



# IMS Campus Case Study

University of Michigan



## *IMS Global Standards Enhance Innovation at the University of Michigan*

*Collaboration to enable innovation is a hallmark at the University of Michigan (U-M). Consistently one of the largest public research universities in the U.S., the U-M places equally high value on teaching and learning. It is a founding partner and active contributor to the Sakai community open source project. It also has been an active participant and leader in the IMS Global Learning Consortium.*

“We’re in the learning business,” said Paul Courant, dean of U-M’s library and former U-M provost. “If there’s one thing we’ve learned, it’s that division of labor-based collaboration is how you solve hard problems. Having people who are very good at one thing isn’t nearly as powerful as having people who are very good at many different things and then having a platform available for them to collaborate on.”

As learning environments rapidly change, U-M has found the services-based standards created by IMS Global partners to be a highly effective way to add new functionality to its Sakai-based collaborative learning environment.

U-M began implementing Sakai as its collaborative learning environment in fall 2005. The university provides more than 60 Sakai tools in support of learning, discovery and collaboration. Usage continues to grow with more than 45,000 active users each term, 10,000 new course sites and 10,000 new collaborative project sites created each year, and with more than 12,000 concurrent users during peak periods.

Through its partners, IMS Global has developed Learning Tools Interoperability (LTI), which allows remote tools and content to be operated as part of an institutional LMS like Sakai. As a result, U-M is able to quickly implement tools created by both university developers and external providers (commercial and open-source) with their Sakai-based system to provide a richer, tailored environment while avoiding costly re-development. The student experience

when accessing these external tools is seamless. U-M has implemented several tools using LTI:

- Developed by a U-M faculty member, *LectureTools* engages students during a lecture through active participation. Each student has their own view of the presentation on their laptop where they can take notes and mark up slides. Assistants are available to answer questions from students typed into a chat window while the lecture progresses. Instructors can also pose questions to assess student understanding and get immediate feedback.
- *SiteMaker* was originally developed with the goal of providing U-M Medical School faculty, staff, and students with a tool to help them create and maintain well-organized websites, with integrated database functionality, without the need for extensive help from technical staff. Now used campus wide, U-M worked with a Canadian company to implement LTI in SiteMaker, and now any instructor can easily add SiteMaker capability to their course site.
- The *Student Assignment Management System (SAMS)* was initially developed in U-M's Physics department for use in large classes where homework grading and grade keeping in classes with many lecture and lab sessions was complex. It is now used across the university's largest undergraduate college. SAMS provides personalized online homework, quizzes, and exams containing both conceptual and quantitative problems. It gives students instant feedback on their work, and lets them continue to work on their homework until they get it right. LTI made it possible for the Perl-based SAMS tool to function as though it were an alternate Sakai homework/gradebook tool specifically designed for large classes.
- *BlueStream* is the U-M name for a highly customized off-the-shelf application for multimedia content management (digital video, audio, images, and documents) for use in scholarly research, teaching, and learning. Unlike traditional repositories, BlueStream generates and synchronizes time-coded metadata to media. The commercial vendor initially estimated the integration of authenticated rosters into their system would require more than 1,000 hours of development time using API tools. The vendor, however, was subsequently able to implement LTI to accomplish the same functions in less than 40 hours.

Another IMS Global standard being implemented is the Learning Information Service (LIS) specification. U-M worked closely with Oracle to implement the PeopleSoft Enterprise Student Administration Integration Pack (SAIP), a product based on an early draft of the LIS. While SAIP was built as a means to integrate data between a Student Information System (SIS) and an LMS, U-M currently uses the product to feed SIS data to its Enterprise Directory System. This highlights the fact that use of the LIS standard need not be limited to integration between SIS and LMS systems alone, but can support the exchange of SIS or LMS data to any LIS compliant system.

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– John Merlin Williams, director of the U-M Library’s Digital Media Commons

Most recently, U-M began working with CourseSmart, a leading provider of e-textbooks and digital course materials, to test the integration of digital content directly into the workspace that students use to take their courses. The pilot program includes five courses/instructors and nearly 200 students who can now access e-textbooks through their LMS. And because both the university and vendor have adopted LTI as the standard operating platform, integration of the two systems was easily accomplished.

“What IMS Global provides is common ground,” said John Merlin Williams, director of the U-M Library’s Digital Media Commons. “It’s the only place I know of where you have commercial publishers, major technology companies and systems integrators, universities, and all the learning management system (LMS) providers actually sitting down and developing working solutions for technology adoption.”

In addition to enhancing collaboration between universities and commercial vendors, adopting common standards as established by IMS Global partners also increases the opportunity for higher education institutions to work together on projects, even when those institutions are operating on different platforms, he added.

Courant said that in some respects, having open standards that everyone adopts is even more important than open source systems. “We want the commercial vendors to be in the marketplace. After all, they are the ones producing the relevant content. Figuring out how we and the textbook industry evolve is going to be very important to both the industry and to higher education over the next several years. What I think open standards allow is to have a level playing field that allows the competition to take place on what it ought to take place on, which is the quality of the resources being used rather than on marketing interfaces. Open standards allow us to be able to operate things in similar ways that, in their guts, are quite different.”

Rather than a top-down decision-making process, Williams said initiatives are introduced from all levels at the university. “We have a lot of things that pop up internally, developed by faculty or staff. We also have entrepreneurial faculty who find tools from outside providers, both commercial and open source, they start using them and that catches on. Having standards like LTI enables us to be somewhat opportunistic in taking advantage of these things.”

One of the roles that IMS serves, Courant said, is as a community venue where users and providers can meet on neutral ground to determine what is needed and how best to provide for those needs.

“Our objective is to teach and learn,” he said. “As things go into production, as things are widely used the way that Sakai is, for example, we want them to be interoperable, seamless, and easy to use. We always want to get to that stage, preferably without too much cursing, with every piece of software that we use. But that’s not how innovation works. Rather robustly, faculty bring into the local campus marketplace all sorts of needs. Part of our job—mine, John’s, and others—is to figure out which of those is really going to be ready for prime time. Then we want to develop them so they are standards compliant and operable with everything else.”