



IBM WebSphere and Java™ help students take control of their careers.

Universities compete for students just as businesses compete for customers. And students can be tough customers to please. Nowadays, they judge their schools not only by their academic standards, sports programs and social activities, but also by the efficiency of student services. Recognizing this, the University of Minnesota has created a new Web-based, self-service student information system.

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– Michael Handberg, Director of Web Development, University of Minnesota

Michael Handberg, director of Web development, University of Minnesota explains, “This student-oriented service has added value to our institution beyond improving the quality of traditional activities such as registration. It has enhanced the university’s reputation as an institution that is responsive to its students’ long-term academic goals.” Students are flocking to the Web site, and in just one year the number of visits has more than doubled to seven million monthly. Nearly 85 percent of the students are already registering for classes online.

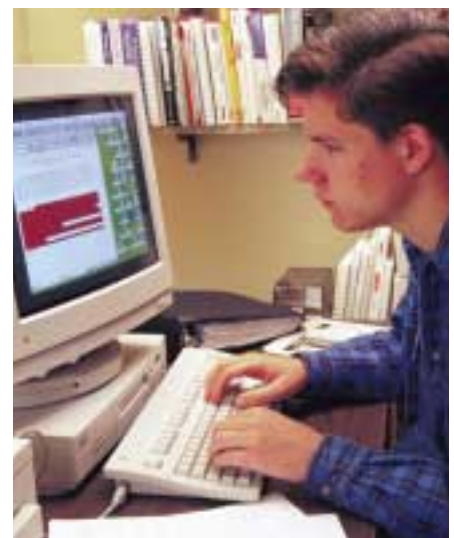
Currently under joint development by the University of Minnesota and IBM, this self-service model is based on IBM e-business technologies and Java.™ The online service – delivered through a Web site that is accessible from any standard Web browser – enables students to register for classes, apply for financial aid, pay tuition fees and order transcripts at any time, from anywhere. It also provides students online tools that empower them to manage their academic progress. “Developed to its fullest potential, this will be an integrated student system with powerful analytic and resource management tools,” Handberg notes. “It will radically change the role of advisors and responsibilities among students, faculty and staff.”

All four university campuses – Morris, Crookston, Duluth, and Twin Cities – now offer the Web-based registration service, with some 50,000 applications processed online every quarter. The university estimates that at least one-third of its student administrative services can be automated and delivered over the Internet, saving nearly \$200,000 a year in administrative costs associated with the old paper-based system. “A structural shift in staff distribution is already evident,” Handberg points out. For instance, at the registrar’s office, the registration counter staff has shrunk because more and more students are registering over the Internet.

Integrated view of education

According to Handberg, this model is unique in that it enables students to study the impact of one decision on other areas of their academic life. For example, using the online financial aid

Application	Online student information and registration system
Business Benefits	Improved quality and timeliness of student services; automated processes yield substantial cost savings; enhanced reputation in the academic world
Software	IBM® WebSphere™ Application Server IBM DB2® for MVS™
Hardware	IBM RS/6000® SP™ IBM S/390®



University of Minnesota’s online student information service is a unique self-service model that provides students tools to manage their academic life.

estimator, students can determine if they are eligible for financial aid. This is linked to other processes, so that if a student drops a course, it is automatically reflected in the financial aid they receive. A personal course planner with online advising tools helps students select courses that best meet their career objectives. One of the Java™ applets developed is a weekly planning tool that helps students track and allocate time for different activities.

Handberg explains that to provide such an integrated view they needed to design screens that are easy to navigate. "We've achieved this working with IBM developers," he says. The university created Java™ applets that provide an interactive, browser-based user interface to steer students through the Web site. Handberg notes that the Java™ applets always get the most enthusiastic response during demonstrations. "They make the site come alive for students," he says, adding, "The depth of IBM's technical knowledge is impressive, and so is its expertise in Java.™ They've come up with wonderful ideas for Web-based utilities."

Meshing existing systems with the Web

The Web site is powered by Netscape Enterprise Server and IBM WebSphere Application Server. IBM WebSphere Application Server provides the Java™ servlet runtime environment. The Java™ servlets access various back-end database sources, including DB2 for MVS and Oracle, and merge the information into new Web-based business processes such as student registration. To protect the privacy of information transmitted over the Web, the 128-bit Secure Socket Layer (SSL) standard is used.

The Web server resides on a massively parallel processing RS/6000 SP server. "The RS/6000 is a very scalable platform, and its runtime environment for Java™ gives us excellent performance," Handberg says. The university is also considering several high availability options offered for the RS/6000, such as High-Availability Cluster Multi-Processing (HACMP). "These products give us a secure, user-friendly, high-performance and extensible architecture," Handberg says.

A key need in this project was to leverage established computing systems. Many core business functions – such as degree audit and financial aid administration – use CICS®, IMS/ESA®- and MVS-based transaction systems on the S/390. Re-engineering all of these systems would have been prohibitively expensive and time consuming. In addition, new PeopleSoft human resources management and student administration applications are being implemented. IBM utilized its expertise in both e-business and mainframe environments to help integrate these systems. By applying Application Mining – the process of reusing existing application logic – the university was able to take full advantage of existing investments.

Instructive collaboration

The collaboration between IBM and the University for Minnesota has prompted additional interaction on other projects. In particular, cross-functional experts from the university are working with IBM Global Services to develop further the student self-service model, the first release of which is due in August this year. "IBM has shown tremendous commitment to this project," says Handberg, adding, "The Internet is the ideal channel to faster learning."

Response from the university's board of regents, deans and state funding committees, Handberg explains, has been overwhelming: "We received a standing ovation at the demonstration. They told us that the project will be the blueprint for future government services in the state, too. This service model is essential for the University of Minnesota to compete in the future."

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