English Summary

Innovation and cost reduction are two essential factors for the sustainability in the field of timber construction and the construction of wooden houses as well for industrially structured companies as for small and medium-sized enterprises (SME). Likewise determining factors are the orientation on markets, on products and on customers. The focus of the enterprises of the timber construction and the construction of wooden houses, also, relocates from the regional and national markets to the international markets.
Contemporary and reliable data and information are necessary for the coverage of the resulting various tasks and requirements. This shifts the goal-oriented retrieval, supply and handling of information and data to the center of entrepreneurial action.
Currently, a multitude of “uncoordinated stand-alone solutions” for the retrieval of information about topics pertaining to research or for the development of new products and technologies is available to users of the construction engineering sector in general as well as for the timber construction sector. There is no superordinated service system that provides the retrieval of structured data and information in an electronic format for research and development processes in the timber construction sector so far. The project goal was therefore stated as follows:
“A superordinated service system has to be developed which enables the retrieval of structured data and information in an electronic format for research and development processes in the timber construction sector. Furthermore, the service system serves as interface to existing databases and stocks of information.”
For starting the design several brainstormings were held within the project team and in interviews with project partners, companies and associations to clarify questions and to keep hold of the requirements of an information system. The most important result of all interviews was that the realization of a platform for the exchange of information is indeed necessary.
As a single institution cannot cover all topics of the timber construction technically and personally and to pool the responsibility for the quality and scientific standard of the data and information as well as the expenses and time requirements a co-operation partner concept seemed to make sense. According to the concept experts, universities and institutes shall be involved as equals. Every co-operation partner sponsors one topic and provides its contents design and editorial support. That means the co-operation partners will provide content that will then be edited in the information system and made accessible to the users.
IRIS – the Integrated Relational Information System – shall be a contribution to information brokering and knowledge sharing for all parties of the timber construction sector and the construction of wooden houses sector, hereinafter referred to as “timber construction”. That means that mainly topics (directly) linked to timber construction will be considered.
The information system IRIS shall not replace existing information platforms or databases but provide an interface between the single stand-alone solutions. Both the information providing co-operations partners and the system operators benefit from IRIS.
As designed as a self-developing, “learning” internet based information system, IRIS was created within the project duration of 32 months in three

phases being a web platform for the intersectoral integration of technically relevant information and documents. Since august 2007 the application runs as a test version on an HP Proliant server owned by the project and is accessible through the internet via the address http://iris.fh-rosenheim.de.
For the coverage of the comprehensive information demands of the users there are a simple to use full-text search function similar to common search engines like Google, a semantic net with related terms to visually assist in finding appropriate search terms and an encyclopedia with articles related to the topic timber construction.
The assortment of content for the search function is limited to selected sources of the internet and documents provided by the co-operation partners. That limitation to high-quality content is a big surplus to the user compared to usual internet search engines which quality of the hits is unknown and diverging widely. Cooperation talks about the provision of content for IRIS were held with the following possible partners:
• DIN/Beuth-Verlag, Berlin
• German Patent and Trade Mark Office, and European Patent Office (EPO), both Munich
• Information Centre for Planning and Building (IRB), Stuttgart
• German National Library of Science and Technology (TIB), Hanover
• Holzabsatzfonds / Informationsdienst-holz / infoholz.de (IDH) Bonn
• German Society for Wood Research (DGfH), Munich
• Institut für Fenstertechnik (ift), Rosenheim.
The DGfH is the most important co-operation partner. Besides the support regarding content with research reports and documents it shall continue operating the information platform after the project has ended. The DGfH actively supported the project in the initiation of contacts to potential co-operation partners.
The semantic net assists the user especially during the search operation. It visualizes coherences and extends the common search techniques (full-text, keyword etc.). This results in the following advantages:
• Navigating through the semantic net helps the user find the proper vocabulary to create search requests and thus get the matching result in an effective and efficient way
• The user can quickly acquire a topic conceptually as well as regarding the coherences. If he is willing to deepen an item he can directly look up in matching sources
• A comfortable visual navigation via mouse click creates a good general overview and makes the search fast
Within the project a timber construction specific taxonomy had to worked out. A basic concept developed by the project employees was improved in co-operation with the Institut für angewandte Technologien im Holzbau e. V. (IATH), Übersee. The timber construction specific taxonomy became fully mapped in the semantic net of the application. The cross-linking of terms is not limited to the topic timber construction though, but can be applied to other fields of knowledge as well.
The semantic net is able to improve itself by “learning” new terms and connections or as well “forgetting” them. For that user requests from a certain time span are evaluated. The actual learning task has to be started by an authorized editor. The result of the learning operation improves according to the amount of evaluable user interaction.
IRIS is realized as a web application based on Java EE (Java platform, Enter-

prise Edition) according to the MVC2-architecture (Model-View-Controller-architecture for web applications). Running through the search space ("Crawling") as well as the search functionality on the user interface is done by a modified and extended version the open-source software Regain. For indexing of content the open-source library Lucene is used. The encyclopedia is realized as an integrated Wiki system using a customized version of JSPWiki. The whole source code is written in Java. The presentation is done by Java Server Pages (JSPs). For the content-related editorial work and administration of the system a suitable web interface and a multi-level system of user rights were implemented in IRIS. The application is currently running on a Jakarta Tomcat servlet container under SUSE Linux Enterprise Edition. The software development was largely completed in the first quarter in 2008. Since then mainly improvements, error fixes and minor functionality extensions to round off the system are performed. According to the project team, the essential requirements of the system defined within this research project are fulfilled. Nonetheless, it could still be expanded.

Since august 2007 IRIS is available as a test version on the internet under the address http://iris.fh-rosenheim.de. Since then, practical experience is collected, e. g. about applying patches and updates. Because of the unfortunately still poor feedback by the target groups hardly any results could be gained yet about the effectiveness of the "learning system" which depends on some minimum user interaction or dealing with peak workloads.

To practically apply IRIS after the end of the project duration a project proposal titled "Ontologisch-semantisches integriertes Relationales Informationssystem – OSIRIS" (Ontological-semantic integrated relational information system) was submitted to the German Aerospace Center (DLR) under the program "Fit for Competition in the Knowledge Society" in march 2008. The focus of that proposed succeeding project is the transfer of the results gathered so far and the work performed till now into practice. By the time when this report is written there is not yet a response from the DLR concerning a possible funding of OSIRIS.