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FROM : Professor Rik D'Amato, Director of CTLE, UM,
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SUBJECT : Sakai Project for UM General Education Program Launch
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CC : Mr. Jason Ho, Director of ICTO, UM

We are writing to provide an update on the initiative to explore the installation of Sakai CLE (Collaboration and Learning Environment), in support of UM's General Education (GE) program launch before the fall of 2011, owing to its peculiar support for virtual spaces of learning and for creating student and institutional e-portfolios which are compatible with the university's long-term goals in student assessment and learning. In this brief report, we have also gathered the necessary information on equipment and human resources requirements expected of CTLE if this initiative is to come to fruition.

Here are the findings for your perusal:

1. *Introducing Sakai CLE*

In 2004, the Mellon Foundation (<http://www.mellon.org/>) in the US provided seed funding for a group of four top universities in the US – University of Michigan, Indiana University, Massachusetts Institute of Technology, and Stanford University – to collaborate to create an open source teaching, learning, and academic collaboration software platform. The University of California at Berkeley joined the effort, soon thereafter. And, so Sakai CLE, distributed as free and open-source software, was born. Today, hundreds of individuals of universities, schools, and corporations all around the world are involved in building Sakai. And millions more use Sakai as an everyday part of their teaching, learning, and research at educational institutions around the world.

2. *The Sakai Community*

The Sakai CLE (<http://sakaiproject.org/>) is currently supported by a world-wide community, commonly referred to as the Sakai Community, which is responsible for all aspects of evolving the CLE, that is often advocated as truly designed by education for education. Members of the Sakai Community believe that it is only through a community-driven development model that Sakai could become the best product for use on campus. This community is fundamental to Sakai's value. Namely, sharing product development, academic, and e-learning best practices with peers around the world is a unique aspect of Sakai, a rare cross-institutional collaboration in higher education information technology. For many organizations and individuals, this aspect of Sakai is as important as the functionality of the software itself.

3. *The Sakai Foundation*

The Sakai Foundation (<http://sakaiproject.org/sakai-foundation>) is a member supported non-profit corporation with a small staff and modest budget. It was created in 2006 when the original Mellon funding for Sakai had run its course. Those

involved in the Sakai effort wanted a small organization to continue to coordinate the activities of the Sakai Community. While membership in the Foundation is optional, approximately 100 organizations around the world support the foundation so that it can continue its important community activities. These include managing the intellectual property of Sakai, organizing conferences and planning meetings, maintaining the Sakai technology infrastructure including the bug tracking system and project Wiki, coordinating development activities and quality assurance, publishing the Sakai CLE releases and functioning as a public advocate for Sakai.

4. *The Sakai Tools*

Sakai, as an open source, Web-based, collaboration learning environment (CLE) is focused primarily on higher education. It supports the activities of students, teachers, researchers, and Sakai administrators. Sakai is flexible and enables users to configure it for their own specialized audiences. Teachers can create course sites and add chat, forums, blogs, wikis, and many other tools. Students can, among other things, upload assignments, use the tools, and interact with instructors and classmates. Researchers and groups of peers can create project sites for sharing materials and ad hoc interactions. Sakai has a set of frameworks (internal structures) that makes it easier for those who want to build tools. By default, a new user owns a worksite with only a basic set of tools enabled, including a few for self-administration purposes. If the user wants, he or she can request a project, course or portfolio site:

- *Project* – A project site has two main types of users: the site maintainer and those who can use and share the resources and tools. Typical users of a project site include researchers working on the same study, teachers who wish to compare notes, and ad hoc groups of users who wish to interact together online.
- *Course* – A course site is a virtual online expression of a real course. The target audiences are teachers who maintain the site with teaching assistants and students who use the site. Teachers can post exams, send announcements, upload syllabi and grade book results, and choose which tools the students can use to interact. Teaching assistants have less power, but can maintain forums and help maintain processes such as the ebb and flow of marking assignments. Students can chat, take tests, upload files, and send mail to others in the course.
- *Portfolio* – Portfolio sites are places where students store evidence of their work in a structured format. As a student progresses through his or her education or course, that evidence builds up within an online structure set of links and web pages. This can be helpful for finding employment later because potential employers can make judgments based on the evidence presented.

Essentially, Sakai is a scalable platform capable of demanding environments. For example, Indiana University maintains a deployment for at least 100,000 students and that number keeps rising. The University of Michigan deploys for 70,000 students.

5. *The Sakai Portfolio*

The Sakai portfolio (<http://www.rsmart.com/portfolios>) comprises a suite of web-based tools that allow users to store, to organize and to present digital artifacts representing evidence of their learning, teaching, or institutional achievement. Sakai's suite of portfolio tools is designed to facilitate the creation of portfolios for self-presentation, reflection, teaching and learning as well as course, program and institutional assessment. By collecting, selecting and presenting subsets of their work, students can create portfolios that showcase coursework, professional experience, academic competency or simply self-expression. Instructors can guide students in their creation of portfolios by designing educational scaffolds that engage them in reflection upon learning in relation to a set of educational outcomes or professional standards. Administrators can use the system as a decision-making and reporting tool. Configured and customized to align with institutional goals and objectives, portfolio sites collect real evidence of teaching and learning that can be correlated with and assessed against course, program, departmental, and institutional objectives.

6. *The Sakai-Powered Online Teaching/Learning System*

Online teaching/learning has become the main stream among higher education institutions. On each campus, large or small, online teaching/learning systems are a key component of their education systems. An online teaching/learning system depends heavily on the technologies used in constructing the system's infrastructure, typically a highly reliable network system with adequate performance. Typically, the implementation of such a network system requires a significant amount of budget, the knowledge about various technologies, and the skills to install and manage the technologies used in the online teaching/learning system. Fortunately, at UM, this network system is already in place at our current campus, and should also be in place in our new campus, too. Also, with the convenience of open source software like MOODLE and Sakai, the development of an online teaching/learning system must be built on the concepts and theory of instructional design, the skills for dealing with different hardware and software, as well as the knowledge of project management and technical support. CTLE should surely be a source of support in instructional design or more precisely, the design of student learning experience, compatible with the goals of different courses, of different programs of study, and of the mission and vision of UM. ICTO should be a source of technical support for such an initiative, in terms of various skills and resources in hardware and software. Individual academic staffs with different initiatives in online teaching/learning should become project participants or project lead in collaboration with CTLE and ICTO. To facilitate different initiatives from academic staff, the potential of Sakai CLE is mostly welcomed.

7. *The Sakai-Related Resources Requirements*

To implement a complex project like Sakai CLE support for UM GE program launch, we need to know what other open source products are available and what features are supported by these open source products. Typically, among the open source operating systems, Linux operating system stands out clearly owing to its popularity and merits to serve. As a server operating system, Linux can be used to manage user accounts

and to host remote access servers. It is capable of hosting all the application software packages needed to support the daily operations of an online portal-based Sakai system. Among the major components to be supported over Linux for Sakai CLE, include the learning management systems (Sakai or others), Web servers, e-mail servers, video conferencing servers, database management systems, and many others depending on the needs under concern. According to ICTO, the investigation of Sakai CLE requires the following equipments and manpower:

- During testing period: One Intel-based server plus around two persons to support the system, one as server administrator and another one for daily support and customization;
- During production period: At least two descent Intel-based servers and a high capacity storage system, plus around three persons to support the system, one as server administrator and two for daily support and customization.

8. *The Sakai-Induced Mode of Collaboration between CTLE and ICTO*

It is expected that this Sakai CLE initiative for UM GE program launch should better be conducted under the collaboration between CTLE and ICTO, since this is compatible with both the missions of ICTO (Academic Computing Support) and of CTLE (Teaching and Learning Enhancement through the application of ICTs – Information and Communications Technologies). This initiative should not consume a lot of monetary resources in equipments given ICTO's infrastructure support on campus, but requires the installation of some reward and recognition system for those involved, especially for ICTO support staff. Yet, in view of the manpower constraints from ICTO, and the long-term development of CTLE, it is suggested to prepare respective budgets for:

- ICTO to recruit additional staff for such long-term collaboration with CTLE, in the area of ICT-related projects related to any further initiatives enhancing the quality of teaching, learning, research, services, and assessment with the support of ICT, with Sakai CLE exploration being only one specific example to kick off such collaboration; and/or
- CTLE to recruit some technical staff to support any such initiatives with the collaboration from ICTO, playing the role of technical housekeeper in CTLE to follow up with the progress, completion, launch and administration of similar initiatives. This CTLE staff has to go through some training provided by ICTO in the related areas of expertise, under different project requirements.

9. *The CTLE Support Environment for UM GE Program Launch*

It is expected that the completion of our Sakai-powered CLE from CTLE in support of UM's GE program launch before the fall of 2011, should lead to something like the following environment:

- from Australia National University's Alliance system:
<https://alliance.anu.edu.au/portal/>

- from University of Oxford's WebLearn system: <https://weblearn.ox.ac.uk/portal>
- from Indiana University's OnCourse system: <https://oncourse.iu.edu/portal>
- from Stanford University's CourseWork system: <https://coursework.stanford.edu/portal>
- from University of Michigan's CTools system: <https://ctools.umich.edu/portal>
- from University of California at Berkeley's bSpace system: <https://bspace.berkeley.edu/>

In view of the dynamics occurring between CTLE and ICTO, this brief report ends with a note of appreciations for Jason Ho, the Director of ICTO, who has done a lot of facilitation in sorting out the kind of support needed to kick off the collaboration. We are to meet Jason tomorrow at Professor Rik D'Amato's office at 11:00 am for a detailed discussion of the kind of collaboration expected between CTLE and ICTO, covering not just the exploration of Sakai, but some other further issues related to Notebook computer availability in some GE classroom prototypes in the form of studio-style learning space in our A3-BLDG to be completed by March-2011. More information about Sakai could be obtained from: <https://www.indiana.edu/~sakaikb/>