

*UNIVERSITY OF WASHINGTON STUDENT  
SYSTEM DEVELOPMENT—KUALI STUDENT  
PROJECT*

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**Office of Information Management  
University of Washington  
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# University of Washington Student System Development—Kuali Student Project

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## Introduction

The University of Washington has been invited to be a founding partner of the Kuali Foundation Student System, a consortium of leading higher education institutions that is developing a next-generation student system. The University of Washington Board of Regents has approved the University's participation in the Kuali Foundation as a founding partner in a student administration system development effort.

This commitment includes \$5,000,000 to become a Kuali Foundation Partner (\$1,000,000 per year over five years). In addition, the University of Washington (UW) has budgeted \$1,250,000 in operating expenses to support the project, (\$250,000 per year over five years). This includes funding for staff training, travel, equipment, and contingencies.

## The UW's Aging Student System

The UW's current student administration system is an inflexible, 26-year-old, homegrown legacy mainframe application that does not collect the information critical to effective operations and decision-making. Many other leading higher education institutions have a similar problem, and several have joined together to develop a modern student administrative system called Kuali Student. The consortium consists of six other other founding partners:

- The University of British Columbia
- The University of California (Berkeley)
- The University of Maryland (College Park)
- Florida State University
- San Joaquin Delta College
- University of Southern California

A next-generation student administrative system has the potential to radically improve the educational quality and experience for students. With better tracking of educational outcomes against expected performance, the UW will be able to raise the bar on developing new types of

educational programs and new methods of instruction. The UW needs a student administrative system that includes the flexibility to define and measure educational programs and outcomes in a variety of ways. The current legacy system does not provide this flexibility.

Joining the Kualii Student partnership now will allow the UW to have a voice in deciding critical design issues, so that the final product has a high probability of meeting the UW's needs. The UW's early involvement also will enable the University community to leverage the resources of partner institutions in redesigning student administrative processes to maximize efficiencies and flexibility.

## **The Kualii Student Project**

The Kualii Student project will deliver a flexible, scalable, cost-effective system that can be configured to meet the business requirements of many institutions. It will be modular, open-source, and standards-based with a full service-oriented architecture. Kualii Student plans to deliver functional systems in two phases:

### **Phase one includes:**

- Curriculum development
- Customer contact
- Enrollment, grades, and official academic record
- Degree audit and academic evaluation
- Student financials (tuition, billing, payment)

### **Phase two includes:**

- Admissions
- Scheduling (curriculum resources, faculty, room availability)
- Awards and financial aid

### **Student-related functions that are outside the scope of the Kualii project include:**

- Recruitment
- Housing applications
- Alumni

## Improving the Student Experience

As noted above, the Kuali Student system would dramatically improve the student experience in a number of ways. What follows is a closer look at some of them:

- **Kuali will eliminate the current fragmentation of student services at the UW by integrating systems that are now separated.** For example, there is currently no single UW office that can verify all academic certificates granted by the University. The Office of the Registrar can verify UW degrees with great accuracy, but not certificates. That is because the current UW student system has no mechanism for storing the array of certificates offered by the UW. Kuali would bring all UW learning activity into a single common system, including Educational Outreach, schools and colleges, all three campuses, graduate and professional study, and certificate study.
- **Kuali will provide students with improved tools for finding courses, navigating programs of study, and seeking all varieties of University learning opportunities.** The UW's current course search tools are less functional than most basic Web search engines. Kuali will give students advanced search capability. In addition, Kuali will track individual students' plans, history, and needs and present the most relevant learning opportunities to students.
- **Kuali will support distance learning, off-calendar study, certificate study, certificate programs, continuing professional education, and other learning types.** The UW's current systems do not support all of these types of learning activities.
- **Kuali will dramatically improve the speed and efficiency of processing students' written requests and petitions.** This will be achieved through Kuali's advanced workflow functionality. Students will get decisions sooner, more consistently, and more accurately.
- **Kuali will support innovation by allowing business owners to contribute directly to system feature enhancements.** This will allow Kuali to respond to changing student needs and expectations.

## Becoming a Founding Partner

As a founding partner of Kuali Student, the UW is required to commit \$1,000,000 per year for five years, which includes a combination of staff resources dedicated to Kuali work and cash paid to the Foundation. In addition, the UW has budgeted \$250,000 per year for five years for support and operating costs including hardware, travel by participating staff to Kuali meetings, staff training, and contingency funds.

The University will continually assess its participation in Kuali to assure that UW needs are being addressed in functional design. The University's commitment is to the Kuali student development effort. Any recommendation to implement Kuali systems will be treated as a separate investment decision and assessed for its cost-benefits, level of risk, and likelihood of success.

Funding for the UW's participation is available from University operating funds. This request has been approved by the University of Washington Board of Regents, Chief Technology Officer, Vice Provost for Information Management, Vice Provost for Student Life, Senior Vice President for Finance and Facilities, and Provost and Executive Vice President.

More information about Kualo Student is available at:

<http://student.kuali.org/>

## Successful Consortium Efforts

Higher education institutions have a demonstrated track record of successfully collaborating on large-scale, multifaceted projects to solve complex technology problems. A few of the numerous examples of successful collaborations are listed below. These higher education consortiums offer many advantages, which is why they have attracted the participation of leading institutions nationally, but there are also risks.

### Advantages:

- Consortiums offer a forum where several institutions can join together; share resources, knowledge, and expertise; and produce a better, more cost effective product than any one of them could have alone.
- Consortiums offer an opportunity for institutions to design solutions that fit their unique needs while also avoiding becoming locked into a particular vendor package and its required upgrades, or being subject to the churn of the vendor marketplace, where mergers and acquisitions are common.
- Once core systems and modules are released, other institutions adopt them and develop additional modules, which in turn spurs further adoption and development, and innovation flourishes. This benefits the entire consortium.

### Risks:

- The biggest risk of a consortium is that it will not sustain its initial momentum, and the project will flounder. This risk can be mitigated in several ways, including through developing a strong governance and project management framework and by involving commercial vendors who can help provide the ongoing structure and support required to maintain and evolve the product. Even if the consortium does fail, consortium members still walk away with increased knowledge and expertise. The alternative is to invest in a vendor package, which carries its own array of associated risks, or for an individual institution to develop the product on its own, which would be cost prohibitive.
- The Kualo Foundation has learned the lessons of other consortium efforts and has developed a strong governance and project management framework, and it has attracted commercial firms as affiliates.

The following are some examples of successful higher education consortiums:

## **Kuali Foundation**

The Kuali Foundation is a non-profit organization responsible for developing and sustaining a comprehensive suite of administrative software that meets the needs of all higher education institutions. The Kuali Foundation manages a portfolio of enterprise software applications for colleges and universities including Kuali Financial System, Kuali Research Administration, and Kuali Student. Consortium members are colleges, universities, commercial firms, and interested organizations that share a common vision of open, modular, and distributed systems for their software requirements.

Kuali began as a collaborative effort among a few universities to develop an enterprise-level financial system. Based upon its initial success, the project was able to secure grant funding from the Andrew W. Mellon Foundation. This support has allowed the founding partners to expand the development community to more schools. Foundation members currently include Cornell University, Indiana University, Massachusetts Institute of Technology, Pennsylvania State University, University of California (Berkeley), University of California (San Diego), among others. As the partnership has grown, it has attracted commercial affiliates including IBM, Sun Microsystems, and Syntel.

More information on the Kuali Foundation:

<http://www.kuali.org/>

## **Kuali Financial System**

As noted above, the Kuali Financial System was the first project undertaken by the consortium. The Kuali Financial Systems project is working to create a comprehensive suite of financial software that meets the needs of all Carnegie Class institutions. The project started in 2005 and is focused on developing an enterprise-level financial system based on Indiana University's Financial Information System.

The Kuali Financial System project includes a collaborative approach to design, an open development platform, and a Web-based operating environment. Kuali has had three releases to date, with the final release of the functionality scheduled to be completed and available December 2008.

The following higher education institutions plan to implement the Kualu Financial System:

<b>Institution</b>	<b>Expected Start Date</b>	<b>Estimated Completion Date</b>
Cornell University	January 2007	2012
Colorado State University	Fall 2007	July 2009
Indiana University	Spring 2008	2011
University of Arizona	Spring 2008	July 2009
Michigan State University	Fall 2008	October 2009
University of California (Davis)	2008	2012
University of Hawaii	2008	2010-2011
San Joaquin Delta Community College	Fall 2009	July 2010
University of California (Irvine)	2009	2011
University of Southern California	2010	Undetermined

For more information about the Kualu Financial project see:

<http://www.kualu.org/communities/kfs/>

## **Sakai**

Another example of a successful software consortium effort in higher education is the Sakai project. Sakai is an open source Courseware Management System that features a set of software tools designed to help instructors, researchers, and students collaborate online in support of their work. The project was started in 2004 when Stanford, Michigan, Indiana, MIT, and Berkeley decided to collaborate on developing a common Courseware Management System rather than continue their homegrown systems or license software from a commercial vendor. Sakai now has over 100 members including the UW.

More information about Sakai:

<http://www.sakaiproject.org/portal>

## **UPortal**

**uPortal** is a free, open-standards, and sharable portal that was developed by a consortium of higher education institutions. The portal was developed to be an abridged and customized version of an institution's Web presence— a "pocket-sized" version of the campus Web.

**uPortal** is a collaborative development project that began in 2001 when a group of 20 institutions, including Princeton, Yale, Cornell, the University of British Columbia, Georgetown University, and Boston College recognized the need to leverage the potential of the portal for

their institutional Web presence, to project the institutional image, and to promote the use of Java technology. The project was sponsored by Sun Microsystems and supported with a grant from the Andrew W. Mellon Foundation. The project has enjoyed considerable success with more than 600 production deployments, and it remains the most widely used open source portal in higher education.

More information about UPortal:

<http://www.uportal.org/>

## **Kuali Student Compared with Vendor Systems**

Before selecting Kuali student as its preferred solution, the UW also considered two commercial software packages for student administration that have been implemented by several peer institutions. The two packages are:

- **Sungard SCT Banner student systems**, which are used by Texas A&M, University of Arizona, University of California (Davis), University of Colorado, University of Hawaii, University of Illinois, University of North Carolina (Chapel Hill), and University of Oregon Health Sciences. The average year of implementation for this group was 1991. Five of these institutions also implemented financial systems from Banner, and one implemented the Banner HR/Payroll system.
- **Oracle/PeopleSoft student systems**, which are used by Cornell, University of Connecticut, University of Massachusetts, University of Michigan, University of Minnesota, University of Missouri, University of Utah, and the University of Wisconsin. The average year of implementation for this group was 2003. All the peer institutions using the Oracle student administration system are using either the Oracle financial systems or Oracle HR/payroll systems, and most are using both.

UW business and technology leaders concluded that implementing one of these existing packaged solutions would be a lateral move that would not provide the kind of significant step forward offered by the Kuali Student development consortium. Major advantages of the Kuali Student solution compared with a packaged application include:

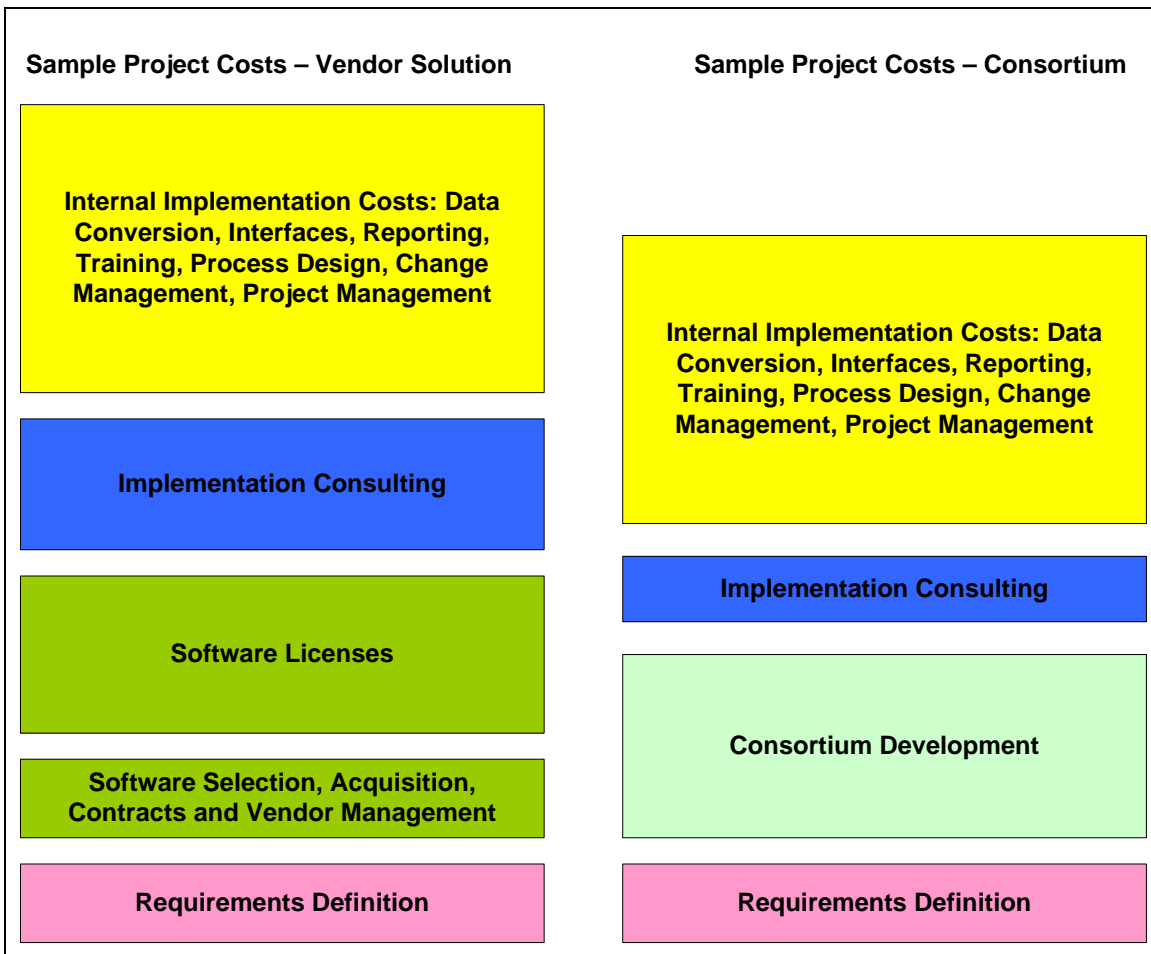
- The ability to leapfrog several generations of technology
- A focus on the functionality required by larger and similar complex institutions
- An open source solution
- Better potential for integration
- Agility in development
- Avoiding the high cost of software license fees, third party implementers, and annual vendor maintenance fees.

The following table compares features offered by a vendor solution, the UW's current Student Database System (SDB), and Kuali Student.

<b>Feature</b>	<b>Vendor</b>	<b>UW SDB</b>	<b>Kuali Student</b>
<b>Rules engine (business-owner managed)</b>	No	No	Yes
<b>Advanced user awareness. Anticipation of user needs, plans, and aspirations</b>	No	No	Yes (Concierge)
<b>Community source: feature agility and innovation through deep collaboration with the best subject matter experts in higher education</b>	No	No	Yes
<b>Business-configurable enterprise workflow</b>	Yes (limited business configurability)	No	Yes (advanced business-configurability)
<b>Integration middleware</b>	Yes	No	Yes (Rice)
<b>Integration with InCommon / Shibboleth / Internet2 federated identity management</b>	Under development (based on the OASIS SPML standard)	No	Yes (through Rice)
<b>Service Oriented Architecture (SOA), an integral part of UW's strategic technology vision</b>	Under development	No	Yes
<b>Flexible learning unit management (certificates, off-calendar events, etc.)</b>	Yes	No	Yes
<b>Web-based course registration service for students</b>	Yes	Yes	Yes
<b>Student view of final and "midway" course grades</b>	Yes	Yes (feature added October 2008)	Yes
<b>Student view of quiz and assignment grades</b>	No	Yes (feature added October 2008)	Yes
<b>Potential for national pool of development and innovation expertise</b>	No (proprietary code, limited number of developers)	No	Yes (co-developed, open code; requires widespread uptake of Kuali product and Kuali philosophy)
<b>Potential for national pool of support expertise</b>	Limited (directly related to vendor market share)	No	Yes (requires widespread uptake of Kuali product)

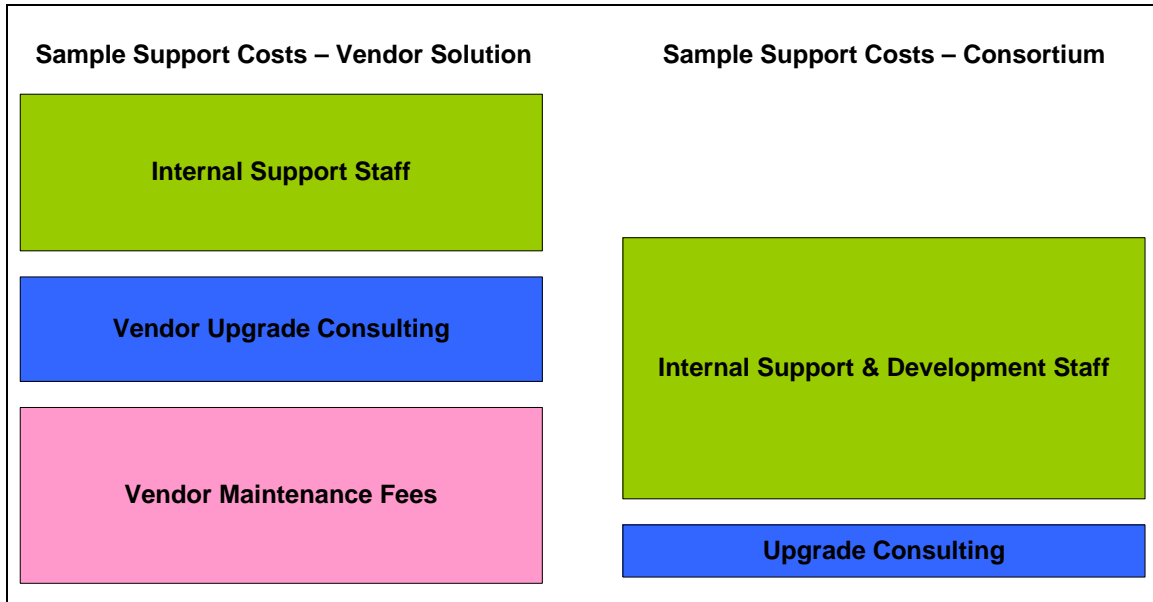
## Selection and Implementation Costs

The following diagram shows a high-level summary and comparison of the cost elements involved in a typical vendor system implementation compared with the Kuali consortium development project. The major internal implementation costs, shown in yellow, are expected to be equivalent regardless of the type of solution selected. The requirements definition process will also be required under both solutions types. Both types of implementation are likely to require some external consulting costs, although this should be substantially lower in the Kuali consortium development, since the internal project development team members will gain significant knowledge of the product. The Kuali development consortium will require an upfront investment of \$5,000,000, which would be offset by vendor license fees and the vendor RFP process.



## Ongoing Maintenance and Support Costs

The following diagram is a high-level summary of the ongoing cost elements involved in supporting a typical vendor system compared with the Kualu consortium solution. In addition to an internal support team, a vendor solution will involve annual maintenance fees paid to the vendor—typically around 18% of the license fees—plus vendor or other third party consulting fees to support the annual upgrade process. The Kualu consortium is likely to require a larger internal team to provide support and ongoing product development. However this will be offset by avoiding annual maintenance fees and third-party consulting on upgrades.

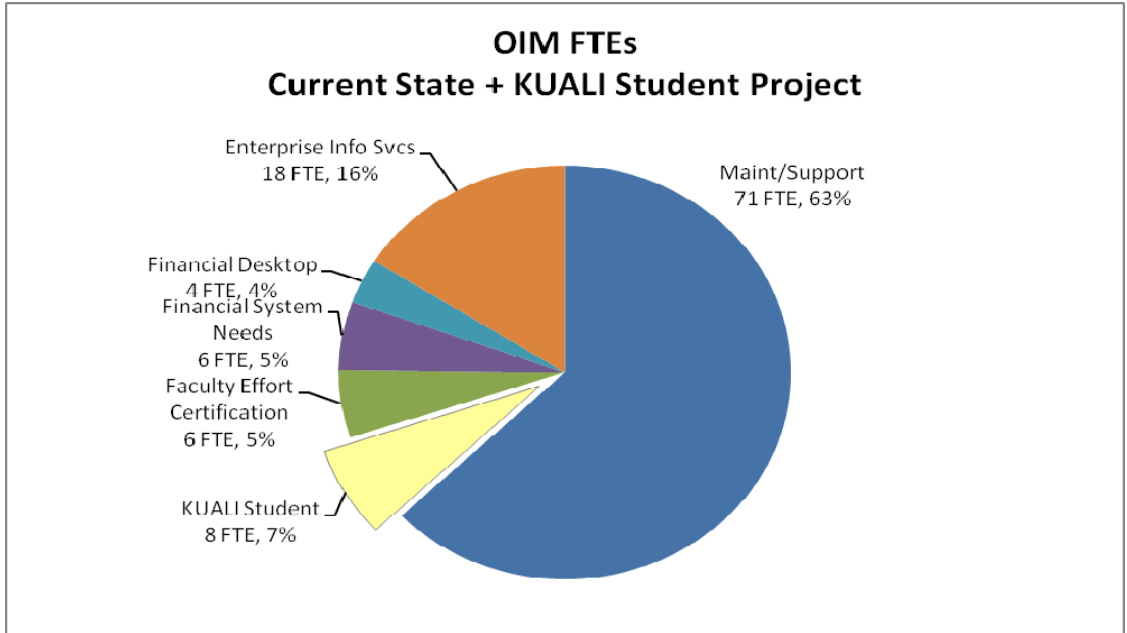


## UW Organizational Capacity

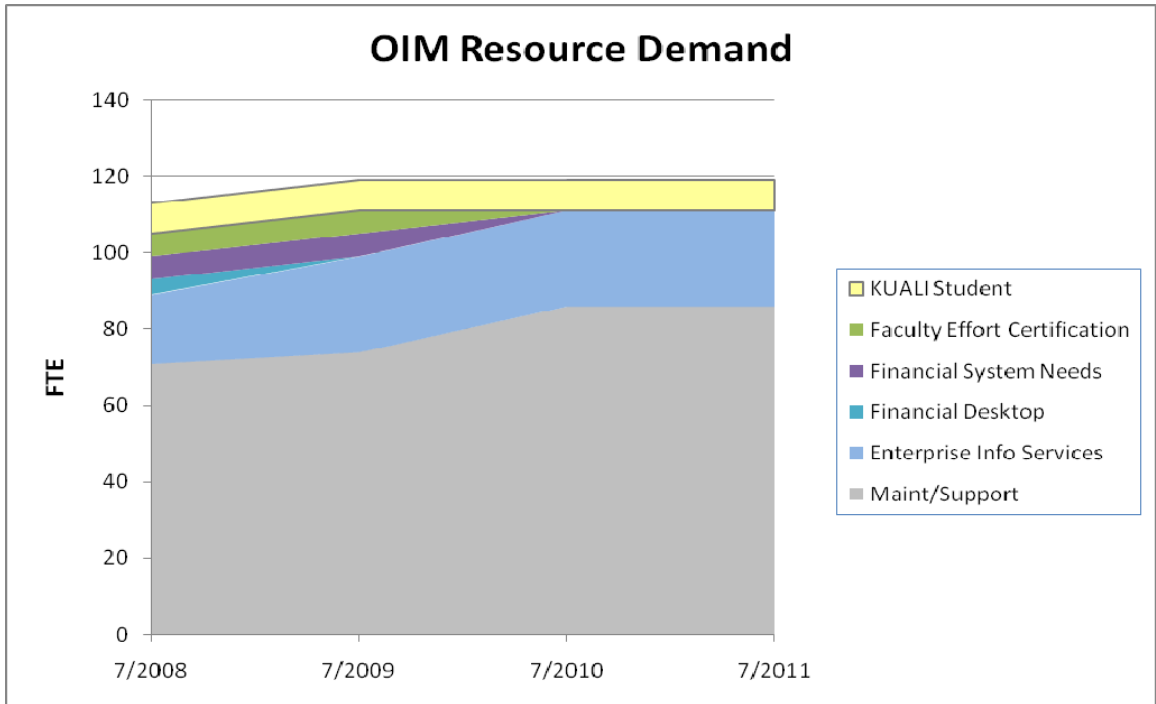
The Kualu Student project will be jointly sponsored by the Vice Provost for Student Life and Vice Provost for Information Management and Chief Information Officer. The project will be supported by the Office of Information Management (OIM), which is responsible for university-wide leadership, development, and management of information systems and applications. In addition, subject matter experts and business analysts from other areas of the University will be key contributors to the effort.

Kualu Student is a fully funded project that comes with the additional resources necessary to support the effort, including funding for development staff and backfill for participating campus business analysts and subject matter experts, as necessary. It is the UW's first and only significant undertaking in the student administrative systems area, and the UW has the resources and capacity to support it.

As the chart below shows, OIM is well equipped to handle the Kuali Student project. The resources for Kuali student represent only about seven percent of OIM's total resources.



The following table shows resource demand within OIM from 2008—2011, including production support, maintenance, and new development. The Kuali Student project is shown in yellow.



## Appendix I: UW and WSU Profile

The University of Washington (UW) and Washington State University (WSU) both need to replace their aging legacy student administrative systems, and the two institutions are considering different approaches.

The University of Washington has selected the Kuali Student consortium because it presents a unique opportunity for the UW to participate in the development of a next-generation student system with other leading higher education institutions. This opportunity is particularly attractive because the UW's current system already has the level of functionality offered by any of the commercial student systems. In addition, given the UW's scale and complexity, any commercial student system software would be far more costly and complex to implement in the UW's environment compared with that of a smaller institution.

The table below provides information about the UW and WSU's current student administrative systems and about the environment of the two institutions.

STUDENT ADMINISTRATIVE SYSTEMS	UW	WSU
<b>Current system/environment</b>	Unisys/MCP/D MSII- 1.3M lines of Cobol Addl Apps in NT/MS-SQL/ASP/ IIS & C	Natural and ADABAS Self-serve frontend w/ .NET, MS SQL 2000
Proposed timeline	Five to seven years	Has experienced system failure; urgent need to replace
<b>Proposed approach for long term</b>	Kuali Student	Banner or other vendor package

<b>STUDENT ADMINISTRATIVE SYSTEMS</b>	<b>UW</b>	<b>WSU</b>
<b>Other institutions with proposed approach</b>	UC-Berkeley University of Southern California University of Maryland University of British Columbia Florida State University MIT Carnegie Mellon University	Eastern Washington University The Evergreen State College University of Oregon University of Illinois University of Colorado University of Arizona UC-Davis University of North Carolina Texas A&M