

**Report of the Courseware Task Force of the
Ohio Commons for Digital Education (OCDE) project**

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Charge to the OCDE Courseware Task Force (CTF)

The Ohio Commons for Digital Education (OCDE) is a collaborative effort of the Ohio Learning Network (OLN), OhioLINK, and the Ohio Supercomputer Center (see http://www.olin.org/about_olin/ocde.php). The OCDE vision of integrated online services for higher education in Ohio is illustrated by this example:

A learner uses a single sign on to take an e-learning course from one institution featured in the OhioLEARNNS catalog, accesses a journal article at OhioLINK for the course assignment, uses a statewide CMS (course management system) for the web-based test in a technology-enhanced course offered by her home institution, and then downloads a video file to a course page for other classmates to review at some point during the semester. Before leaving the system, the same learner pays tuition, orders books from the campus bookstore, and checks the Course Applicability System (CAS) to verify the transcript from her undergraduate institution was sent to the university to which she is applying for graduate school.

The OCDE Courseware Task Force was formed by OLN Executive Director Kate Carey, with the following charge:

The Ohio Commons Courseware Task Force will advise OLN on courseware strategies for the next biennium (FYs 03-04 and 04-05). The Task Force will make specific recommendations, including:

- CMS product(s) to license statewide,
- Hosting options to provide to campuses
- Open source initiatives to mount for institutions to explore
- Integration with other OCDE projects (Institutional Repository, My Learning Space)

CTF Membership

Doug Mann (Chairperson, mannd@ohio.edu), Ohio University

Ed Busher, Columbus State Community College

Mark Cain

Victoria Getis, Ohio State University

Tanya Hahn (replaced in May by Mark Hanes), Franklin University

Terri Klaus, Wright State University

Tom Klinger, Kent State University

Bill Ryan, Lakeland Community College

Scott Siddall, Denison University

Staff (OLN): Kate Carey, Judy Leach, Sheryl Hansen

OSC: Steve Gordon, Angie Galipault

OhioLINK: Anita Cook

Process

The Courseware Task Force met three times at OhioLINK in Columbus (March 10, April 8, and May 12, 2003). With the assistance of George Steele of OLN, the CTF also conducted an online survey of CIOs/IT directors and educational technology directors throughout Ohio's public and private higher education system. The summary of the 30 responses to the survey is contained in Appendix A.

Introduction

A course management system (CMS) provides faculty members with web-based authoring and communication tools to easily create secure, interactive course web sites, without requiring technical skills such as the use of html editing software and ftp file transfers needed for traditional web site development. Many faculty members are willing to work within the constraints of CMS "templates" in order to gain the security, interactive features, and record-keeping capabilities of these systems. Examples are commercial products such as WebCT and Blackboard, and University-developed systems such as CourseWork (Stanford University) and CourseTools NG (University of Michigan).

A CMS is a powerful tool toward the goal of improving access to quality education for Ohioans. However, progress toward this overarching goal requires interoperability at the level of application processes, educational credits, and courses, as well as among elements of the IT infrastructure (online directories, CMS, repositories of scholarly content and learning objects). The latter issue of IT infrastructure interoperability is the prime concern of the Ohio Commons for Digital Education (OCDE) project (see http://www.olin.org/about_olin/ocde.php).

Two CMS services are currently offered by the OCDE via coordination by OLN (the Ohio Learning Network). First, the WebCT Consortium operated by OLN has negotiated favorable pricing for approximately 30 Ohio schools that run WebCT on a campus server. Many of these schools have committed to a WebCT contract continuing through the 04-05 fiscal year. Also, OSC (the Ohio Supercomputer Center) hosts WebCT courses on an OSC server for 8-10 schools, for a fee of \$800 per course per academic term. Repeated attempts by OLN to negotiate the right to offer similar services for schools that prefer the Blackboard CMS have not been successful, due to Blackboard's current business model.

The challenge to the Courseware Task Force was to assist OLN in conceiving and prioritizing new or enhanced CMS-related services for the 03-04/04-05 fiscal biennium.

Findings

The following nine findings are based on task force discussions and the results of the online survey.

1. CMS use in Ohio higher education continues to grow steadily in quantity and scope. Client lists provided by only two CMS vendors, Blackboard and WebCT, include more than 60 Ohio higher education institutions that use one or both of these systems. However, only a few schools (such as U. of Cincinnati and Franklin U.) currently create a CMS account for every course section, every term. The majority of schools in our sample reported that from 10-50% of each institution's faculty members are using a CMS to enhance courses, with the number of course sections per year ranging from 20 to thousands. Survey respondents predict moderate but steady growth in the next two years in the numbers of faculty members and course sections that will utilize a CMS. Also, 3/4 of the responding schools have used CMS systems for non-course web sites to support faculty development seminars, project teams, organizations, outreach projects, and student advising.

2. Increasing prices of institutional licenses for commercial CMS systems (notably WebCT and Blackboard), and the need for more staff to meet increasing faculty demand for CMS services, exceed the available resources at many Ohio schools. Only seven of 25 schools responding to a survey resource question indicated that their institutions have enough financial and staff resources to meet the increased CMS service demands that are expected over the next two years.

3. Noncommercial "open source" CMS systems are evolving rapidly, but they are not yet a substitute for commercial CMS systems. Most current open source CMS systems require a significant commitment of technical and programming staff to implement, customize, and support the systems to meet the needs of an institution (see one person's view of OS CMS issues, systems, and ratings at: http://www.xplana.com/whitepapers/archives/Open_Source_Courseware). The most important of these open source CMS developments is the Mellon-funded Open

Knowledge Initiative (<http://web.mit.edu/oki> . See also a non-technical overview of the OKI at <http://siddall.info/cms/okitechbrief.html>). The OKI seeks to create standards-based CMSs that can be extended by higher education for increased pedagogical flexibility. There is great variability among open source CMS projects; some are designed for large campus-wide implementations while others are only suitable for limited use. Few of today's open source CMS are well integrated with student information systems and directory/authentication services, but the open source CMS community appears to be robust and making progress with several new releases planned for summer 2003. For example, Denison University has used Stanford's CourseWork with success, but the current release of CourseWork lacks some of the advanced functionality of Denison's entry-level Blackboard implementation.

4. Although they are not yet mature enterprise solutions, noncommercial "open source" CMS systems merit OCDE evaluation and participation in development, because the standards-based, open source philosophy is likely to play an important role in building a customized, integrated system to achieve OCDE's long-term vision. If faculty and students are to eventually have single sign-on access to an integrated set of OCDE services including CMS accounts, personal storage and web pages, research data and services, and learning object repositories, integration of open source components with commercial software may be required. Education-centric standards such as IMS (<http://www.imsproject.org/>) and OKI (<http://web.mit.edu/oki/>) help to advance interoperable systems for higher education.

5. An Ohio CMS, along with a repository, could be the integrative tool to achieve OCDE's vision. In fact, several current versions of commercial CMS applications are powerful enough to provide several OCDE core services (e.g., course web sites, project and organization web sites, portal/single point of access, My Learning Space networked storage, access to a repository of learning objects). For example, Blackboard's CMS with integrated portal can provide course and organization web sites via a single point of access. A portal module is available to integrate web-based file storage and retrieval (WebDAV) into Blackboard, in keeping with the My Learning Space concept. With the portal module development tools included in v6, Blackboard could be configured to

seamlessly access a repository of scholarly data and learning objects. This example indicates the feasibility of using a CMS as the integrative "glue" for OCDE.

6. New entrants in the higher education CMS market are challenging market leaders WebCT and Blackboard. Recent, extensive CMS RFP and evaluation processes have been conducted by the Wisconsin higher education system and its dot.edu service (<http://www.uwm.edu/Dept/dotedu/>), and by MiCTA, a national higher education technology purchasing service (<http://www.micta.org/>). Both Wisconsin and MiCTA selected Desire2Learn, a new CMS from a Canadian company (<http://www.desire2learn.com>). MiCTA "endorsed" Desire2Learn and "approved" Blackboard and WebCT as alternatives. Dot.edu will be converting thousands of courses from Blackboard and WebCT into Desire2Learn. Ohio State University is in the final stages of selecting an institutional CMS platform (currently WebCT), and has narrowed the field to finalists Angel, Blackboard, Desire2Learn, and WebCT. Angel is being used at Michigan State and Penn State.

7. Administrative software vendors are beginning to view CMS functionality as an essential component of a complete solution. Most ERP (Enterprise Resource Planning) vendors such as Peoplesoft and SCT have offered CMS features through partnerships with commercial CMS vendors. Now, ERP vendors such as Jenzabar are beginning to integrate CMS capabilities directly into an ERP suite of applications.

8. Several CMS vendors have developed pricing models that enable a central CMS to support multiple institutions. WebCT Vista is explicitly designed to allow an institution (or a partnership, such as that between Kent State and Akron) to offer WebCT course site hosting to other institutions. Wisconsin's dot.edu service is negotiating an arrangement whereby it can run Desire2Learn for the 27 Wisconsin schools, plus dot.edu's other education and non-profit customers. To date, Blackboard has resisted developing "education ASP" pricing.

9. Current OCDE CMS services (WebCT hosting at OSC, and the WebCT Consortium coordinated by OLN) are effective in reducing licensing fees and CMS management costs for many Ohio schools. Although some schools have executed single-institution contracts with WebCT, the overall consortium effort is still beneficial. Efforts

to negotiate similar services for Blackboard schools have failed, due to Blackboard's current exclusive focus on sales to individual institutions.

Recommendations for the coming biennium (FYs 03-04 and 04-05)

1. Continue and expand OCDE/OLN CMS services

Continue WebCT hosting and volume WebCT licensing discounts, i.e., the WebCT Consortium.

Coordinate with other in-state services (e.g., the planned WebCT Vista hosting service from Kent State and Akron) to offer complementary rather than competing services if possible.

Investigate Ohio SchoolNet's rumored deal with Blackboard to determine whether there are new opportunities to provide Blackboard-related services (hosting and/or group pricing).

Provide a clearinghouse of information about CMS pricing and hosting options for Ohio schools. For example, research and disseminate information about the MiCTA CMS agreement pricing, soon to be available at <http://www.micta.org/>. MiCTA members (annual fee of \$75) may be able to use the agreement to get better pricing on Desire2Learn, Blackboard, or WebCT.

2. Bring to Ohio the best national models of the use of CMS systems to promote both improved student learning outcomes (e.g., active, higher-order learning) and efficient use of institutional resources and faculty time. Speakers from the most successful Pew Foundation large course redesign projects (<http://www.center.rpi.edu>) would be well-received and valuable. Ohio faculty members want to see more quality examples of improved pedagogy using CMS tools. Provide examples from as many major academic disciplines as possible, and disseminate the examples in live presentations and web (on demand) formats.

3. Conduct a needs analysis concerning possible centralized, extended-hours "help desk" support for popular CMS systems. Can useful support be provided without system administrator access to these systems and their directory/authentication services? If not, there would be little if any benefit to establishing extended central support for campus-based CMS systems.

4. Provide a single web-based point of entry to "test drive" popular CMS systems.

This could be accomplished through access to vendor-provided "sandbox" CMS accounts, and arrangements with campuses to provide test drive accounts using their commercial or noncommercial CMS systems.

5. Promote pilot projects and information sharing concerning noncommercial, open source CMS systems. Communicate the technical process required for open source CMS implementation. Include a half-day open source CMS workshop at the annual OLN conference.

6. Develop the requirements for CMS statewide interoperability with a high-end repository/DAM (digital asset management, or repository) system. These requirements are likely to entail the eventual development of an Ohio CMS based in part on open source components and original programming by an Ohio team. Utilize the work of OCLC's new E-Learning Task Force (<http://www.oclc.org/research/elearning/>) charged with making recommendations for content repositories in CMS.

7. Continue to have a CMS advisory group for the OCDE project. The CMS is a core OCDE application, with the potential to provide multiple services, and the CMS market is evolving rapidly. Periodic consultation with a representative group of institutions familiar with the major CMS products and market trends is essential.

Appendix A: Summary of results of the CTF online CMS survey

Email invitations were sent to the following two email lists on April 26 and 28, 2003, with a request to respond by Friday, May 2:

TECPD@LISTS.OLN.ORG

ohiocio@ohiolink.ohiolink.edu

These email lists were thought to include most of the CIO's/IT directors and educational technology center directors from more than 100 Ohio institutions of higher education (public and private, 2-year and 4-year). The survey was delivered on the web via www.zoomerang.com. Responses from 30 individuals representing 30 institutions were received. Due to the modest response rate of less than 30%, these results must be viewed as a source of examples and trends, but not as a statistically reliable indicator of course management system activities and investments at institutions throughout the state.

Respondents were evenly divided between IT Directors/CIOs (chief information officers)/CTOs (chief technology officers), n=15, and coordinators/directors/staff members of educational technology and teaching centers (n=15).

Institution size was defined by as smaller (<500 faculty) or larger (= or >500 faculty). Responses were received from 22 smaller institutions and eight larger institutions (the latter group included five of the larger public universities).

"Current campus CMS" was reported as:

CMS	Frequency
WebCT	15
Blackboard	9
Developed in-house	2
Jenzabar	2
None	2
Proprietary	1
TOTAL	31

The response total of 31 reflects the fact that one institution using Blackboard is planning a transition to Jenzabar, so it was counted twice.

Current (02-03) level and type of use of the CMS, and its hosting location, was reported as:

02-03 (current) CMS use:	Mean for smaller schools	Mean for larger schools
Course sections per year	115	4047
Percent course enhancement	85%	69%
Percent e-learning use	15%	31%
Hosted on campus	94%	99.9%
Hosted off-campus	6%	0.1%

Projected (03-04) level and type of use of the CMS, and its hosting location, was reported as:

03-04 (projected) CMS use:	Mean for smaller schools	Mean for larger schools
Course sections per year	132	4385
Percent course enhancement	80%	66%
Percent e-learning use	20%	34%
Hosted on campus	95%	99.9%
Hosted off-campus	5%	0.1%

Projected (04-05) level and type of use of the CMS, and its hosting location, was reported as:

04-05 (projected) CMS use:	Mean for smaller schools	Mean for larger schools
Course sections per year	164	4839
Percent course enhancement	77%	62%
Percent e-learning use	23%	38%
Hosted on campus	95%	99.9%
Hosted off-campus	5%	0.1%

Reported non-course use of CMSs included: project team web sites, accreditation process support, faculty seminars and learning communities, staff training, inter-institutional projects, discussion groups, course evaluations, and student advising.

Trends in faculty adoption of CMS for smaller schools (fewer than 500 faculty, n = 22) were reported as:

Year	Total # of faculty (mean)	# using CMS (mean)	% using CMS (mean)
02-03 (current)	160	37	23%
03-04 (projected)	162	49	30%
04-05 (projected)	159	55	35%

Trends in faculty adoption of CMS for larger schools (equal to or greater than 500 faculty, n = 8) were reported as:

Year	Total # of faculty (mean)	# using CMS (mean)	% using CMS (mean)
02-03 (current)	1875	656-845*	35-45%*
03-04 (projected)	1875	845-1031*	45-55%*
04-05 (projected)	1889	944-1123*	50-60%*

*ranges indicate the uncertainty introduced by missing data for one of the eight larger schools.

Total annual spending on CMS (licensing & commercial support, staff, servers) for smaller and larger schools was reported as:

Year	Mean \$ for smaller schools	Mean \$ for larger schools
02-03 (current)	\$20,388	\$361,571
03-04 (projected)	\$22,206	\$386,667
04-05 (projected)	\$23,041	\$403,667

As mentioned in the Findings section of the report, only seven of 25 schools responding to a survey resource question indicated that their institutions have enough

financial and staff resources to meet the increased CMS service demands that are expected over the next two years.

Twenty-five schools responded to a question concerning the effects of increasing licensing costs for commercial CMS software on their plans for the next two years. Eight of these schools mentioned looking at open source and/or in-house development solutions to control costs. Individual schools mentioned the possibility of a student course fee for CMS support, or becoming a CMS provider (the "education ASP" model) to recover some CMS costs.

The final section of the survey asked respondents to generate an idea for a new or upgraded OLN/OCDE-supported CMS service, and then to rank-order that service along with seven other new services listed on the survey. Respondents suggested the following:

- ways to reduce licensing costs, share backups, aggregate tech support
- adoption or development of a "learning object generator (LOG)" that would "allow faculty to easily create courseware and integrate to existing CMS tools." This LOG would be more sophisticated than a simple web authoring tool.
- statewide copyright clearance service

The rank-ordered ideas are presented in the table on the next page, ordered by the total percentage of 1/2/3 place rankings.

Suggested new service:	Ranked #1	Ranked #2	Ranked #3	Total 1/2/3 rankings
Provide centralized help desk support, possible 24 x 7, for the most widely used CMSs.	31%	17%	24%	72%
Provide increased instructional design support to help Ohio faculty use CMS tools to improve learning outcomes and teaching effectiveness.	13%	27%	30%	70%
Pursue Collaborative statewide development of an “OhioCMS” using some combination of Open Source tools and OKI standards.	25%	36%	7%	68%
Broker technical assistance among institutions to make CMS more efficient (i.e. automated student information data loads, LDAP authentication; build an Ohio CMS Tech Experts directory.)	10%	28%	17%	55%
Self-generated idea (examples listed on previous page)	33%	13%	7%	53%
Provide test accounts to help institutions evaluate the instructor, student, and system administration features of CMS (WebCT, Blackboard, Desire2Learn, and open source products).	21%	24%	3%	48%
Upgrade WebCT hosting services (from CE 4.0) maintaining modest pricing per hosted course.	9%	13%	13%	35%
Create a statewide online student and faculty directory for a single login to courses hosted by Ohio Commons.	14%	10%	7%	31%