Learning Management System (LMS) Evaluation 2011-2012

Executive Summary

For many institutions, the Learning Management System, or LMS, is the most significant enterprise system for teaching and learning. The LMS is the means by which course information is distributed to students. It is not uncommon for an institution to periodically review its LMS system (in our case Blackboard), particularly if it has been in use five years or more. It is time for Butler to review Blackboard and its current competitors to ensure that we have the most effective tool in place to support the academic enterprise. Butler University adopted Blackboard in 2001 so we are long overdue for this evaluation. While we have remained consistent in upgrades to the Blackboard system, we acknowledge that these changes may or may not be keeping pace with the changes in pedagogical demands of students and faculty. The outcome of this project will either validate Blackboard as the appropriate LMS for Butler University or recommend an alternative.

The LMS primarily serves the academic mission of the institution. We know that the context of teaching and learning changes. Accordingly, we need to regularly evaluate our LMS to be sure that it is supporting the academic mission and strategic goals of the university. We know that we need to adapt to pedagogical change more rapidly and need an LMS system that is equally flexible. In addition to identifying the best system for Butler University, we intend that this evaluation process will engage the campus community in discussion around interesting and effective teaching, raise awareness that an LMS system is more than a course website and that a good LMS can provide tools for engagement and collaboration that support active learning.

This tool must be interoperable and integrate well with our current systems. It must be flexible and adaptable to changing pedagogical needs. It must be cost effective, easy to support and be easy to use. Finally it has to be both scalable and sustainable.

The Campus Computing Project is the largest continuing study of the role of information technology in American colleges and universities. The annual survey is completed by Senior IT officers representing 523 two- and four-year public and private/non-profit colleges and universities across the United States. The 2010 Campus Computing Survey indicates three trends to note:

> **Trend #1:** Research conducted in the last quarter of 2010 indicates the LMS market has settled around 5 products: Moodle, Sakai, Blackboard, Desire2Learn, and eCollege.
> **Trend #2:** There has been no innovation in the core LMS product since 2004.
> **Trend #3:** LMS costs have increased dramatically and will continue to increase.

As we evaluate Blackboard, we are also evaluating the current market competitor Moodle. Current data suggests that Moodle is a viable option for Butler and so this process will validate or invalidate that hypothesis. We have begun evaluating Moodle and will do so through May 2012, at which time we will

bring a recommendation through the Information Management Council. If neither Blackboard nor Moodle meets or exceeds evaluation criteria, we will then evaluate another leading competitor.

Market leading LMS systems

Campus Computing Project's Campus Computing Survey 2010 highlights the continuing transition in the higher education market for Learning Management Systems (LMS). The survey addresses the leading commercial and open source tools. Open source software is sometimes misunderstood as "free" software. To comply with the open source license, the code must not only be free, but others must be given the right to modify and redistribute it for free. It also must not restrict the functionality of other software and must be technology neutral. For a full explanation of Open Source code, see (http://www.opensource.org/osd.html)

Commercial LMS Leaders:
1. Blackboard/Angel/WEBCT
2. Desire2Learn (1999) – http://www.desire2learn.com/clients/higherEducation/
3. Pearson's eCollege (2007)
4. Edvance360 (formerly Scholar360)
5. Jenzabar e-Racer (2009)
6. SharePoint LMS by ElearningForce

The 2011 CODiE Award winners for **Best Postsecondary Course or Learning Management System** include:

- Blackboard Learn, Release 9.1 for Higher Education, Blackboard Inc.

- Edvance360.com, Edvance360

- Jenzabar e-Racer, Jenzabar, Inc.

- Moodle Joule Learning Management Platform, Moodlerooms, Inc.

Open Source Leaders:

1. Moodle (2002) – http://moodle.org/sites/
2. Sakai (2004) – http://sakaiproject.org/organization-list
3. Canvas by Instructure (2008) – Auburn University, BYU, James Madison, Rider University, University of Mary Washington, University of Utah, Utah State University
4. LoudCloud (2010) – Stanford, CA Community Colleges, Harvard University Medical School, Grand Canyon University
5. OLAT (1999) – Switzerland; the main OLAT installation is located at the University of Zurich (maintained by the Multimedia & E-Learning Services of the University of Zurich) but used by more universities such as the University of Basel, the University of Bern, the University of Lucerne, the Swiss Federal Institute of Technology in Zurich and in Lausanne.
6. Claroline (2001) – Columbia School of Law; founding schools in Belgium, Canada, Chile, France, and Spain
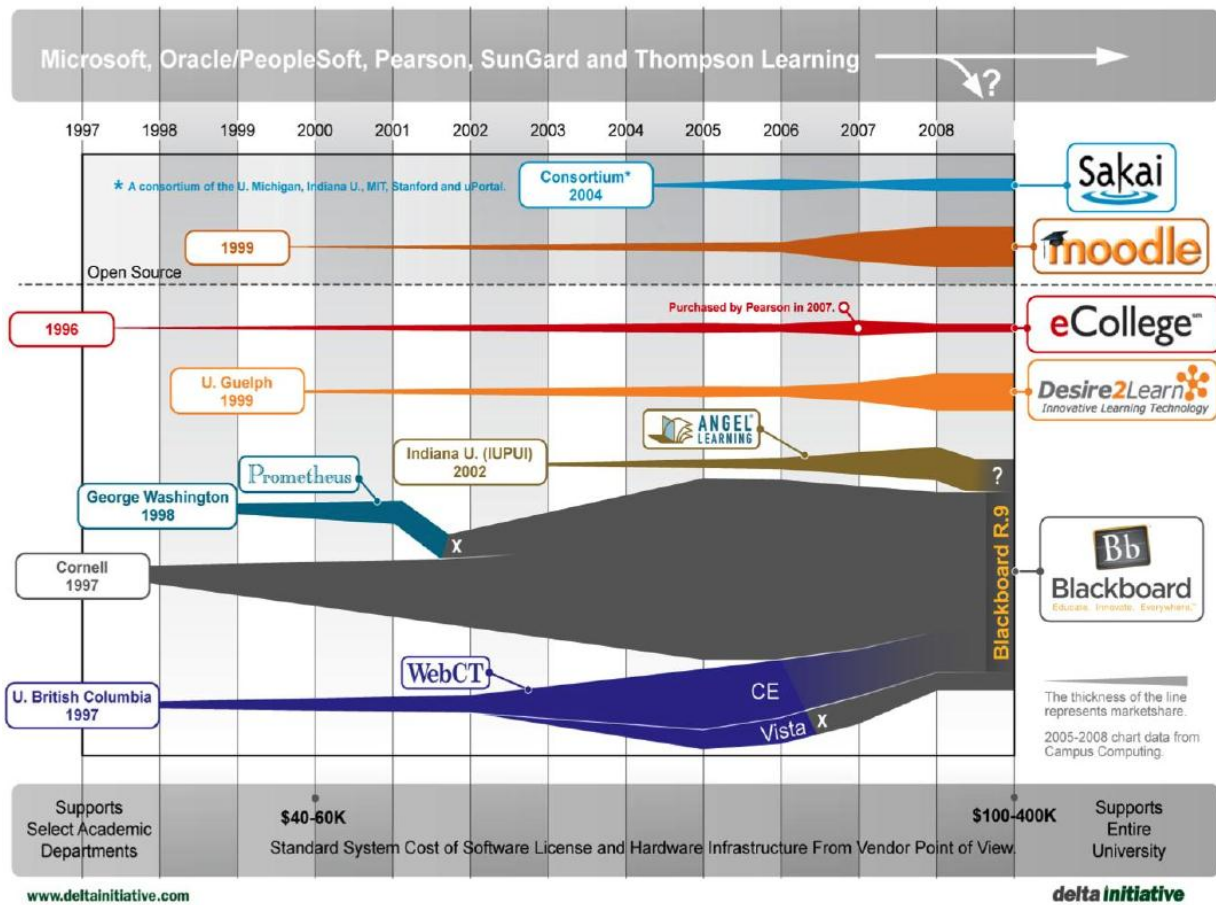
The infographic above shows the relative marketshare of each LMS system.

History of Blackboard at Butler University

Blackboard has been Butler's Learning Management System since its adoption in 2000. We have regularly updated versions as noted below.

2000 – Butler adopts Blackboard
2001 – Transition to the Enterprise Version 4
2003 – Version 5
2005 – Version 6
2007 – Version 7
2008 – Version 8
2010 – Version 9.1

Supporting Data

A review of institutions in the Independent Colleges of Indiana (ICI) consortium confirms that twelve of the 31 schools in the consortium are using Moodle as their campus LMS solution. Three additional institutions, Franklin, Manchester, and Taylor are actively piloting and one other, Rose-Hulman uses both Moodle and Angel. Seven schools are using Blackboard, four are using Angel, two are using CAMS Course Management, and four schools are each using Desire2Learn, Concourse/WebCT, Sakai, or Jenzabar respectively. ICI Schools currently using Moodle are highlighted below:

1. Ancilla College – Moodle (http://ancilla.learninghouse.com)
2. Anderson University – Moodle (http://moodle.anderson.edu)
3. Bethel College – Angel (http://angel.bethelcollege.edu)
4. Butler University – Blackboard 9.1 (http://blackboard.butler.edu); Moodle Pilot in 2011 (http://moodle.butler.edu)
5. Calumet College of St. Joseph – Blackboard (http://class.ccsj.edu)
6. DePauw University – Moodle (http://moodle.depauw.edu)
7. Earlham College – Moodle (http://moodle.earlham.edu)
8. Franklin College – Angel (http://angel.franklincollege.edu); Moodle Pilot in 2010 (http://moodle.franklincollege.edu/)
9. Goshen College – Moodle (http://moodle.goshen.edu)
10. Grace College and Seminary – Moodle (http://grace.learninghouse.com)
11. Hanover College – Jenzabar (https://my.hanover.edu/ics)
12. Holy Cross College – Moodle (http://moodle.hcc-nd.edu)
13. Huntington College – Moodle (http://myclasses.huntington.edu)
14. Indiana Tech – Blackboard 9.1 (http://blackboard.indianatech.edu)
15. Indiana Wesleyan University – Blackboard 9.1 (http://blackboard.indwes.edu)
16. Manchester College – Angel (http://angel.manchester.edu); Moodle pilot (https://moodle.manchester.edu/)
17. Marian University – CAMS Course Management (Three Rivers Systems)
18. Martin University – CAMS Course Management (Three Rivers Systems)
19. Oakland City University – Moodle (http://oak.moodle.ihets.org/)
20. Rose-Hulman Institute of Technology – Angel (https://angel.rose-hulman.edu/) and Moodle (http://www.rose-prism.org)
21. Saint Joseph's College – Moodle (http://moodle.saintjoe.edu/moodle/)
22. Saint Mary's College – Blackboard 9.1 (https://bb.saintmarys.edu/)
23. Saint Mary-of-the-Woods College – Desire2Learn (https://woodsonline.smwc.edu/)
24. Taylor University – Blackboard (https://my.taylor.edu); piloting Moodle
25. Trine University – Moodle (http://www.trineonline.net/)
26. University of Evansville – Blackboard (http://acebb.evansville.edu/)
27. University of Indianapolis – Sakai (https://ace.uindy.edu/)
28. University of Notre Dame – Concourse/WebCT (https://concourse.nd.edu/webct/)
29. University of Saint Francis – Blackboard 9.1 (http://sf.blackboard.com/)
30. Valparaiso University – Blackboard 9.1 (https://blackboard.valpo.edu/)
31. Wabash College – Moodle (http://moodle.wabash.edu/)

Additional considerations:

- Indiana Elementary and Secondary schools overwhelmingly use Moodle as their primary LMS
- IN DOE - http://moodler.doe.in.gov/
- Blackboard acquired WEBCT (2005) and Angel (2009). The end of life for WEBCT is 2011 and Angel is 2014. We anticipate ICI schools with these systems will evaluate their LMS options between now and then.
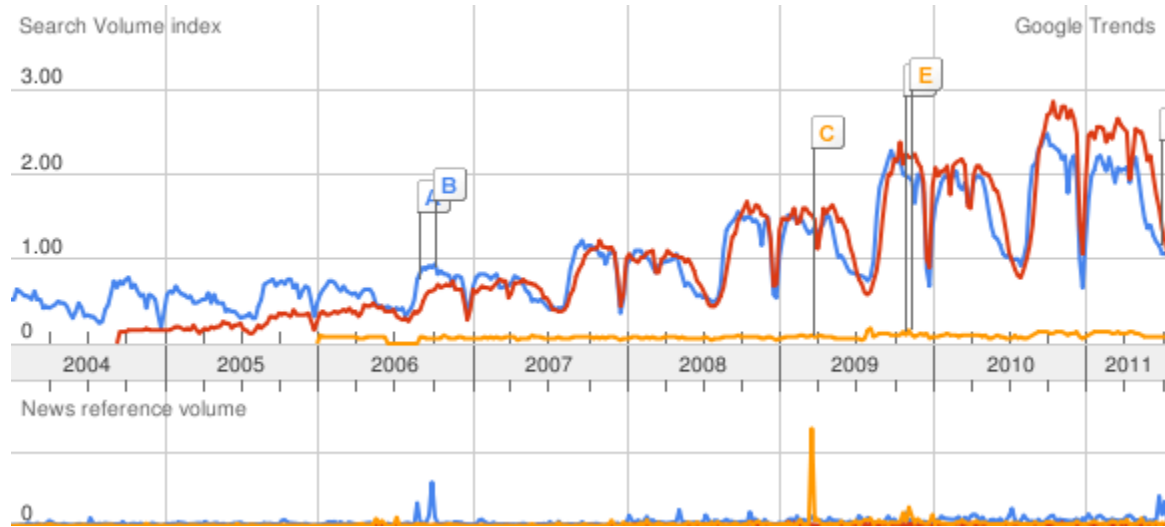
Why Moodle?

Moodle has nearly 54,000 registered sites (over 9,800 from the U.S.) representing over 200 countries, 44.3 million users, and 4.6 million courses. Moodle's wide spread international use, coupled with its continued growth over the past six years, has made it the leading open source LMS solution. By contrast, Blackboard has 5,500 clients representing 200 million users (2.5 million from its largest, hosted client; 100,000 from its largest, self-hosted client) in 60 countries (Cobb & Steele 30-31).

Source: http://moodle.org/stats/
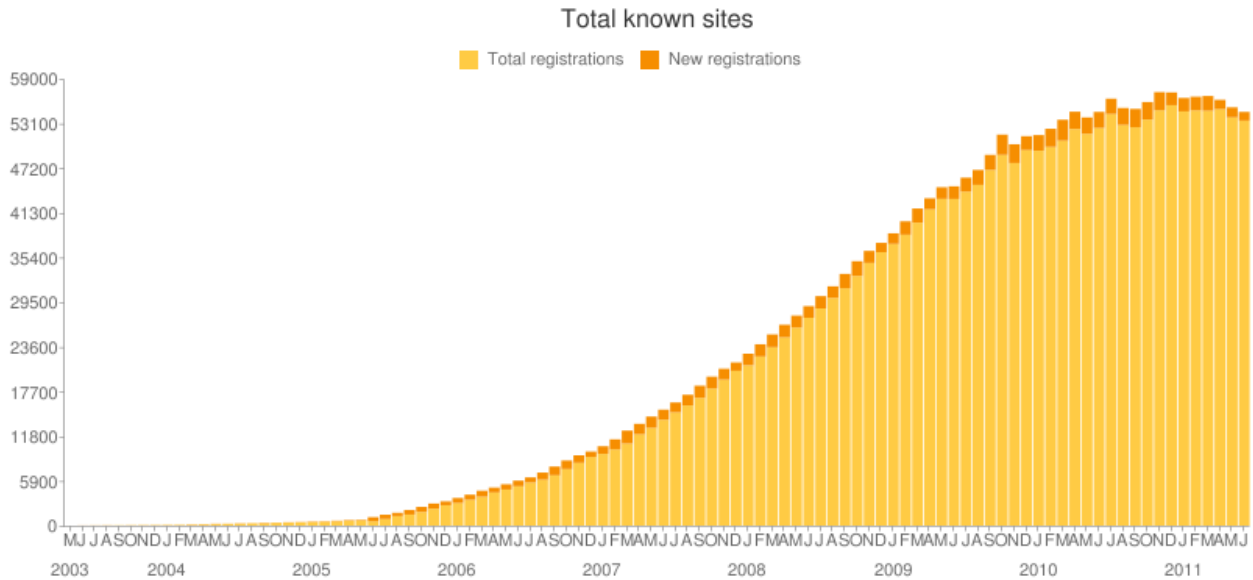
The following Google Trends graph represents average worldwide traffic on Blackboard, Moodle, and Sakai from 2004-Present (2011). Beginning in 2007, Moodle has trended above Blackboard:

Blue=Blackboard Red=Moodle and Orange=Sakai
Source: http://www.google.com/trends?q=blackboard%2Cmoodle%2Csakai

Why Schools Switched to Moodle

Most schools have made the switch after discovering Moodle was more cost-effective than Blackboard and offered more control/flexibility. Additionally, Moodle is used widely on campuses in the US and the world, and has received the recommendations of such organizations as NITLE and EDUCAUSE. A plethora of independent research on student and faculty satisfaction with course management systems show that users like Moodle as much as (or better) than Blackboard:

- In favor of Moodle
    - University of North Carolina at Charlotte
        - Final report web page
        - Final report PDF
        - Faculty Evaluation PDF
        - Student Evaluation PDF
    - University of Canterbury
        - Report web site
        - Final report, executive summary PDF
        - Final report, full PDF
    - University of North Carolina at Pembroke
        - PDF results from a pilot study
    - Blackboard vs. Moodle: Comparing User Experience of Learning Management Systems

- - PDF results from a pilot study
  - Blackboard vs. Moodle: A Comparison of Satisfaction with Online Teaching and Learning Tools
    - Web page for single-instructor study
  - A Comparison of Two Learning management Systems: Moodle vs Blackboard
    - PDF from a single-instructor study
  - LMS-based EFL blended learning: Blackboard vs. Moodle
    - PDF from a small study

- Moodle and Blackboard are not that different
  - North Carolina Community College System
    - Open Source Collaborative web site
    - Executive Summary PDF
    - Full Report PDF

LMS Evaluations, Survey Results, & Recommendations

- The American Association of Community College's Instructional Technology Council (ITC) published its 2007 Distance Education Survey results in which Blackboard lost 7% market share from the previous year and was predicted to lose 20% market share over the next three years. Moodle, however, doubled its market share over the same period of time and had the highest market share after Blackboard/WebCT in the LMS market (http://www.immagic.com/eLibrary/ARCHIVES/GENERAL/AACC_US/I080318L.pdf).
- Of the 64 schools explored in our initial research, Elon University (identified as a peer school as it closely matches our profile) began its LMS Evaluation last year (Summer 2010; http://www.elon.edu/e-web/academics/teaching/lms_evaluation.xhtml). It began running Blackboard & Moodle concurrently during the 2010-11 academic year. Elon compiled faculty and student feedback as well as suggestions/enhancements for Moodle. This summer, Elon announced plans to transition to Moodle during the 2011-12 academic year with migration of all courses by Fall 2012 (http://www.elon.edu/pendulum/Story.aspx?id=5397).
- Bucknell University just announced its intentions to switch from Blackboard to Moodle by Summer 2013 (http://libraryandit.blogs.bucknell.edu/2011/06/24/faculty-transitioning-to-moodle/).
- DePauw University's Academic Technology Advisory Committee (ATAC) recommended the immediate switch from Blackboard to Moodle in May 2007. They ran both platforms during the 2007-08 academic year before making a switch to Moodle in July 2008. http://www.depauw.edu/it/helpdesk/moodle/MoodleRecommendationfrom%20ATAC_May2007.pdf
- Earlham College adopted Moodle in 2005 after piloting it in 2004. http://legacy.earlham.edu/~markp/ITLAC_05/index.html
- Gettysburg, studied four candidates for an ANGEL replacement began in Fall of 2009: Blackboard, Desire2Learn, Moodle and Sakai. During the fall semester, pilot versions of both Moodle and Sakai were used in classes: Moodle was tested by 14 faculty members in 14 courses

involving roughly 470 students. The student ratings of Moodle ranged from good to very good. The majority of the students when asked to compare Moodle to ANGEL rated Moodle at least as good as ANGEL by a 2 to 1 margin. No faculty indicated that there were any significant issues with using Moodle instead of ANGEL.

During the spring semester a number of faculty members continued to use Moodle in their courses to help IT prepare for the switch from Angel. This included making sure that all courses were properly created and faculty and student enrollments were kept up to date, as well as integration of the library's streaming video reserve system.

The issue of hosting Moodle on campus or having it hosted by an external vendor off campus (a cloud solution) was resolved on the basis of five issues: comparative costs, maintenance of the system, user support, conversion of ANGEL courses to Moodle format, and data security. The cost of hosting Moodle on campus involves maintaining a server, data storage, and the staff to maintain the system. Of course, there are still the staff support costs for training and on campus development of applications, but that is an ongoing cost independent of the LMS being used. Another big plus is that all data will be very secure with Moodlerooms. There are several layers of security at the Moodlerooms site and data is securely encoded prior to transmission to and from campus.

"While ANGEL has been a very popular LMS on campus, events have necessitated a change. A well designed and thoughtful period of testing and trial runs indicates that Moodle with Moodlerooms as a host will be wise and effective next step."
http://www.gettysburg.edu/about/offices/it/it_newsletter/march_2011/IT_Newsletter_March_11_page2.html

- Wesleyan College (CT) explored Moodle as the only alternative (much like others who conducted reviews before deciding on Moodle as the alternative LMS solution to pilot). "If the Moodle pilot is *not* successful—if we have significant usability issues, negative faculty and student satisfaction with the environment, or other unforeseen circumstances that lead us to lose confidence in Moodle, then we will consider other options. However, given the broad install base of Moodle in institutions like our own, and the abundance of support and collaborative options among peer schools, we feel that Moodle is the best choice among the Open Source alternatives to Blackboard." (http://moodle.blogs.wesleyan.edu/home/)

Many liberal arts schools have adopted Moodle because of its low financial barrier to entry; however, supporting and contributing to its development can require significant resources of both time and money. As such, there is growing support for "crowdsourcing" tasks, traditionally performed by an employee or contractor, to a large group of people (or community). The Collaborative Liberal Arts Moodle Project (CLAMP) is an effort by several schools to support a continued and sustainable process for collaborations on Moodle development (e.g., sharing documentation, fixing bugs, and developing code). CLAMP membership includes the following schools (http://www.clamp-it.org/about-2/clamp-participants/):

1. ***Anderson University**
2. Bard College
3. Bard College at Simon's Rock
4. Brandeis University
5. Bucknell University
6. Carleton College
7. Colgate College
8. College of the Holy Cross
9. Connecticut College
10. ***DePauw University**
11. Dickinson College
12. ***Earlham College**
13. Furman University
14. Gettysburg College
15. Hampshire College
16. Kenyon College
17. Lafayette College
18. Lewis & Clark College
19. Luther College
20. Macalester College
21. Mid-Michigan Community College
22. Millsaps College
23. Purchase College SUNY
24. Reed College
25. Regis College
26. Smith College
27. Vassar College
28. Wesleyan University
29. Wheaton College

*Denotes an ICI Member School

Continued Trends
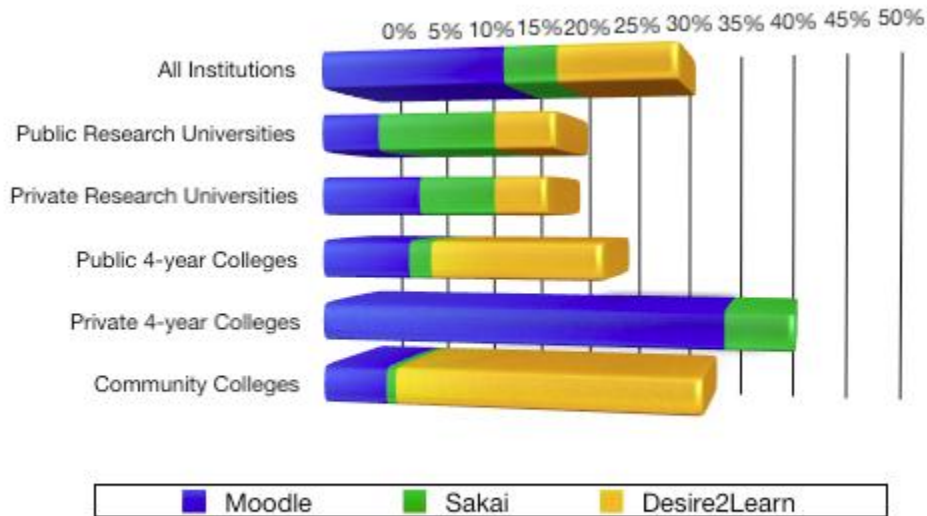
Data courtesy of the Campus Computing Project (http://campuscomputing.net/)

- Private, 4-year Colleges are adopting Moodle (over Sakai and Desire2Learn) at a higher percentage according to Campus Computing Project data.
- University of North Carolina, Charlotte (24,700 students) has <u>decided</u> to move from Blackboard Vista to Moodle in 2011.

- North Carolina State University (31,000 students) has also <u>decided</u> to move from Blackboard Vista to Moodle in 2011.
- University of Delaware (19,391 students) just completed <u>a move from Blackboard Vista to Sakai</u> in 2010.
- University of Minnesota (51,721 students) <u>is moving</u> from Blackboard Vista to Moodle in 2012.
- The Utah Education Network (109,000 college students plus 40,000 K12 students and teachers) <u>is moving</u> from Blackboard Vista to Instructure Canvas in 2012.
- The tri-college consortium of Bryn Mawr, Haverford College, and Swarthmore (combined student total of about 4,600 students) is <u>moving</u> from Blackboard to Moodle in 2012.

http://mfeldstein.com/the-evolving-lms-market-part-i/
http://mfeldstein.com/the-evolving-lms-market-part-ii/

Project team

Project Lead – Julianne Miranda

Executive Steering Committee –Information Management Council

Core Technical Team – Information Technology

- Kenton Smith
- Tamra Thomas
- Deryl Botta
- Eric Esterline
- Craig Stanley
- Rob Hartman

Moodle Pilot Testers – teaching with Moodle, Fall 2011

- Penny Dimmick (JCFA), Stuart Glennan (LAS), Cathy Hargrove (COE), Elizabeth Mix (JCFA), Kenton Smith (COE), Jennifer Snyder (COPHS), Michelle Stigter (LAS), Robin Turner (LAS), and Jennifer Zorn (COPHS)

Moodle Pilot Testers – not teaching

- Michelle Jarvis (JCFA), Josh Rattray, (Athletics), Chris Potts (Admission), Jennifer Griggs (Learning Resource Center), Scott Pfitzinger (Library), Erin Cochard (Admission)

  Additional participants will be solicited for the spring semester; we will also explore communities/organizations during this term.

Project *high level* timeline

2011					**2012**			
August	**September**	**October**	**November**	**December**	**January**	**February**	**March**	**April**
Evaluate Blackboard 9.1 and Moodle								
	Faculty pilot group begins; community pilot begins				Additional faculty pilot – triple the number of participants			
	Focus groups, surveys and all-campus forums for students, faculty and staff							
				Review preliminary findings and compile data			LMS market review	
								IMC recommendation

The Information Management Council (IMC) will draft (or forward) recommendations based on findings and submit to Jamie Comstock, Provost and Vice President for Academic Affairs, and Scott Kincaid, Chief Information Officer.

There are three possible outcomes for this LMS evaluation project:

1. **We confirm Blackboard** as our desired LMS system. In this case the pilot ends, we issue the recommendation and the project is closed. We would continue to renew Blackboard on an annual basis.

2. **We choose Moodle** as a replacement for Blackboard. Implementation would be phased over two years beginning with the Fall of 2012.

> 2012-2013: Faculty members are encouraged to use Moodle but may still use Blackboard; communities are migrated to Moodle and all courses are migrated to Moodle by the start of the 2013 academic year

> 2013-2014: Moodle is in production and Blackboard is retired and not available

3. We find neither Blackboard nor Moodle to be the desired LMS system and **commence a pilot with a new tool.**

Resources

Cobb, J. & Steele, C. (2011). Association learning management systems 2011: Special Blackboard edition. Tagoras, 30-31.

Kim, S. W., & Lee, M. G. (2008). Validation of an evaluation model for learning management systems. *Journal of Computer Assisted Learning*, 24(4), 284-294. doi:10.1111/j.1365-2729.2007.00260.x

Mindel and Kelley, San Francisco State University, Technology Adoption Decisions for Mission-Critical Learning Infrastructure: Viewing Learning Management System Selection Issues through Three Different Lenses.

White, Brandon, and Johann Ari Larusson. "Strategic Directives for LMS Planning" (Research Bulletin 19, 2010). Boulder, CO: EDUCAUSE Center for Applied Research, 2010, available from http://www.educause.edu/ecar.