



"It is critical that we continue to provide faculty and instructors with familiar, easy to use, course management software. At the same time we need a lasting architecture that will allow us to easily integrate a range of different teaching tools and make use of online content from many sources. Learning management technology needs to become an integrated part of the campus enterprise technology infrastructure."

**Fred Beshears,
Senior Strategist,
Educational Technology,
UC Berkeley**

"Instead of merely looking at a list of course management features hoping for a few improvements, the committee took a deeper and longer view. We expect software vendors to understand the need for their products to integrate smoothly with systems like the library information and student information systems. We need true, open interoperability between the components of a learning environment."

**Dirk Herr-Hoyman,
e-Learning System
Architect,
University of Wisconsin**

Driving Product Decisions with OKI

Product Acquisition at UC Berkeley and the University of Wisconsin

Both the University of California at Berkeley and the University of Wisconsin System have Web-based course management systems that provide faculty and students with features commonly used in online teaching and learning. But as they acquire technology for the future, they want more. They want their vendors to build on the component-based architecture being defined by OKI.

OKI provides an open architecture and tightly defined application programming interfaces (APIs) that specify how the components of a learning technology environment interact with each other and with other campus systems. This modular approach is essential for supporting robust learning technology that can scale to systems of the size represented by Berkeley and Wisconsin. It also allows faculty and research groups to deploy specialized learning technology tools without affecting the stability of the entire learning environment.

The University of California, Berkeley is selecting a campus-wide solution for online learning. As the flagship University of California (UC) campus, their decision will influence other selection processes inside and outside the UC system.

The University of Wisconsin System is going through a process to select the next generation of technology for online instruction. Wisconsin needs to use content from multiple sources, and to ensure that their content and software components will continue to work properly when other components of their environment change.

These schools are asking software vendors to specify their strategy with regard to OKI and complementary SCORM and IMS specifications. The Request for Proposals (RFP) documents include architectural diagrams and requirements based on the OKI architecture, and vendors are asked to demonstrate how their products fit into the architecture. Vendors are also expected to be actively involved in standards initiatives as a positive indicator of support for the development and adoption of those standards. Both Berkeley and Wisconsin are undergoing a deliberate program of educating their user communities and their suppliers as to the importance of durable, scalable, and modular solutions, and in doing so these schools have become important advocates for OKI.

How does OKI relate to the work being done by IMS, SCORM and IEEE?

OKI is part of a global learning technology standards movement that applies to all education, learning, and training sectors. Organizations around the world are working to create specifications that support interoperability among learning systems and that enable the widespread exchange and distribution of learning content. The IMS Global Learning Consortium, the Advanced Distributed Learning initiative (producers of the Shareable Content Object Reference Model, or SCORM) and the IEEE Learning Technology Standards Committee are leaders in this area.

OKI is actively involved with these global standardization efforts, but its role is not so much to produce specifications as to affect their future direction through the publication and implementation of an architectural framework that incorporates them.

About the Open Knowledge Initiative

Innovation. Integration. Cooperation.

The Open Knowledge Initiative (OKI) defines an architecture that precisely specifies how the components of a learning technology environment communicate with each other and with other campus systems. By clearly defining points of interoperability, the architecture allows the components of a complex learning environment to be developed and updated independently of each other. This leads to a number of important benefits:

- Learning technologies appropriate for *a range of teaching and learning requirements* can be integrated together into a common environment. For example, the needs of the Math department are not those of the English department, and tools that work well for new users may not be adequate for seasoned users.
- Learning technology and content can be more *easily shared among schools and departments*. This provides a catalyst for cooperative and commercial development.
- There is a *lower long term cost of software ownership* because single components can be replaced or upgraded without requiring all other components to be modified.
- Modularity makes learning technology *more stable, more reliable, and able to grow with increased usage*, and allows components to be updated without destabilizing other parts of the environment. OKI is based on technologies that have proven to be scalable and dependable in large scale enterprise computing environments
- The architecture offers a *standardized basis for learning technology software development*. This reduces development effort and encourages the development of specialized components that integrate into larger systems.

At the core of OKI is a set of application programming interfaces (APIs) that realize the OKI architecture. OKI is providing Java versions of these APIs. These Java APIs are provided for use in Java-based systems and also as models for other object-oriented and service-based implementations. OKI's partners and developer community are providing open source examples and reference implementations of learning technologies that make use of the APIs.

Higher education leaders recognize that learning environments are a core component of their information technology infrastructure. These environments must successfully support faculty and students, and they must be flexible enough to adapt to a range of instructional requirements and styles. The technologies must be robust and must scale up to support an ever-increasing demand.

OKI is being developed by and for higher education. OKI was started with Mellon Foundation funding and has grown as partners have received additional funding for specific OKI-related projects and activities. Institutions of higher education can take concrete steps to move OKI forward. These include making OKI part of procurement and product definition cycles and participating in the OKI development community. This will help direct the efforts of the vendor community and will help campuses move more quickly to a stable and scalable learning technology infrastructure that effectively supports their educational processes.

The OKI Partners

The Massachusetts Institute of Technology leads the project in close collaboration with a growing community of partners, including Stanford University, the University of Michigan, the University of Cambridge, Dartmouth College, North Carolina State University, the University of Pennsylvania, the University of Wisconsin-Madison, and the University of Washington.

To find out more about OKI, visit our web site at <http://web.mit.edu/oki>, or email oki-info@mit.edu.