publication(s). These bibliographic data of our database now can be send by a cgi-script through a telnet-connection to the interface of OPAC-server of our library (OPAC means Online Public Access Catalog). So you can find very quick location of (printed or electronic) publications.

Normally this kind of access was made for human beings. So we have to simulate this process. Periodically once a week a cgi-script will be carried out to ask for the different bibliographic data of publications as author(s) or editor(s), titles, periodicals, years of publication etc. If investigation succeeds because this publication is existing in our library, "Forschungsbericht online" will show a so called book-number at the concerning publication. With this information you can see whether the publication is available on which location and whether it can be lend out. This procedure is very time-consuming.

To make access from publication data of "Forschungsbericht online" to library more comfortable (that means time-sparing), we normally carry out a cgi-script with parameters of Kassel-specific book-numbers only, we got by the above mentioned process. This is not only time-sparing but more sufficient too, because you know already, that publication is available in principal. But if you want to have topical information, you can choose above stated procedure. This is also necessary, if you want to know, whether the wanted publication is available not only at library in Kassel, but at

libraries connected to OPAC-System in Darmstadt, Frankfurt a.M., St. Georgen, Fulda, Gießen, Mainz, Marburg, Wiesbaden and Worms.

Outlook

The architecture of the system described above makes it possible to gather authentic and topical information of different levels of research very quick and easy for the new type of CRIS. It therefore makes a contribution to data integrity and quality control too.

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