



University of Essen's multimedia library gives students a digital edge.

The largest city in the Ruhr region – one of the most intensely developed industrial areas of the world – Essen has long been a hub of economic activity in Germany. However, even before it became an industrial center, Essen was known as a citadel of learning and culture. Indeed, many credit the wisdom and erudition of Essen's people for sustaining the city's remarkable economic success through the centuries.

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Dr. Bruno Lix, Director, Computer Center, University of Essen

Established in 1972, the University of Essen preserves this heritage with its progressive approach to education in the information age. The university, which is home to 24,000 students, recently created a multimedia library – the Multimedia Teaching and Learning Server – to support instruction and research at its campus. Created with IBM DB2 Digital Library, the multimedia library will

encompass all 13 departments of the university, providing a variety of teaching tools, course material and research resources for both students and faculty.

In a region dotted with universities – there are ten within a stone's throw – this collection of digital resources will give the University of Essen a notable edge. Dr. Bruno Lix, director of the university's computer center, remarks, “As a young university, our aim is to become a technological leader in education. With IBM DB2 Digital Library, we've created a high-profile instructional tool that will help improve the quality of education and draw the brightest of students to the university.”

At present, the multimedia library has a collection of audio, video, images and text

Application	Multimedia library to support instruction and research
Business Benefits	Enhanced competitiveness; more effective teaching aides to improve the quality of education; extensible solution for long-term investment protection
Software	IBM® DB2® Digital Library, DB2 Universal Database™ Enterprise-Extended Edition, Adstar® Storage Manager
Hardware	RS/6000® SP™



At the University of Essen, a new multimedia library is opening up an exciting world of electronic resources for students and faculty.

collected from two departments — physics and linguistics. Indexing information for this collection is stored in DB2 Universal Database Enterprise-Extended Edition, residing on an IBM RS/6000 SP server, which functions as the library server. The multimedia objects are accessible with passwords from within standard Web browsers, enabling secure delivery over the Internet or over the university's intranet. "We've received a very enthusiastic response from the students," says Lix, "and other departments are clamoring to make use of this technology as well. Eventually, we will consolidate digitized information from all the departments."

True blue multimedia management tool

IBM DB2 Digital Library emerged as the clear leader in the university's search for a multimedia storage and management solution. "Unlike other products, this is a true multimedia management tool, with advanced search and access features. The easier it is to search for information in a library, the more people use it," says Lix, referring to the Query By Image Content (QBIC®) and rights management features of IBM DB2 Digital Library. QBIC technology allows users to search for images by different parameters such as texture, shape, position and even color percentage.

The university is also acquiring multimedia resources from other universities in the United States and Germany. "There are various copyright issues that can be handled very well by the rights management function," notes Lix. The rights management function controls access to the digital resources and prevents unauthorized use of intellectual property. "Professors find this very useful when they're publishing course content, or even their research papers, on the Web," Lix explains.

As users and developers familiarize themselves with the tools, Lix expects that more complex digital content, such as video, will find its way into the multimedia library. Eventually, he expects to use IBM DB2 Digital Library VideoCharger, which enables broadcast of realtime audio and video streams to multiple viewers over intranets or the Internet. "We will be able to seamlessly integrate the VideoCharger server to stream realtime video to users' desktops or provide video-on-demand," he informs. The university is also using IBM ADSTAR Storage Manager (ADSM) for high-capacity, offline storage of multimedia content.

Open and easily extensible

According to Lix, the flexible architecture of IBM DB2 Digital Library — which allows digital objects to be stored on multiple servers at different locations, transparent to the users — is a tremendous advantage. "Its architecture, based on library and object servers and multiple clients — from Microsoft Windows to UNIX and OS/2® — makes it very adaptable," he explains. "You can mold it to accommodate different organizational schemes without requiring deep changes to your system architecture. It's very open and very scalable, too. As more departments get connected, it will be easy for us to add content to separate servers, and this will also make content management more straight-forward."

Though the first phase of the project has been completed only recently, the project is rapidly expanding in scope and size. "Though the volume of content is growing quite fast, our digital library will be able to accommodate this rate of growth for many years to come," Lix points out, adding, "Both DB2 Universal Database and our RS/6000 servers give us a scalable and robust platform." For Lix, this is one more successful experience with IBM. "We've been using IBM technology for many years," he says, "and it has served us well. IBM provides numerous solutions to meet our diverse needs."

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IBM Corporation
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11-98
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