

## COMPREHENSIVE ANALYSIS OF EXISTING LEARNING MANAGEMENT SYSTEMS (LMSs)

Status: Accepted by Rolf Dalin November 16, 2001.

<b>Name of institution</b>	Department of Information Technology and Media, Mid Sweden University Midthögskolan
<b>Type of institution:</b>	University Mid Sweden University is a multi-campus network university with centres in Härnösand, Sundsvall, Örnsköldsvik and Östersund.  Mid Sweden University was established on July 1, 1993, when the University Colleges of Sundsvall/Härnösand and Östersund were merged. On July 1, 1995, the Sundsvall/Örnsköldsvik and Sundsvall Colleges of Health Sciences were also incorporated.  The university offers 50 study programmes and approximately 500 single-subject courses. There are approximately 1000 employees at the university, 500 of whom are involved in teaching, and 11,000 students, of whom approximately 140 are doctoral students. The annual turnover for the academic year of 1999 was 670 million SEK.
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<b>LMS used</b>	WebCT
<b>URL of LMS</b>	<a href="http://www.webct.com/">http://www.webct.com/</a>
<b>Language of LMS</b>	English, the college is translating the LMS to Swedish.
<b>Number of years in use</b>	We have used WebCT since 1996.
<b>Other LMSs used</b>	We have tested FirstClass and West

<b>Number of students in the system</b>	We have about 2-3000 students in the system. I think about 60 percent of them are on-campus students and 40 percent study at a distance.  Karin Ekberg may give you the correct numbers.
<b>Number of courses available</b>	We have about 200 course environments. Most of them are in operation, but some of them are related to experimental or completed courses.
<b>Typical duration</b>	The distance education courses may take from a half to four semesters to complete.
<b>Number of tutors in the system</b>	A course may have 1-3 tutors. Altogether we have somewhere between 100 and 200 online tutors.

***This analysis is divided into six parts.***

***1 Course development tools***

***2 Student support tools***

***3 Tutor support tools***

***4 Administration (student database and records)***

***5 Technology (quality of software)***

***6 Price***

***1 Course development tools***

***1.1 Course creation.*** How satisfactory was the LMS for course creation?

In our department, the tutors use Netscape Composer to create web pages. In some of the courses, the tutors are supported by web-designers. [Midthögskolan]

***1.2 Structure and didactic flexibility - openness.*** In the creation of course materials did the LMS permit didactic flexibility? Was the structure open to differing didactic possibilities?

***1.3 Teacher user friendliness.*** How easy was the LMS to use by teachers and course developers?

***1.4 Support for graphics, audio and video, moving image.*** Did the LMS support the provision of graphical materials, moving images, audio and video in the course content?

We have little use of multimedia, but we will include more audio elements in the future. So far, we have used Windows SoundRecorder and looked at an interesting product called Wimba (wimba.com). [Midthögskolan]

***1.5 Questioning, assessment, assignments.*** What provision was made by the LMS for student questioning and assessment and the design of student assignments?

We use WebCT for assignments and assessment. It works well, is stable and effective, but the user interface is complicated for inexperienced tutors. [Midthögskolan]

## **2 Student support tools**

2.1 *Interactivity possibilities.* What provision does the LMS make for student interaction?

The users have few problems with WebCT. The tools are integrated in one common user interface. The communication must be integrated into the assignments. The discussion forum is most important. We do not use chatting for within Sweden, but it is used for international communication when telephone calls become too expensive. [Midthögskolan]

2.2 *Online student to student communication (synchronous and asynchronous).* What facilities does the LMS provide for student communication to other students and how successful is it? Is both synchronous and asynchronous communication between students supported?

2.3 *Online student to tutor/institution communication (synchronous and asynchronous).* What facilities does the LMS provide for student communication to the tutor ion to the institution's administration and how successful is it? Is both synchronous and asynchronous communication supported? Are these support services available 24 hours a day?

2.4 *Resources, library, references.* What facilities does the LMS provide for student acquisition of resources required by the course, especially library resources and references to required readings?

The resources vary from course to course. The distance students have a special status as VIP-user to the library. [Midthögskolan]

2.5 *Feedback on work and assignments.* What is the quality of provision of feedback to students on their work and assignments?

## **3 Tutor Support tools**

3.1 *Tracking students - database questions.* How user friendly is the LMS for tutors wishing to track their group(s) of students and retrieve data from the student database?

WebCT is very good for tracking of students. We can for example check the individual students' quiz scores, how many times they have logged on, the last time they logged on, the number of comments they have read and written, and the number of pages they have read. [Midthögskolan]

3.2 *Group management tools.* What facilities are provided by the LMS to the tutors for managing their group(s) of students?

3.3 *Preparation of questions and assignments by tutor.* How successful is the LMS in providing tutors with user friendly and didactically successful tools for the design of student questions and assignments?

3.4 *Course planning for students (monitoring pace).* What tools are provided by the LMS to tutors to enable them to monitor and plan student progress?

3.5 *User-friendly administrative systems between tutor and institution.* What provision does the LMS make for successful tutor to institution communication?

#### **4 Administration (student database and records)**

4.1 *Enrolment procedures and fee paying.* What facilities does the LMS provide for student enrolments, course allocations and payment of fees?

I see no need for integrating WebCT with our economy systems. [Midthögskolan]

4.2 *Passwords and security.* How successfully does the LMS handle student access to the system and the security of all student interactions with the system?

User management presents a heavy workload. The tutors seem to do as little as possible with this. I receive a record of registered students via e-mail and convert it to a WebCT compatible file via an Excel program. The program generates user Ids and passwords. I suppose our administrative staff could have handled this. The procedure is manageable as long as we support fixed enrolment dates. But we discuss if we should allow individual enrolment dates, which will require a more efficient system. [Midthögskolan]

4.3 *Student records database.* How successful is the system's student database, especially for data storage and data retrieval.

Our student administrative systems are not available via the web, but we have established a project to see what we could do with this. [Midthögskolan]

4.4 *Examination and certification records.* What structures are provided for recording of data and results leading to examination and certification?

The results achieved by the class are available in WebCT. Final grades can be entered, but this is not integrated with our student administrative system. I have heard that WebCT has been integrated with student administrative systems in the US, but the integration is not available with the student administrative system that is used by most of the Swedish universities and colleges. [Midthögskolan]

4.5 *Course, class and tutors database.* What facilities are provided for administration of courses, classes and tutors?

#### **5 Technology (quality of software)**

5.1 *Server - hardware and software options.* What is the quality of server hardware and software options? How is the system integrated with existing software?

Our ICT-department is responsible for the operation of the WebCT host, but they do not provide technical support. There is a Help Desk function in WebCT that we could use for technical support. [Ove.Olander@mh.se](mailto:Ove.Olander@mh.se) is in charge of the host system operation. In my opinion this works very well. There is no common policy or strategy on LMS systems in at

Midthögskolan. As a result of this, the college also utilizes FirstClass as a general information channel for the Department of Media and Communication and LUVIT for five courses in miscellaneous courses provided by other departments. It is possible that newly established Swedish Network University organized by DISTUM (<http://www.distum.se/>) could impose a common strategy on LMS systems in the Swedish universities and colleges. [Midthögskolan]

*5.2 Client - hardware and software options.* What is the quality of client hardware and software options? Does the system permit meta tagging?

WebCT does not require any client software, but some courses may require special software for statistics etc. I teach courses in statistics that rely on statistical PC-software such as SPSS and MiniTab. The students must buy student licenses and download the software from the Internet. [Midthögskolan]

*5.3 Flexibility of didactic structure; updating, adaptability.* Is the didactic structure flexible or is it determined by the technology? How adaptable is the technology to updates and to new technology that becomes available to the market?

*5.4 Limitation of size (number of students, courses, tutors..)* How satisfactory is the LMS for handling varying numbers of students, courses, tutors? How does it cope with 100, 1000, or 10000 students and large course databases?

There are no limitations with regard to the size of the system, as long as the server has the necessary capacity. I believe the University of British Columbia had 30,000 users. [Midthögskolan]

*5.5 Speed of system.* How is the speed of the system and student satisfaction? How does it cope with downloading courses and high bandwidth materials?

We have no courses that requires more bandwidth than you can get from a modem. [Midthögskolan]

## **6 Price**

*6.1 Cost of the LMS (Learning Management System).* What is the cost of the LMS to the institution?

I guess the site license is about SEK 40,000 per year. We expect some income from our Swedish translation. [Midthögskolan]

*6.2 Annual fee.* What fees have to be paid annually for the system by the institution?

The courses are free, but the students must pay for the software they need. [Midthögskolan]

*6.3 Student Enrolment fee (100 students, 1000 students, 10000 students.)* How do fees to use the LMS vary when the student base is 100 students, 1000 students, 10000 students? Is online invoicing available?

6.4 *Maintenance costs: staff involved in management, IT specialists, trainers, etc*  
What is the maintenance course to the institution of the LMS and what staff resources are need to maintain it and keep it functioning?

I don't know. Please check with Karin Ekberg. [Midthögskolan]

6.5 *Training of teachers and learners and system users.* What costs are involved in staff and student training to use the LMS system?

**Conclusion: Overall evaluation:**

WebCT was a good choice for us. It is very comprehensive and therefore also complex to master for inexperienced designers and tutors. The major advantage is that it supports quality in teaching. Everything is documented so that the tutors can build on their previous work whenever they start a new course. WebCT has also made me think about education in new ways. For example that several tutors may collaborate and that a course could be designed by one tutor and taught by another tutor. Online communication also facilitates collaboration between institutions and provides new pedagogical dimensions. [Midthögskolan]

**What features would you like to see included in this LMS in the future?**

I would like to have a some user friendly audio tools integrated in WebCT so that we did not need to use additional audio tools to handle audio files. [Midthögskolan]