

# Learning Management and Portals

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## Introduction

E-learning has rapidly emerged as a major area for discussion and activity within the training and development community of organisations, large and small. Within this debate, the use of technology to provide access to and manage the processes of learning is emerging as one of the primary discussion areas.

The aim of this white paper is to help define and develop the discussion concerning the purpose and functionality of technology to perform this role. These are commonly referred to as Learning Management Systems (LMS) and learning portals. As well as discussing the role and functionality, the document also seeks to present a framework and strategy for implementing such facilities within a large organisation. Although the document is primarily targeted at corporations, we expect that many of the issues and recommendations will be directly applicable to a non-corporate audience including public sector and academia.

The subject itself is large and complex, and therefore the focus is to provide a high-level perspective together with some ideas around assessing priorities and approach for your organisation. It is not possible or appropriate within the scope of this document, to provide an exhaustive detailed analysis of the requirements and products available to fulfil them. Such a work would be guaranteed to be out of date before it had even been published. For more detailed information, advice and guidance on defining strategy, selecting technology or implementation services, please contact eLearnity to discuss on +44 (0) 207 917 1870 or by email at [info@elearnity.com](mailto:info@elearnity.com).

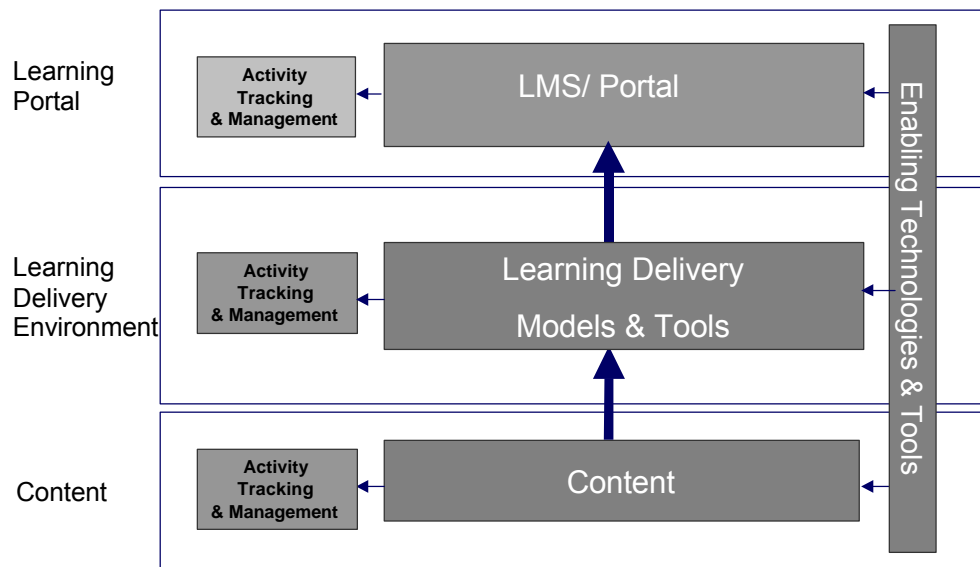
## The e-Learning Technology Framework

Before we examine the functionality of a portal or LMS, we need to understand the role we expect the LMS or portal to provide relative to other components of the e-learning environment or solution. In other words, what is the scope of the functionality of the LMS or portal? In particular, what is the role of the LMS or portal relative to the actual delivery of learning, rather than the management of access to it?

eLearnity has developed a model for classifying and evaluating e-learning technology and products, which we call the “e-learning Technology Framework”. This framework is designed to help us understand the role of specific products required to fulfil specific needs. It also assists us with:

- ▶ Classifying products based on role
- ▶ Assessing specific solutions and products
- ▶ Matching products to specific e-learning requirements
- ▶ Designing an overall architecture
- ▶ Design of a framework for a combination of products

The following diagram summarises the principal components of an e-learning architecture:



### e-Learning Technology Framework

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In this high-level version of the e-learning Technology Framework, we have subsumed the processes and technology for providing access to and managing learning under the umbrella term of LMS/Portal. Processes and technology for delivering the learning itself are dealt within the middle layer, and processes and technology for creating and managing content are in the bottom layer.

The distinction between management and delivery is critical. It is a common misconception that having found and accessed an online course via the portal or LMS, all that is needed is to a link to some interactive online web content. Effectively in this scenario our LMS gives access to the content and therefore a two-layer model. This approach is very simplistic and is not effective for most learning requirements. The delivery of learning is more complex than simply accessing content, and depending on requirements it will probably include instructional support, mentoring, student to student interaction, collaboration, assignments, team exercises, assessment, etc.

The task of delivering learning including the integration of the activities above needs to be handled by the next layer down in our framework, the Learning Delivery Environment, LDE. This is the environment within which the learning actually takes place.

A detailed discussion of the different kinds of Learning Delivery Environments is outside the scope of this paper and is described in more detail in our white paper "The Future of Learning". We will however discuss later the issues associated with integrating with LDEs, as this is a critical part of implementing a learning portal or LMS as part of an overall e-learning architecture.

All three layers are also supported by an enabling infrastructure that is integrated into the corporate IT infrastructure. This will include access and use of networks, databases and other corporate systems.

Consideration of these requirements is always important when determining a potential e-learning technology solution. Network bandwidth is consistently identified as a significant concern when evaluating potential solutions, but scalability, fit to standards and security are also significant issues.

# Learning Management and Learning Portals

The term “Learning Management System” (LMS) evolved from other terms such as Training Management Systems (TMS) or Computer Managed Instruction (CMI). Learning Management refers to the management and administration of the provision of learning or training i.e. the management of:

- ▶ Courses and learning objects
- ▶ Resources including instructors, facilities etc.
- ▶ Students

The emphasis is on “management and administration” rather than the delivery of the learning itself and learning management is therefore relevant to all forms of learning, not just to e-learning. Management and administration can therefore be concerned with such things as course catalogues, registration processes, approval processes, resource management, tracking and reporting and so on. In many ways, e-learning has not just increased the range of courses to be managed, but it has also increased the types of courses to be managed. One of the challenges for existing training management systems is that they only manage traditional training and resources. This limitation is increasingly leading to their replacement with newer systems capable of supporting all types of learning.

This document focuses on the describing the role and functionality of an LMS in more detail as well as the issues associated with their implementation. However, we have also linked the discussion of an LMS to a broader discussion of learning portals. Why?

The term “portal” is a relatively recent addition to Internet and Training terminology. Although definitions vary between organisations, in essence it is an *aggregation of learning services and associated technology* into a single (hopefully) coherent access point or interface. In this case, these services relate to learning. A learning portal is therefore a concept rather than a specific product or piece of technology. Typically it will include services such as course catalogues, course registration, assessment of learning needs, access to instructional support and learner forums, links to learning resources and so on. The core of a learning portal is therefore a set of services for managing and administering access to learning, i.e. a learning management system.

Learning Management is concerned with the management and administration of learning whereas learning portals are about providing access to learning. Learning Management is about the creation of course catalogues and registration processes, the control, tracking and reporting of learning. Learning portals are about searching and finding specific delivery options in associated catalogues, registering to use them, tracking your progress and historical activity. In other words, they are about the same thing but from two different perspectives;

**Learning Management System** from the perspective of the **provider**,  
**Learning Portal** from the perspective of the **learner** or **learning community**.

We therefore tend to use the terms as follows:

- ▶ **Learning Portal** to describe the overall provision of learning and learning related services to the learners or learning community.
- ▶ **Learning Management** to describe the management and administration of key components of the services including course catalogues, registration and tracking.

In fact, learning portals are broader in functionality than an LMS. As well as core management functionality they will probably include access to other learning services and resources including resource libraries, learner forums or communities and other information resources. They also tend to be more configurable and configured to specific learners. Historically, most or all of these areas have been outside the scope of

an LMS. The learning portal is therefore more of an umbrella or over-arching term, stated relative to the customers (learner or learning community) within which Learning Management or LMS is a core component.

## Learning Management Systems

Let's now look at the role and functionality of an LMS in more detail. As discussed previously, the primary purpose of the LMS is to provide administration and management services for learning. Whilst this may sound straightforward, this simple description hides a multitude of sins and covers a whole range of functionality. LMSs are complex animals and there are many different types of LMS with very different origins. There are LMSs that specialise in classroom training, LMSs that specialise in e-learning. LMSs that are built around catalogues, and LMSs built around competencies. Some products are designed to be hosted, some designed to be for departmental use and some for enterprise-level use.

As you would expect with a diversity of origin and purpose, the functionality offered by these products can vary enormously. Let's explore these different segments in more detail.

### Characteristics of an LMS

An LMS developed originally for management of classroom training will include more functionality around the management of physical training assets, including classrooms, course materials, joining instructions etc. An LMS originally developed for management of CBT will include less or sometimes no functionality for managing physical facilities, but include more functionality for tracking access to content and mechanisms for launching content including web-based, network-based or CD-based content. Clearly, it is important to understand primary usage requirements when selecting between these different kinds of LMS.

Another significant factor will also be the scale of usage and integration. The number of courses and students, their location and access to the system, all affect the kind of LMS which may be appropriate. The ultimate requirement would be for an enterprise-level application and associated data resilience providing company-wide access across a very large corporation.

All LMS environments require underlying databases for recording and tracking activity. The scale and mode of access will dictate whether these can be small local environments or high-end "industrial strength" systems. User and course data also needs to be integrated into HR or ERP environments. For example, a training catalogue and registration system managed through an LMS will contain cost information to be passed to internal finance systems and user information to be integrated with HR systems. The LMS may also contain varying degrees of workflow functionality for managing registration and administration processes.

To simplify the detailed tracking of online courses, standards have been developed to allow an LMS to interact with CBT or Web-Based Training (WBT) modules. These current standards are referred to as the AICC standards (developed originally by an aviation industry committee), although new and more comprehensive standards are being developed by the IMS (Instructional Management System) project. See the "Standards" section for more detail.

### Functional Overview

An LMS provides the main functionality for managing programmes, courses and learners. It is the primary management and administration system for the portal, and the environment that manages the key business

processes associated with registration, access and tracking. In a commercial environment, the LMS will also handle the main financial controls and tracking.

The key functionality of an LMS is therefore:

- ▶ Managing courses and programmes
- ▶ Providing and administering course registration
- ▶ Tracking student registration, access and progress
- ▶ Course scheduling and administration including instructors and physical facilities
- ▶ Learning administration and reporting
- ▶ Financial tracking and control of learning.

The following table provides a summary of the primary functional areas, which can be provided by an LMS. Each area has an associated high-level functional list. The matrix is useful for qualifying initial LMS suitability against a defined requirement, although a more detailed breakdown will be needed to map detailed functional requirements.

<b>Learning Management Features</b>			
<b>Manage Courses</b> <ul style="list-style-type: none"> <li>▶ Instructor Led</li> <li>▶ Web based</li> <li>▶ Own product</li> <li>▶ CD-ROM</li> <li>▶ AICC</li> <li>▶ IMS</li> <li>▶ Prerequisites</li> <li>▶ Sessions</li> <li>▶ Pricing</li> </ul>	<b>Manage Programmes</b> <ul style="list-style-type: none"> <li>▶ Programme Definition</li> <li>▶ Flexible Structures</li> <li>▶ Alternative Components</li> <li>▶ Prerequisite Testing</li> <li>▶ Certification</li> </ul>	<b>Manage Resources</b> <ul style="list-style-type: none"> <li>▶ Facilities</li> <li>▶ Instructors</li> <li>▶ Materials</li> <li>▶ Instructor Eligibility</li> </ul>	<b>Learning Catalogue</b> <ul style="list-style-type: none"> <li>▶ Single Catalogue</li> <li>▶ Multiple Catalogues</li> <li>▶ User configurable</li> <li>▶ Categorisation</li> <li>▶ Grouping</li> <li>▶ Searching</li> <li>▶ Calendar Integration</li> </ul>
<b>Competency profiling</b> <ul style="list-style-type: none"> <li>▶ Competency Profiles</li> <li>▶ Job/Role Profiles</li> <li>▶ User Profiles</li> <li>▶ User Assessment</li> <li>▶ Skills Gap Analysis</li> <li>▶ Organisational Models</li> <li>▶ Succession Planning</li> </ul>	<b>Enrolment</b> <ul style="list-style-type: none"> <li>▶ Automatic</li> <li>▶ Self-enrolment</li> <li>▶ Batch</li> <li>▶ Manager Approvals</li> <li>▶ Config. Approvals</li> <li>▶ Max/Min Attendees</li> <li>▶ Waitlist</li> <li>▶ Discretionary Pricing</li> </ul>	<b>Reporting</b> <ul style="list-style-type: none"> <li>▶ Course Admin</li> <li>▶ Enrolment</li> <li>▶ Instructor</li> <li>▶ Student results</li> <li>▶ Audit Logs</li> <li>▶ Financial</li> <li>▶ Customisable</li> </ul>	<b>Commerce</b> <ul style="list-style-type: none"> <li>▶ Payment processing</li> <li>▶ E-commerce link</li> <li>▶ Budget tracking</li> <li>▶ EDI</li> </ul>
<b>Tracking</b> <ul style="list-style-type: none"> <li>▶ Enrolment</li> <li>▶ Progress</li> <li>▶ Scores/Grades</li> <li>▶ Results</li> <li>▶ Financial</li> <li>▶ Personal</li> <li>▶ Instructor</li> </ul>	<b>Workflow</b> <ul style="list-style-type: none"> <li>▶ Tasks</li> <li>▶ Notification of events</li> <li>▶ Between users</li> <li>▶ Automated 'to do' process</li> </ul>	<b>System security</b> <ul style="list-style-type: none"> <li>▶ Roles</li> <li>▶ Permissions</li> <li>▶ Profile</li> <li>▶ User defined</li> </ul>	<b>Integration</b> <ul style="list-style-type: none"> <li>▶ Student records</li> <li>▶ Course records</li> <li>▶ Results</li> <li>▶ External Enrolment Requests</li> </ul>

**Learning Management Functional Matrix Ó 2000, eLearnity limited.**

## Competency Systems

Competency profiling provides a different and complementary approach to determining potential learning requirements. Instead of providing a catalogue of courses and letting the individual or a management process determine requirements, profiling focuses on mapping someone's skills against defined job roles and identifying learning needs through gap analysis.

Job roles are profiled in terms of detailed skill, knowledge and experience including standard levels of competency. A person will similarly profile himself or herself with the system; identifying comparative deficiencies and proposing a learning plan, which can then map onto specific courses or learning opportunities that can be requested via an LMS.

The benefit of profiling is that it provides a more comprehensive and less arbitrary approach to identifying learning needs. It also puts the individual more in control of determining his or her own direction and learning requirements, making it an ongoing process rather than a one-off annual review. It enables us to break down the learning delivery into smaller more flexible units, assuming the logistics of delivery allow it to be done. The downside is that the work required to define and maintain meaningful role profiles, and the additional work required to map and maintain individual profiles, can be very significant.

Whilst historically separate applications, we expect to see increasing adoption of competency profiling in Learning Management Systems as a more effective way of managing long term personal and organisational learning requirements. Many of the newer LMS products include some competency functionality although the scope varies significantly from product to product. We also expect to see the emergence of stronger competency and performance management systems as specialist tools and as integrated components of e-HR systems.

## Technical Environment & Requirements

As well as reviewing the functional requirements of an LMS, there are many additional technical considerations associated with selecting and deploying an appropriate system. In addition to describing the target deployment environment, we need to consider issues such as technical architecture, scalability, integration and customisation. An LMS is not an island, it needs to be integrated into other intranet applications, central HR and ERP systems (Oracle, SAP, PeopleSoft etc.), learning delivery tools, security and access control systems etc.

The following matrix summarises the main technical environment issues and requirements to be considered.

<b>Technical Environment</b>			
<b>Architecture</b> <ul style="list-style-type: none"> <li>▶ Single Server Install</li> <li>▶ Multi Server Install</li> <li>▶ Distributed LMS</li> <li>▶ LMS Synchronization</li> <li>▶ Own Content Delivery</li> <li>▶ Own Directory</li> </ul>	<b>Deployment</b> <ul style="list-style-type: none"> <li>▶ Scalability</li> <li>▶ Performance Tuning</li> <li>▶ Load Balancing</li> <li>▶ Resilience</li> <li>▶ Mobile Capability</li> <li>▶ Prebuilt ERP links</li> <li>▶ Languages</li> </ul>	<b>Hosting</b> <ul style="list-style-type: none"> <li>▶ Hosting version</li> <li>▶ Centralised Management</li> <li>▶ Domain Configurable</li> <li>▶ Host/ASP available</li> </ul>	<b>Customisation</b> <ul style="list-style-type: none"> <li>▶ Logos</li> <li>▶ Look and feel</li> <li>▶ Course Forms</li> <li>▶ Student Forms</li> <li>▶ Security</li> <li>▶ Approvals</li> <li>▶ Student Navigation</li> <li>▶ Reports</li> </ul>
<b>Infrastructure</b> <ul style="list-style-type: none"> <li>▶ Server OS</li> <li>▶ Server Spec</li> <li>▶ Web Server (WS)</li> <li>▶ WS Interfaces</li> <li>▶ Database</li> <li>▶ Client</li> <li>▶ Plug-ins/Java Script</li> </ul>	<b>Pricing Model</b> <ul style="list-style-type: none"> <li>▶ Named User</li> <li>▶ Concurrent User</li> <li>▶ Server pricing</li> </ul>	<b>Help</b> <ul style="list-style-type: none"> <li>▶ Online</li> <li>▶ Context-sensitive help</li> <li>▶ Wizards</li> </ul>	<b>Support</b> <ul style="list-style-type: none"> <li>▶ Help Desk</li> <li>▶ In-depth Technical Support</li> <li>▶ Consulting Services</li> <li>▶ Training Services</li> <li>▶ Maintenance</li> </ul>

**Learning Management Technical Matrix - Ó 2000, eLearnity limited.**

As with the functional matrix, the technical matrix can be used for qualifying LMS options, with a more detailed analysis required to determine the best product architecture and deployment model.

The LMS is a critical component of any full-service environment or learning portal. The selection of an LMS requires careful consideration for an appropriate tool in terms of functionality, scalability and integration.

The implementation of an LMS is typically a large project and will have associated integration requirements. The LMS is an enterprise business system for the management of learning, and as such needs to be managed and implemented in the same way that any core business system would be. A more detailed discussion of some of the critical issues associated with successfully implementing an LMS will be provided later in this document.

## Selecting an LMS

For enterprise-wide projects, the risk factors around product selection become accentuated. Scale, integration and customisation become critical. Implementation becomes bigger than purchase in terms of budget and resources. Planning and integration of disparate components becomes more critical.

Selecting the right base product is obviously an important process and requires real insight. Being thorough and producing a detailed requirements specification or invitation to tender can ultimately also confuse more than it clarifies. With almost every vendor claiming their product is enterprise scalable, can handle many kinds of learning and can be customised to your specific requirement, reading between the lines of the vendor responses is important. The IT department whilst a critical part of this process, may not have the detailed domain knowledge to get into detailed functional discussions.

This purchase of an LMS should be considered as a long-term investment – and ideally should be able to support current business plans through the next 5 years. This is partly due to the central nature of the LMS in the broader e-learning architecture and also due to the size and complexity of an LMS project – particularly an enterprise-level project. Detailed planning and managing this process is essential and should be considered as a project in its own right.

### Approaches to Selection

As with any significant systems acquisition, there is no set process or method to selecting an LMS. Many organisations spend a significant time gathering market and product information, and map their own requirements. Other companies will use external consulting support and guidance to accelerate the process, and some will do some initial market due diligence and work with a selected vendor to develop their requirements and approach.

Here are some of the issues to consider when determining the best approach for your organisation:

- ▶ How much existing domain knowledge do you have regarding LMSs and e-learning?

If you have little existing knowledge, the process of developing it internally within your company will require a significant investment of time and resource. Developing this knowledge is much more than collecting vendor literature at conferences and exhibitions. It is common to find a small team that has been working on developing understanding and market knowledge for at least 6 to 12 months in organisations evaluating LMS products.

- ▶ If you do not have existing domain knowledge you should seriously consider getting expert help.

The combination of the previous point regarding the probable lack of detailed existing expertise within the organisation together with the rate of change in the LMS and e-learning market, leads to significant risks in the selection and implementation of an LMS internally. Getting expert help will significantly *accelerate and de-risk* this process for you. Some considerations for identifying potential expert help:

- **make sure it really is expert.** There are many organisations now offering consulting in this area that have little or no significant experience themselves, having only recently formed their “e-learning consulting practice” or similar.

- **how independent is it?** The e-learning and LMS market place is very vendor-led. This means that many of the organisations providing advice relating to LMSs are themselves LMS vendors or they work with one specific product.

- ▶ What are your primary criteria in selecting an LMS?

It is common for selection processes to use a prioritised set of criteria when short-listing and making final decision on chosen approach. The nature and relative importance of the criteria will vary from organisation to organisation but will probably include consideration of the vendor organisation, implementation capabilities, fit to broader strategy (IT and learning), as well the obvious considerations of functional and technical fit.

- ▶ What is your approach to mapping functional requirements?

There are two primary models here – one is to do a detailed mapping of requirements and then determine different compliance against a detailed list, the second is to use a scenario-based approach. Performing a detailed functional mapping and evaluation process is the most comprehensive. It is however very time consuming and needs to be considered in the light of the considerations above.

- ▶ What timescales are you working to during the selection process?

LMS requirements and selection tends to be a reasonably long process, taking place over a period of at least 3 to 6 months. Obviously this depends on the scale of the system being considered and whether the LMS is part of a larger project – the bigger the overall system, the more complex the potential requirements (functional and/or technical), the longer the selection and planning process.

eLearnity offers a range of specific services to support clients during the process of selecting, planning and implementing an LMS. This includes executive workshops for LMS/Portal strategy, requirements workshops and studies, product selection and planning support, and implementation support. Visit our website at [www.elearnity.com](http://www.elearnity.com) or contact us on +44 (0) 207 917 1870 or by email at [info@elearnity.com](mailto:info@elearnity.com) to discuss further.

## Standards

E-learning, like almost every other technology-related issue these days, has a number of evolving standards relevant to any organisation looking to adhere to accepted practice. As the learning practices and technical environment are evolving at a very rapid pace, the standards are appearing and being updated on a continual basis. A summary of some of the key players is below.

### Key standards bodies

#### **AICC**

AICC, Aviation Industry CBT (Computer-Based Training) Committee, has been the most commonly referenced standard. The term “AICC compliant” referred to in many vendors’ material implies that the organisation meets one or more of the nine separate guidelines and recommendations, known as AGRs (AICC Guidelines and Recommendations) defined by AICC. Specific information on the individual AGRs can be found on [www.aicc.org](http://www.aicc.org)

#### **ADL**

ADL, Advanced Distributed Learning Initiative is a programme from the US Department of Defense and the White House Office of Science and Technology, to develop guidelines needed for large-scale development and implementation of efficient and effective distributed learning. It is a forum, which provides requirements input into the IMS specification process and is responsible for initiating the SCORM reference model (see details on SCORM further down this article). For more information on ADL see [www.adlnet.org](http://www.adlnet.org).

## **IEEE Learning Technology Standards Committee**

The IEEE is a worldwide professional association responsible for the publication of a large percentage of the literature in the electrical engineering, computer and control technology. The mission of the IEEE LTSC (Learning Technology Standards Committee) working groups is to develop technical standards, practices, and guides for software components, tools, technologies and design methods that facilitate the development, deployment, maintenance and interoperation of computer implementations of education and training components and systems. LTSC has been chartered by the IEEE Computer Society Standards Activity Board. For more information see [ltsc.ieee.org](http://ltsc.ieee.org)

## **IMS**

The IMS (Instructional Management Systems) project was started in 1997 and originally focused on higher education. More recently the IMS Global Learning Consortium Inc. has broadened its focus to a range of initiatives relating to standards for learning servers, learning content and enterprise integration of these capabilities. The outputs from the key sub-projects within the consortium, documented as specifications, include:

- ▶ The Learning Resource Meta-data Specification to create a uniform way to describe learning resources, so that they can be more easily found.
- ▶ The Enterprise Specification, aimed at administrative applications and services that need to share data about learners, courses, performance, and other parameters across multiple platforms and technologies.
- ▶ The Content Packaging Specification, looking at reusable content objects.
- ▶ The Question and Test Specification, which addresses the need to share items and assessment tools across different systems.
- ▶ The IMS Learner Information Specification, which investigates the organisation of learner information and data about learning producers, to facilitate interoperability between learner systems, including sharing information on categories such as activities, competencies, interests and qualifications.
- ▶ The Reusable Competencies Definition Information Model defines an information model for describing, referencing and exchanging definitions of competencies.

The IMS specifications are being used by a number of vendors as their baseline for current and future releases of their products. For more information see <http://www.imsproject.org>.

## Implementation of Standards

### **SCORM**

Now that the e-learning world is becoming more clearly defined, so are the key areas for standards definition. Many of the above groups work closely together on initiatives, a recent example being the development of SCORM (Sharable Content Object Reference Model). During 1998, the ADL (Advanced Distributed Learning initiative) group determined that a common framework was needed to pull together the various draft standards for Web-based learning being created at the time. Based mainly on the work of the AICC, IMS and IEEE, the first release of the SCORM common content model occurred in January 2000. A variety of organisations have been involved in its further development and testing, with release 1.1 appearing in January 2001. SCORM standards enable the reuse of content across multiple environments and products, and to support discovery and adaptive learning. It consists of XML (Extensible Markup Language)-based specifications to represent course structures, other technical specifications for the run-time environment, and those for meta-data records for content creation. There is also a suite of conformance test software for SCORM compliance. Further details can be obtained from <http://www.adlnet.org/Scorm/scorm.cfm>.

## LRN

LRN stands for Learning Resource iNterchange (pronounced “learn”), and is the Microsoft implementation of the IMS Content Packaging Specification. It consists of an XML-based schema and an LRN toolkit. It enables a standard method of description of content, making it easier to create, reuse and customise content objects with an XML editor, whether initially developed from scratch or bought under licence from vendors.

For more information see <http://www.microsoft.com/elearn>.

### Using Standards

Are these standards the “right” standards? As with any evolving environment, the value is in the fact that someone has put a stake in the ground and documented a standard approach. That approach needs to be fully tested by practitioners and developers. It is bound to evolve with feedback from those practitioners, and based on new ideas and capabilities in both the technology and learning sectors. Standards mean consistency, and having consistency is good for all those involved in e-learning.

If you are considering purchasing e-learning products, building interfaces between multiple products or designing and developing e-learning content, it is well worth reviewing the appropriate standards, and adopting them, or using modified subsets. It is also worth digging deeper to find out precisely what vendors mean when they claim that their product “works with xxxxx compliant products” or was designed based on a given standard. Their definition and your expectations may differ.

If you are interested in contributing to the standards of the future, then most of the standards groups are open to comments and suggestions on their standards; see the Web sites for more information.

## Learning Portals

Brandon Hall ([www.brandon-hall.com](http://www.brandon-hall.com)) refers to learning portals as:

**“..Web sites that provide a combination of courses, collaboration and community. Initially set up with e-commerce for the individual purchaser with a credit card.”**

This definition of a learning portal focuses largely on a public concept of a portal, with learners accessing an Internet site, registering and accessing learning at a personal level, and using their own payment mechanisms – e.g. credit cards. There are already many examples of this kind of Business to Consumer (B2C) learning portal in the market as well as in the Business to Business (B2B) market.

Whilst there are some historic examples of learning portals, most organisations have only recently started focusing on them and their potential to transform the way the learning services are accessed and delivered within a company. A ‘Learning Decisions’ survey from the Masie Centre, (February 2000), reported that approximately 12% of respondents were already using a learning portal, 22% building one, 32% investigating and 34% not yet “on the radar screen”. Clearly the balance in this survey was more on “will be” rather than “is”, but there is obvious interest and significant activity.

In many ways, learning-specific activity in the area of portal systems has been further accelerated by a general increase in corporate interest in portals as a mechanism to provide intranet (internally-focused network) access to corporate information and systems, and in the growth of self-service approaches to Human Resources. The broader discussion of learning portals needs to be set within this context.

To understand the role and desired functionality of the learning portal, it is important to understand the context of its use and what parts of the overall problem it is solving. To do this we need a way of positioning the role of the portal versus the role of other components of the solution.

## Types of Learning Portal

The core of a portal is probably an LMS, which will manage access to a course catalogue, registration and tracking. But additionally, a portal could also provide collaborative tools to support discussion forums, a corporate information centre, and content tools to create and manage specific content. The scope of the portal also determines the source and nature of the learning provider, and could mainly focus on classroom training or only web-based training; it could include internal courses or provide access to external courses from 3<sup>rd</sup> party providers. More likely, it will evolve over time and include all of these items.

Currently reviewing the market shows that there are two distinct types of portal – internal portals and external portals. Internal portals are private, organisation-specific environments. External portals are public environments accessed by many organisations.

### Internal Portals

An internal portal is generally available on the corporate Intranet, provides access to courses, forums etc. Although the scope of the portal may be limited to certain areas of training, generally we would expect the portal to be the single access point for all learning activity longer term. The implications of this statement are quite profound. As well as managing internal courses – classroom and online, the portal would also need to manage access, registration and tracking of all external learning events, particularly 3<sup>rd</sup> party training. The implication is therefore that the portal is not only a single access point for learners, but also a bridge or gateway to external training providers.

It is possible that an internal portal could be hosted externally via an external portal provider (see below). In this case a customised external portal is provided, including organisational-specific content in a secure environment, for confidentiality reasons. The external hosting will possibly limit the kind of private information on the portal, and could impose limitations on the integration into internal systems and information.

Whilst historically there may have been internal applications or course catalogues available, the corporate learning portal will probably be the first attempt to integrate all forms of learning – internal and external, face-to-face and online – into a single system. The potential benefits are therefore enormous.

### External Portals

External portals have been one of the major growth areas in the e-learning market. Many of the external portals currently “aggregate” course schedules for the purposes of supplying a single point of booking and confirmation. They may also provide access to discussion forums and other learning management services.

There are two main sub-types of external portal – public portals or external corporate portals. Public portals provide a set of learning services to either the general public or a managed community via the Internet. The learning offering could be from one, some or many providers, and generally commercial transactions will be on an individual basis using credit cards.

External corporate portals (or learning gateways) are contracted and provided on a company by company basis, and will be tailored for each individual organisation. As well as user interface tailoring such as corporate logos etc., they will also probably have company-specific preferences on services, training providers and commercial rules regarding purchasing and authorisation. External portals may provide access to a limited range of courses and providers, or may provide a service to nearly all providers. The latter option requires the portal provider to develop business relationships with all the providers covered, in order to make information available within the catalogues and take registration requests.

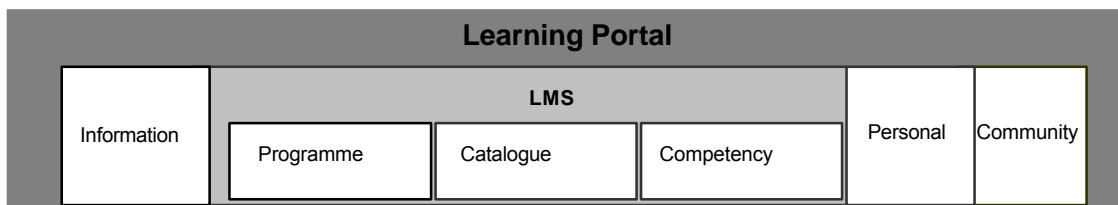
Whilst an implementation fee is likely to be charged for setting up the portal, the external portal provider's income is mainly driven by actual use of the portal for booking courses. Their business model is likely to be mainly based on transaction revenues rather than implementation services.

The key benefit of an external portal is a single point of management, billing and reporting and clearly the magnitude of this benefit is dependent on the degree of usage within the company. If an organisation adopts an external portal model for booking all training it should be able (for the first time probably), to get a single coherent view and control on its training spend. However, achieving this is more than a purchasing decision. It requires company-wide commitment that is often difficult, given the fragmented nature of the historic process for training purchasing.

## Functional Overview

In describing the functionality of a portal, we have to start making certain assumptions about the role and nature of it. Basically, there are far too many options and the market has not yet evolved to decide on a standard set of features. In this section, we will describe the principal components we would expect to be incorporated in a learning portal and review the functionality of each component.

A corporate learning portal, targeted for internal use might look as follows:



### Learning Portal - Functional Overview

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In outline terms, we would expect a corporate learning portal to include the following core components:

1. A Learning Management sub-system managing access, registration and tracking of learning programmes, course catalogues, competency frameworks and profiles
2. An information sub-system providing information on the learning services and organisation including the Corporate University (if appropriate)
3. A personal portal sub-system – or in current jargon a “MY.PORTAL” including personalised preferences, tracking and management
4. A Community sub-system managing communities of interest and practice associated with or facilitated by learning. (This could be managed elsewhere if an organisation has a strongly developed knowledge management focus and infrastructure).

Within these main functional areas we would expect to find the following more detailed functionality:

- ▶ Catalogue of courses and learning available
- ▶ Registration and enrolment services
- ▶ Personal activity and organisational tracking
- ▶ Personal profiling and information storage areas
- ▶ Learning forums
- ▶ Standards and procedures
- ▶ Instructional support
- ▶ Corporate information
- ▶ Online course/learning access
- ▶ Latest news and information

## Components of Learning Portals

If the LMS provides core functionality for management and administration, what are the other main components you would normally expect to find in a learning portal?

### Forums

One of the primary areas that differentiate portals from Learning Management Systems has been the addition of user forums and instructional services. Forums are used to provide generalised or subject specific support to individual learners, by giving them access to other students and instructors/tutors. Typically forums are asynchronous environments (students access them at different times to each other), with text-based discussions.

Whilst these forums clearly add some value to the learner in providing an environment for them to interact with other people, this approach to collaboration and instruction primarily reflects a CBT approach to learning. Here, the student essentially learns in a self-paced mode, accessing interactive learning content with the forum providing a support environment outside that content.

This model of collaboration and instruction/facilitation is limited and, in our view, is restricted to the basic skills transfer learning model. To be really effective, collaboration, instruction and facilitation need to be tightly integrated into the learning process itself, i.e. integrated into the content, not bolted on afterwards.

### Learning Information

An information system is nearly always a component of a learning portal because portals represent the online presence of the corporate learning services or corporate university. This means that the portal is in effect the internal web-site for the corporate learning provider and therefore many forms of additional information will need to be provided, such as news, announcements, policies and practices, contact information, details of physical facilities and so on.

By placing this information within the portal, corporate learning is maximising the opportunity of getting internal learners to access the portal – whether to find and access courses, or just to find out who to speak to regarding training.

### Personal Portal – MY.PORTAL

So far, most of the functionality described has been focused on learners collectively. A key innovation in the broader Internet portal market space enables us to potentially make it much more focused on the individual. This is the concept of personalising the portal, or as current internet jargon sometimes describes it, MY.PORTAL (my dot portal).

In a personal portal, the learner has the ability to configure or tailor the portal environment to their individual requirements. Normally the scope of such tailoring is fairly limited but it can still be important. Typical areas of tailoring could include:

- ▶ Presentation preferences – visual layout, language
- ▶ Personal tracking and reporting – standard information to be presented, tailored reports or tracking information
- ▶ Preferred options – providers and learning styles

Longer term we expect the importance of these kinds of capabilities to grow significantly, given the planned volume of courses, providers and delivery options. Personal portal functionality will greatly enhance the individual user experience and control.

## Implementing an LMS/Portal

The implementation of an LMS or Learning Portal can be a significant undertaking, with the cost of implementation often being between 30% and 70% of the overall cost of the project. It is important to consider this carefully during the product/vendor selection process and to understand the nature of your implementation project in detail.

As well as the technical deployment of the LMS, the systems needs to be customised and integrated with organisational specific requirements, and existing course and training data needs to be migrated into the new system. Administrators, support staff and managers needs to be trained in using and managing the system, and the learners trained in using the self-service components of it. Courses and programmes have to be put into the system and maintained on an ongoing basis. If external courses are involved, it needs to be interfaced to the external providers. If e-learning is used, the LMS needs to be integrated with e-learning delivery and content as appropriate. All the above needs to be planned and managed in detail, and the implementation process will involve people from different organisations – training and IT from within the company, implementation consultants from the LMS vendor or consulting provider, and consultants from e-learning content providers.

The following are some questions to consider for implementation:

- ▶ Does the vendor use a structured implementation methodology? Will it be a phased implementation or/and do they offer a pilot programme? What is the target deployment model? What is the target technology infrastructure? How might usage develop in the future? What are the scalability issues?
- ▶ The success of a new e-learning solution is down to the buy-in and support from the user community. What transitioning programmes are offered and to whom? What pre- and post-implementation support is offered and for how long? Will the support cover the marketing activity through to launch?
- ▶ Integrating at the back-end with the ERP or HR system is an obvious requirement as they are ultimate owners of personnel related data. Does the vendor have the capability to tailor their product to include functional or process customisation to reflect your business processes and organisation? Do they have the capability to perform user interface customisation, branding and integration?

Successfully implementing an LMS or learning portal is about much more than installing and configuring the products. This will probably be the most significant IT project to affect the training function and also involves considerable changes in the business process, administration and management.

## Implementation Success Factors

Implementing an LMS, particularly in a large organisation can be a major undertaking. Many large LMS projects fail to deliver their anticipated benefits and some even fail to be fully implemented. This section summarises and reviews some of the key issues that help determine successful LMS projects. “LMS” will be used as a generic term to cover the whole spectrum of learning management solutions, as the critical success factors in a project are not highly dependent on any specific solution.

The core points are:

- ▶ An “LMS” is not a single type of product but an aggregation of many very different types of product sharing some common functionality and purpose. Choosing the right one is critical.
- ▶ The LMS is the fundamental component providing access to, integrating and managing all forms of learning (classroom, online, self-paced etc.) across the company.
- ▶ Training and learning includes both internally and externally delivered components. The system needs to be capable of managing access to both internal and external courses and their administration.
- ▶ LMS Projects are both Training/HR projects and IT projects. The two departments traditionally haven't exactly been the closest of buddies.
- ▶ LMS Projects are big, complex projects that can easily go wrong.
- ▶ A successful LMS project is more than implementing a software product. It will involve a major change in the way that training and learning is accessed, administered, and managed. This change needs to be managed.

### Integrated Learning Management

E-learning seems to be proving the death knell of many traditional training management systems used in companies. They were simply not designed to manage e-learning. In implementing an LMS/Portal, it is important to remember the requirement to integrate many types of learning, not just one form – be it classroom or e-learning. “Integrate” is an interesting word in LMS land. It tends to get translated into “pass personnel and training data to my ERP/HR system” and “load in AICC-compliant content”. It needs to include a lot more, including integrating with ERP or HR systems and with learning delivery systems.

### Internal and External Learning Provision

Having said we need to manage all forms of learning, where is that learning coming from? If we look at the historical role of most training management systems, it has been to manage the internal training function. External training, while it may be tracked, tends to be outside the scope, as the course data and registration processes are handled by the vendor. Purely from a financial tracking point of view, if a large percentage of your training budget is spent on external training, it should be integrated to provide one single point of management and control.

### Training and IT

This next point is more of a warning. Historically in most companies IT and Training haven't exactly been the best of bed-fellows. Training has tended to be fairly low on the corporate IT agenda, and in response Training has tended to be under-supported and over-willing to work outside normal corporate IT rules. Sometimes the interface between the two can be a little fraught. The fact is that LMS projects are core training projects and core IT projects. Both sides have little understanding of the other's requirements and

both sides have to work closely for these projects to work. Liaison is critical, and having a strong cross-understanding or making use of independent expertise can significantly de-risk the project.

### Big and Complex

LMSs are the key business process systems for the learning environment. Large LMS projects are very expensive, with as much or more spent on implementation services as on the underlying software applications. Enterprise-wide projects also bring other problems in terms of scale of infrastructure, in particular the need to manage a distributed infrastructure. The idea of having a single big web server that everyone accesses is desirable but becomes difficult with a large complex infrastructure. Often the intranet is not globally accessible, or geared up to handle many people downloading or accessing media-rich learning objects. Content may have to be managed in multiple places.

Customisation is also a big issue. The more of these kinds of projects we've been involved in, the more we realise that what comes out of the box is not what is really needed, however good the face-value fit. The degree and nature of customisability of LMS products varies enormously. Whilst the web user interface for users is usually fairly easy to change, underlying processes and business rules aren't. Stepping into heavy customisation can be a bit like stepping off a precipice, going into free-fall and wondering if you might hit the bottom at all! Customisation to fit is critical, but it is easy to get carried away or to take the approach that everything has to fit your existing requirements, even when current practices aren't that well suited to what you will need to do in the future. Make it fit, but keep it simple.

### Managing the Change

Finally, like any major project, especially one that is changing the core processes and systems of how something works, an LMS project has significant impact in terms of managing the transition and change. It is easy to focus on the technical aspects of the implementation project, but people's roles are going to change fundamentally and that change needs to be managed. Installing the system is one thing. Using it is another.

## Developing an LMS/Portal Strategy

In developing an LMS or Learning Portal strategy we need to answer some key questions. The following is intended, as a process to help ensure the strategy will be successful. Like all such processes, the devil is really in the detail and we would recommend using expert support and advice.

### Scope and purpose

What is the role and scope of the portal? Is it for an internal or external audience? What learning services are included? What is excluded? Will it cover all areas immediately? Will it include internal or external courses or both? If external, how does it link to the provider? Who manages the information within the system? Who administers the system – business and technical? What other systems will it link to?

### Strategic Learning Delivery Requirements

What modes of learning delivery are supported? Face-to-face, classroom, online, self-paced, CBT, forums? Is it a learning programme or course based or both? How do programmes integrate component courses? Do learners register for programmes or courses or both? What is the role of competencies? What is the role of certification?

### Working with External Learning Providers

If the scope includes external courses and programmes: How is the course and programme information integrated with the provider? How is the registration process integrated? What providers are included or excluded? How are commercial aspects controlled? What security is required on the site? What can the

external providers see on the portal (if anything)? Do you need an external learning gateway? How would this integrate into internal courses/programmes?

### Defining Detailed Portal and LMS Requirements

The learning portal is going to be a moving target in terms of requirements, and therefore structure your requirements in a phased way. What are the priorities and core initial requirements? What are the stages of deployment through which you achieve incremental value? What is the long-term vision for the portal? What are the learning and technology blind alleys that need to be avoided?

This is not just a simple exercise but a detailed project planning process requiring many key people from the business to contribute to the requirements. Gaining input from various areas of the organisation will not only add value but also commitment to the process.

## Future Directions

The demand for authoring tools, content management systems, knowledge management systems, and Learning Management Systems all rolled into one 'superior' product, is currently the latest talking point within the e-learning arena. The latest variations under discussion are "Learning Content Management Systems", "Human Capital Management Systems" and "Total Knowledge Management Systems".

## Learning Content Management System

Learning content management systems (LCMS) is the new acronym being used to describe the latest requirement in the learning marketplace. An LCMS is a combination of typical LMS features such as administration, management and tracking with the additional ability to implement a standards-based learning object structure, incorporating the storage, controls and methodology.

Mergers and transitions are rampant in this area with the latest announcement of Saba and WBT Manager partnering, and Click2Learn and Intelliprep Technologies Inc. to enable creation of a new hybrid 'LCMS'.

Additional vendors moving into this space are:

1. Vuepoint
2. Knowledge Mechanics
3. LearningByte International
4. MindLever

## Human Capital Management Systems

The evolution of learning management capabilities combined together with competency management and performance management has led to a new breed of products coming under the banner of Human Capital Management Systems (HCMS). One leading vendor who has made this shift is Saba, moving away from its traditional LMS base to provide functionality covering the management of learning, competency and performance.

This is a new segment and brings together high-end LMS functionality with e-HR functionality into a single product or suite of products. Whilst this differentiates such a product more significantly from more standard LMS products, it increases the overlap in the HR and ERP arena and will probably lead to greater competition with Peoplesoft, SAP and Oracle in particular.

## Total Knowledge Management Systems

Another new contender in this arena is the Total Knowledge Management System (TKMS). This is being described as a combination of learning, knowledge and content enterprise functionality in one fully integrated solution. Generation21, Learning Systems and KView Inc. have recently formed an alliance to be able to offer this type of solution.

A TKMS enables an organisation to take control of how and what is distributed to their employees, customers and partners, using the knowledge and intellectual capital throughout the organisation. The directional change in viewing intellectual capital as a key asset of the business is resulting in learning being viewed much more strategically.

## Appendix A - About eLearnity

### About eLearnity

eLearnity is the UK's leading independent e-learning consultancy.

### Company Background

eLearnity is a specialist in integrated e-learning solutions. We have developed an in-depth understanding of the e-learning market place and our team has a strong track record in successful corporate and academic implementations. We trace our e-learning roots back to 1996 when our founder David Wilson started a specialist e-learning consultancy.

eLearnity provides in-depth skills and understanding of e-learning strategies together with a complete range of implementation services including project management, course design and development, technical customisation and integration, and implementation support. eLearnity works with a range of market-leading vendors including suppliers of Learning Management Systems such as THINQ, Docent, Click2Learn, and Saba, and e-learning delivery technologies from Centra, Lotus, Macromedia, Microsoft and others.

Customers include Pfizer, Gartner Group, PricewaterhouseCoopers, IBM, Deutsche Bank, Henley Management College, Lotus Development and many more.

### About the Authors

#### **David Wilson, Managing Director**

David founded eLearnity in 1996, and the specialist Lotus LearningSpace Company, LearningConnect, in 1997. Prior to this, David was the Principal Consultant for the Groupware and Internet businesses of QA Training, the largest independent IT training company in the UK. As part of this role, David sat on Lotus's world-wide Education Advisory Council.

#### **Carole Laithwaite**

Carole is a Senior Learning Development Consultant within eLearnity responsible for the project management of large-scale implementations of Learning Management Systems and the development of an in house e-learning methodology. Prior to joining eLearnity, Carole worked for Galileo International. Her roles included managing the implementation of systems into new markets and Team Leader for the global Training and Development team.

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