

# Ocotillo Paper: Learning Management Systems

Sheila Brandt, Mary McGlasson, Pat Case, Doug Sawyer  
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<http://www.mcli.dist.maricopa.edu/ocotillo/papers/index.php?yr=0203&id=3>

At Maricopa we are nowhere near a comprehensive LMS, and given that we don't seem to be faring very well even with our Course Management Systems, Maricopa needs to re-address its LMS/CMS options. In summary, we want improved instructional capabilities, easy-to-use without being so labor-intensive/tedious for the user, scalability/reliability to accommodate our rapidly growing student populations, expanded administrative capability, compatible/portable content, and pricing that won't drive us out of the market.

In order to assess the status of the Learning Management System (LMS) within the Maricopa Community Colleges, a survey was conducted asking each of the colleges for their feedback on the local “state of the LMS.”

More specifically, each college was asked:

- (1) what was working/not working with the current LMS, and
- (2) what would they like to see in an LMS?

The survey response data has been organized in the two attached spreadsheets according to the criteria for evaluating an LMS, as defined in the “What is an LMS?” paper. Since the colleges in our district are still primarily using Course Management Systems, rather than the broader LMS, responses to the current status question apply more to the CMS, while feedback regarding what we’d like for the future may be more directly applicable to the concept of an LMS.

The responses to Question (1) have been used to establish an **LMS Report Card** for the District overall, in essence giving a current snapshot of the LMS status in Maricopa. The “Grade” column summarizes the current state of each of the criteria, established given the feedback from six of the ten Maricopa colleges. Indicators of future improvement or worsening are included, if applicable.

- At the lowest end of the report card are Pricing and Scalability, both receiving a letter grade of “D.” Both categories have moved closer to crisis mode this year for Maricopa. Blackboard (Bb) in particular released its new licensing agreement (and the associated cost), bringing the realization that the colleges might get priced out of the market. At the same time, some of our colleges hit the maximum capability of the basic version of Bb, in terms of number of users, so that the reality of the scalability limitations surfaced.
- In the mid-range of the report card, Administrative Capability, Service and Vendor Stability, Compatibility and Interoperability, and Security all received a grade in the mid-to high-“C” range, indicating that these categories are adequate to meet the current needs,

but that we haven't been "wowed" by them. On a good note, most of these categories have also received an "improving" indicator, meaning that there are indications that improvements are coming.

- At the highest end of the Maricopa report card, Instructional Competence, Ease of Use, and High Availability/Product Stability are in the mid- to high-"B" range, meaning that these areas are working well, with some problems that need to be addressed. For example, faculty members are generally pleased with the Instructional Competence component, but would like to see improvements to the gradebook and assessment features.
- No categories were given a failing grade, nor were any "As" given.
- **The overall LMS Grade for Maricopa for all categories would be B-/C+.**

The responses to Question (2) are given in the attached "What Do We Want to See in an LMS?" spreadsheet. Again, those features that we at Maricopa are interested in are organized according to the LMS evaluation criteria. In summary, we want improved instructional capabilities, easy-to-use without being so labor-intensive/tedious for the user, scalability/reliability to accommodate our rapidly growing student populations, expanded administrative capability, compatible/portable content, and pricing that won't drive us out of the market.

Participate in an online discussion of this paper:  
[http://www.mcli.dist.maricopa.edu/cgi-bin/bbs/oco\\_paper3.pl](http://www.mcli.dist.maricopa.edu/cgi-bin/bbs/oco_paper3.pl)

# Ocotillo Paper: Learning Management Systems Overview

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## **What is a Learning Management System (LMS)?**

A Learning Management System (LMS) is the infrastructure on which e-learning can be built and delivered. It is an applications software package that contains instructional materials, and manages, tracks and deploys all learning across the extended enterprise. Within a higher education environment, the LMS usually focuses on the support and integration of teaching and learning. Specific functions include: Course Development, Content Management, Course/Curriculum Management, Course Delivery, Assessment/Skills-Gap Analysis (pre, ongoing, self, etc.), Communication (individual and group), Tracking/Reporting (across a degree or program or department, participation), Tutor Support, Skills and Records Management, Student Interfaces to all components of the LMS, Administration Processes/Requirements/Registration, etc. Conceivably, an institution can easily deploy thousands of distinct e-learning offerings, hybrid courses, and instructor-led classes and manage them all from one place, the LMS.

## **Expected Benefits of a LMS**

Depending on your perspective, a LMS should provide the following benefits:

### **From the Administrator perspective, a LMS should:**

1. Allow the institution to serve a greater number of students
2. Improve student performance tracking
3. Increase student retention
4. Increase the opportunity for additional tuition dollars
5. Increase administrative efficiency and decrease expenses
6. Shorten the ROI payback timeframe

### **From the Faculty perspective, a LMS should:**

1. Increase the efficiency and effectiveness of course/content management efforts
2. Improve assessment capability
3. Increase assessment opportunities
4. Decrease course preparation time
5. Improve content availability
6. Improve content sharing within the course, among instructors, and across disciplines
7. Improve intraclass and interclass communications
8. Increase overall productivity of faculty

### **From the Student perspective, a LMS should:**

1. Enhance the personalized nature of the learning experience
2. Provide additional, timely, convenient academic support

3. Provide personalized academic support opportunities
4. Increase course completion opportunity/capability
5. Improve overall learning

**From the IT Professional perspective, a LMS should:**

1. Be scalable and reliable in terms of performance
2. Promote standards compliance, quality control, and integration across product and vendors
3. Allow for easy campus-wide deployment and management
4. Increase IT operational efficiency

**Evaluation Criteria for LMS**

The degree to which an LMS will successfully meet an institution's teaching and learning needs depends on the following:

**Instructional competence.** The system should be built on a strong pedagogical foundation. The system should promote successful interactions between learners and content and among learners, instructors, and content. The LMS should provide extensive support for content management and content delivery.

**Ease of use.** The system must be highly intuitive. Access, delivery, and presentation of learning materials must be transparent. The learning experience must be automated and personalized to the needs of the individual learner.

**Scalability:** The infrastructure must scale easily and incrementally to meet growth in both increased instruction capacity/bandwidth and user volume.

**Administrative capability.** The LMS includes registration, tracking, curriculum management, and feedback mechanisms.

**Service and vendor stability.** The LMS provider is financially sound and is expected to stay in business long-term. Further, the vendor has a proven track record for superior support after the sale.

**Compatibility and interoperability.** The system must integrate well with third-party content providers and multiple vendors' hardware/software solutions. The LMS should comply with open industry standards for Web deployments (XML, SOAP or AQ) and support the major learning standards (AICC, SCORM, IMS and IEEE).

**Pricing.** The level of investment required to purchase a system must be economically feasible and must meet the institution's educational needs.

**High availability and product stability.** The LMS is based on an infrastructure that can reliably manage a large institutional implementation running 24x7. The LMS is robust enough to simultaneously serve the diverse needs of instructors, learners, and administrators.

**Security.** The LMS selectively controls access to system assets like content, services, course offerings, learning objects, student records, and so on.

### **Trends in LMS**

The major trend in Learning Management Systems (LMS) is a move from searching for THE ONE commercial-off-the-shelf vendor solution that serves all the needs of the entire institution to finding numerous component solutions that easily integrate. As part of this marketplace shift, reusable learning objects and adherence to learning standards take on even greater importance. For example, compliance with standards for data exchange makes system integration across vendor solutions not only doable, but ultimately maintainable.

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LMS REPORT CARD  
(Criteria Survey Results)

	Chandler-Gilbert	Estrella Mountain	Glendale	Rio Salado	Scottsdale	South Mountain	GRADE
<b>EVALUATION CRITERIA:</b>							
<b>Instructional Competence:</b> The system should be built on a strong pedagogical foundation. The system should promote successful interactions between learners and content, and among learners, instructors, and content. The LMS should provide extensive support for content management.	<b>WORKING:</b> Course delivery capabilities work fairly well <b>NOT WORKING:</b> Assessment student webmail	<b>WORKING:</b> Course delivery capabilities work fairly well <b>NOT WORKING:</b> Assessment, integrated student webmail		<b>WORKING:</b> Course delivery capabilities work fairly well <b>NOT WORKING:</b> Communication package doesn't meet the needs	<b>WORKING:</b> Course delivery capabilities work fairly well <b>NOT WORKING:</b> Most SCC courses in Bb use little of offered functionality; Assessment/Gradebook, standardized	<b>WORKING:</b> Course delivery capabilities work fairly well <b>NOT WORKING:</b> Gradebook, Would like all instructors to be able to post all of their courses at once	<b>B<sup>+</sup></b>
<b>Ease of Use:</b> The system must be highly intuitive. Access, delivery, and evidence of use of all features should be easy for the user. The user experience must be automated and personalized to the needs of the individual learner.	<b>WORKING:</b> General ease of use; <b>NOT WORKING:</b> Version issues, with particular features (instructors, students, . . .)	<b>NOT WORKING:</b> Labor-intensive for all users (instructors, students, . . .)			<b>NOT WORKING:</b> Bb's "easy to get up and running" approach actually impedes productivity (student and faculty) over the long run.	<b>WORKING:</b> Ease of use for residential and adjunct faculty.	<b>B</b>
<b>Scalability:</b> The infrastructure must scale easily and incrementally to meet growth in both increased instruction capacity/bandwidth and user demand.	<b>NOT WORKING:</b> Performance degrades with increased numbers of users			<b>NOT WORKING!</b>	<b>NOT WORKING:</b> Bb performance is degrading with increased user volume; Basic version of Bb not scalable.		<b>D</b>
<b>Administrative Capability:</b> The LMS includes registration, tracking, curriculum management, and feedback mechanisms.							<b>C<sup>+</sup></b>
<b>Service and Vendor Stability:</b> The LMS provider is financially sound and is expected to stay in business long-term. Further, the vendor has a proven track record for superior support after the sale.							<b>C</b>
<b>Compatibility and Interoperability:</b> The system must integrate well with third-party content providers and multiple vendors' standards and solutions. The LMS must be compatible with open industry standards (e.g., SCORM, LMS, SOAP, etc.) and support the major learning standards (AICC, SCORM, LMS, and IEEE).	<b>WORKING:</b> HTML integration; Universality (transfer to ASU) <b>NOT WORKING:</b> Product dependency (not open-sourced); Problems with FrontPage Students not able to see courses across MCCCC	<b>WORKING:</b> HTML integration; Universality (3rd party) <b>NOT WORKING:</b> Standardization (3rd party)		<b>WORKING:</b> SIS 2-way integration working very well; Consistency technology	<b>WORKING:</b> HTML integration; SCC custom integration between SIS and Bb works, but is resource intensive; Universality (transfer to ASU) <b>NOT WORKING:</b> Technical risk -- not open-source tool; No seamless integration among tools; Lack of automated interface with SIS	<b>WORKING:</b> ASU's commitment to Bb -- good for students who transfer with SIS <b>NOT WORKING:</b> Lack of good interface with SIS	<b>C+<sup>A</sup></b>
<b>Pricing:</b> Level of investment required to purchase a system that meets organizational training needs.	<b>NOT WORKING:</b> "Being held hostage" by Bb (exclusivity)		<b>NOT WORKING:</b> Bb too expensive; will be giving it up June 2003		<b>NOT WORKING:</b> Financial risk -- dependency on one CMS product	<b>NOT WORKING:</b> Increasing cost.	<b>D</b>
<b>High Availability and Product Stability:</b> The LMS is based on implementation running 24/7. The LMS is robust enough to simultaneously serve the diverse needs of instructors, learners, and administrators.	<b>WORKING:</b> Reliability: Single CMS choice across college gives consistency and is easier to support	<b>WORKING:</b> Reliability: Single CMS choice across college gives consistency and is easier to support		<b>WORKING:</b> Consistency	<b>WORKING:</b> Reliable; Standardized CMS across campus reduces effort, gives same "look & feel" and is easier for students.		<b>B+<sup>A</sup></b>
<b>Security:</b> The LMS selectively controls access to system assets like content, services, course offerings, learning objects, student records, and so on.	<b>Working:</b> Authentication (ability to control access)	<b>Working:</b> Authentication (ability to control access)	<b>NOT WORKING:</b> Student "Progress Letters" not secure with Midas		<b>WORKING:</b> Authentication (able to control access) <b>NOT WORKING:</b> Current Bb version does not employ https security		<b>C<sup>+</sup></b>

Currently lack good interface with SIS -- but we believe a solution is coming

Unknown -- therefore some risk is involved

<b>A = "WOW!"</b> Very, minor problems, may exist.
<b>B = "GOOD JOB!"</b> Works well, some problems.
<b>C = "ADEQUATE"</b> Does the job/serves the basic needs; sizeable problems exist that need to be addressed.
<b>D-F = "WHAT'S GOING ON HERE?"</b>

**GRADING SCALE:**

"I" with no change, things will get worse  
 "A" here are indicators that improvements are coming

# "What do we want to see in an LMS?"

Survey Results

EVALUATION CRITERIA:	Chandler-Gilbert	Estrella Mountain	Glendale	Rio Salado	Scottsdale	South Mountain
<b>Instructional Competence</b>	Better testing & assessment	Better testing and assessment		Geared to asynchronous learning	Better testing and assessment -- tools and integration of tools. Development metaphor from a student/instructor standpoint, not a course	ePortfolio capabilities
<b>Ease of Use</b>	Less labor-intensive (for ANY user)	System-wide survey tool		Automatic notification	Fewer bugs in the software Less labor intensive (for ANY user)	Drag & drop capabilities from folders and files
<b>Scalability</b>				Scalable	Open source & scalable	
<b>Administrative Capability</b>					Support for "batched" requests by instructors (perform same function on many content items)	
<b>Service and Vendor Stability</b>						
<b>Compatibility and Interoperability</b>	More "open source" solution Compatibility w/publishers standards. Portable content (can move to another LMS – or elsewhere) (OXI). Implication for business services and other services	Integration with a portal		Connects w/college support services Open source Integration with 3rd party products	Seamless (plug-n-play) integration among tools and tool sets. Compatibility and portability of content. Open source & scalable	
<b>Pricing</b>						
<b>High Availability and Product Stability</b>					Reliable performance and response times	
<b>Security</b>			Secure "Student Progress" letters			