eLearning

Research and Review…

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Objective

1. What is eLearning

2. Learning Technology Ecosystem

3. eLearning Standards

4. Choosing a eLearning Platform

1. What is eLearning

eLearning is the use of computers using server based software system to create and deliver educational material to customer , prospects, employees and students.
So it is about new blend of resources, interactivity, performance, support and structured learning activities.

Key Benefits

- Any where , any time Learning.
- Maximize efficiency and reducing complexity by providing common access point for content.
- It manages the delivery and tracking of courses, manages critical points like safety issues, operating procedure , environmental standards.

1. • What is eLearning

Categories of Learning Delivery.

1. **Learner Led:** Asynchronous On- Demand Learning.
2. **Instructor – led:** Content is presented by instructor Live or Virtually.
3. **Embedded:** Included performance through Just in Time help.
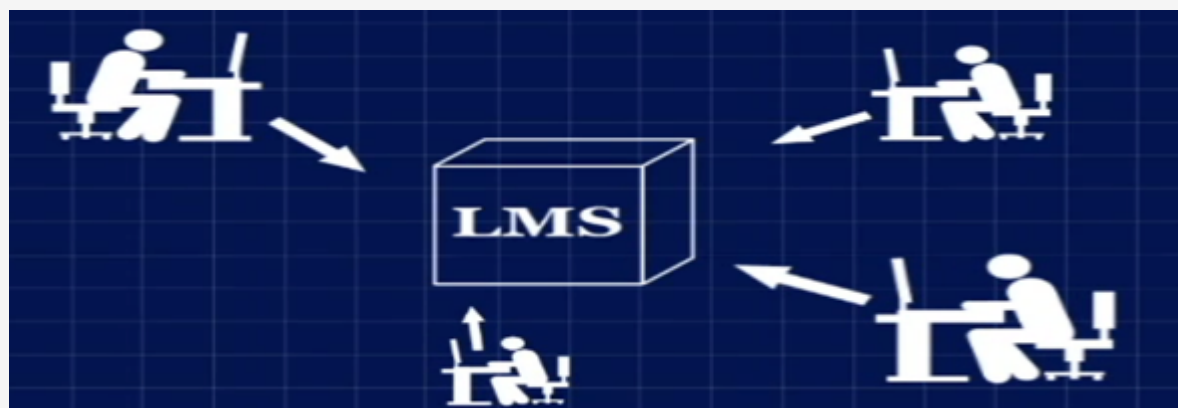
MIT OCW

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1. • What is eLearning

Live (synchronous) — **(asynchronous) On Demand**

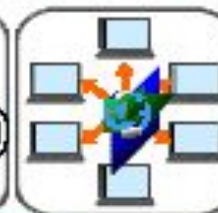| Face to Face Classroom	Live Online	Coaching	Collaboration & Community	Multimedia	Web-Based Learning	Performance Support
■ Physical Classroom ■ Field Trips ■ Lab	■ Virtual Classroom ■ Webinar	■ Coaching ■ Mentoring	■ Portal Site ■ Blog ■ Wiki ■ Chat ■ IM ■ Threaded Discussion ■ VoIP	■ Video Streaming ■ Podcasts ■ Distance Learning ■ CD-ROM/ DVD	■ Internet/ Intranet ■ Self-paced Tutorials ■ Simulation ■ Games	■ Knowledge Management ■ Workflow Automation ■ Performance Support ■ Mobile & Wireless

2. Learning Technology Ecosystem

Content/ Course Admin

Web Apps/ Web Media

Testing

User/Browser

Internet

Courseware.

- Course
- Unit
- Module
- Asset

Tracking (Data Management)

Reporting

Profile/Registration (People, Rosters)

- Content Format/ Packages
- Protocols
- Data Files
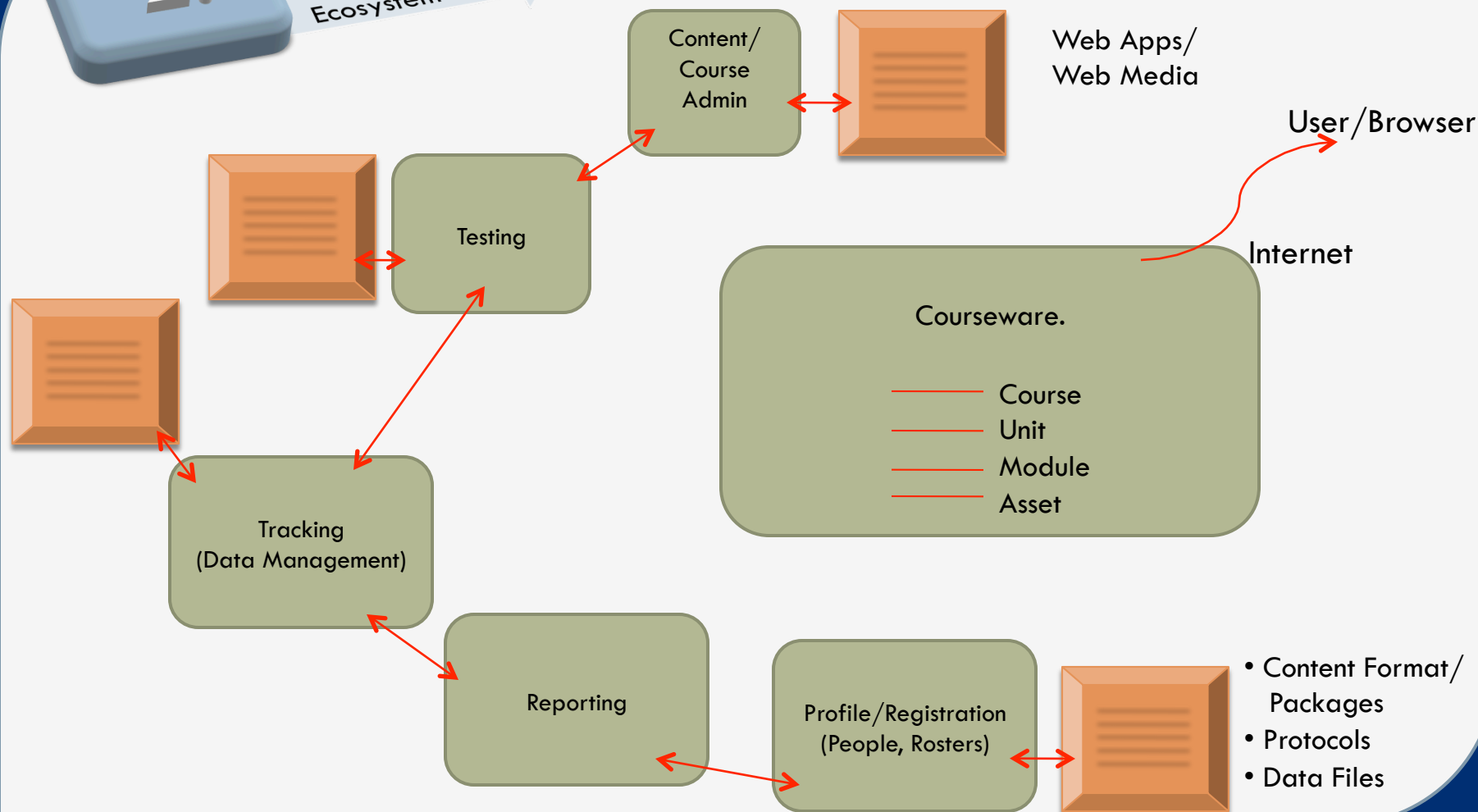
3. eLearning Standards

Why Standards

1. To enable interoperability on different platform.
2. Protection of investment on content development.
3. Exchange of content locally and globally.
4. Simplify integration and focus competition.
5. Reduce cost & create market for buyers and sellers.

3. • eLearning Standards

There are number of organizations working to develop eLearning standards

AICC - http:// www.aicc.org/
Focuses on standards for airline training e.g. tests, lessons, modules etc.

ADL - http:// www.adlnet.gov/
- US Federal government initiative.
- Development of SCORM.

IEEE LTSC - http:// www.ieeeltsc.org/
Accredits the standards for US that emerges from the other groups.

EDUCAUSE Institutional Management System (IMS)
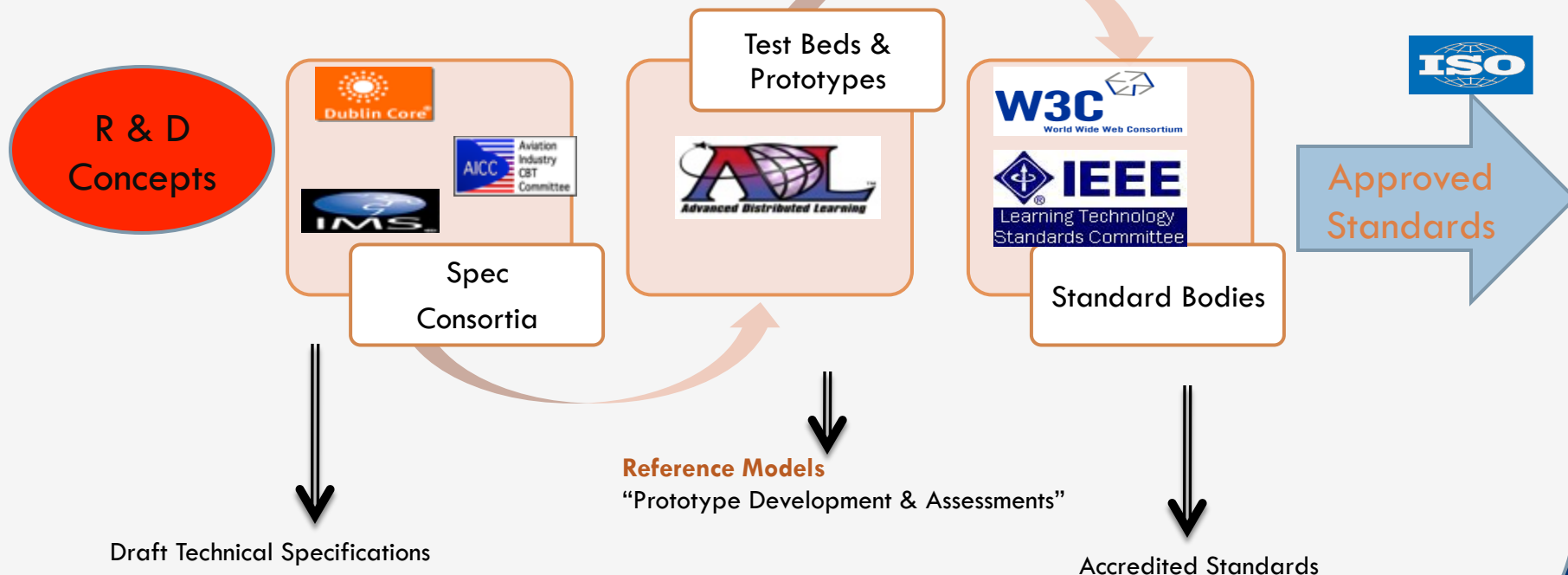http:// www.imsglobal.org/
• Vendor group working to build standards for eLearning based on work of AICC

3. eLearning Standards

How Standards Evolve

R & D Concepts

Spec Consortia

Test Beds & Prototypes

Standard Bodies

Approved Standards

Draft Technical Specifications

Reference Models
"Prototype Development & Assessments"

Accredited Standards

3. eLearning Standards

Introduction to ADL

Founded in 1997 to standardize and modernize training and education delivery for U.S. Dept. of Defense (DoD)

- Develop & implement learning technologies across DoD and the federal government.
- Collaborate with government, industry and academia to promote international specifications and standards for designing and delivering learning content.

3. • eLearning Standards

ADL's High level Requirement

1. **Accessibility.** Ability to locate and access instructional component from multiple locations and deliver them to other locations.
2. **Interoperability.** Ability to take instructional component developed in one system and use them in another system.
3. **Durability.** Ability to withstand technology changes over time without costly redesign, reconfiguration or recoding.
4. **Reusability.** Ability to to use instructional component in multiple applications, courses and contexts.

3. • eLearning Standards

SCORM – Shareable Content Object Reference Model

1. **Content Aggregation ->** Way of aggregating or collecting group of resources that are necessary for delivering a learning trading or assessment experience.

3. **Run Time Environment. ->** How do we send Data from Lerning Content to LMS, between two LMS, between testing system and reporting system.

3. **Sequencing and Navigation.->** Defines how do we sequence the course on the learner based interaction with the course.

3. eLearning Standards

SCORM Content Aggregation

For content developers, the biggest question is often **"How do I make my existing e-learning content SCORM conformant ?"**

Content is generally compatible with SCORM if:

- It can be delivered via a web browser
- It can be self-contained (i.e. packaged with all dependencies wholly in a ZIP file)
- It does NOT depend on server-side scripting languages (such as JSP, ASP and PHP)
- It does NOT depend on external files or external URLs

General steps for making e-learning content SCORM conformant:

- Ensure content meets SCORM compatibility requirements (above)
- Organize all content files (including dependencies) into a single directory structure
- Define and describe the content using an XML manifest file as described by SCORM
- Package all the content and necessary files into a ZIP file

3. • eLearning Standards

SCORM Content Aggregation

Key Terms:

1. **Content Packages**
2. *Manifest File*
3. **Resources**
4. **Organizations.**
5. *Meta Data.*
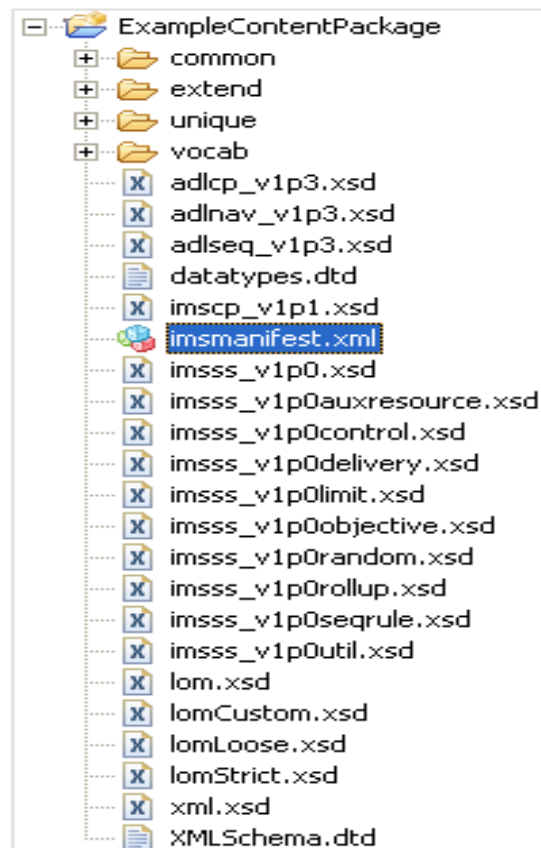6. **Shareable Content Objects(SCOs)**

3. • eLearning Standards

SCORM Content Aggregation

1. Content Packages

- XML manifest file (imsmanifest.xml)
- All schema/definition (.xsd and .dtd) files referenced by the manifest file
- All resource files used by the content package and its learning activities

3. eLearning Standards

SCORM Content Aggregation

2. Manifest File.

SCORM content packages contain an XML manifest file that describes the package and its contents. The manifest file is a structured inventory of the content of the package. The name of the manifest file is always **imsmanifest.xml** and it must appear in the root of the content package.

3. Resources

Resources come in two flavors: *Assets* and *Shareable Content Objects* (SCOs).
An asset is a simple resource, such as a static HTML page or a PDF document, or collection of files, such as images and a style-sheet, which does not make use of the run-time API defined by SCORM. Therefore, an asset does not communicate with the run-time environment delivering it.
A shareable content object (SCO) is a resource that communicates with the delivering run-time environment via the SCORM run-time API.

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SCORM Content Aggregation

4. Organizations.

A content package can define one or more organizations that describe how the resources are logically organized into a learning experience. An organization defines a hierarchical **activity tree**.

5. Meta Data.

Metadata can be used to describe elements of a content package in its manifest file. Metadata allows learning resources to be found when stored in a content package or in a repository. When a learning resource is intended to be reusable, it is a best practice to describe it with metadata. Describing learning objects with metadata facilitates their search and discovery across systems.

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SCORM Content Aggregation

6. Shareable Content Objects(SCOs)

A Shareable Content Object (SCO) is a launchable learning object (resource) that communicates with the run-time environment that launched it. A SCO must be designed so that it can be launched in a standalone web window or in a frame in an HTML frameset.

A SCO is special, because, when launched for a learner in the learner's web browser, it will communicate information back to the LMS that launched it, often a remote server. This communication allows the LMS to track information pertaining to the learner's experience.

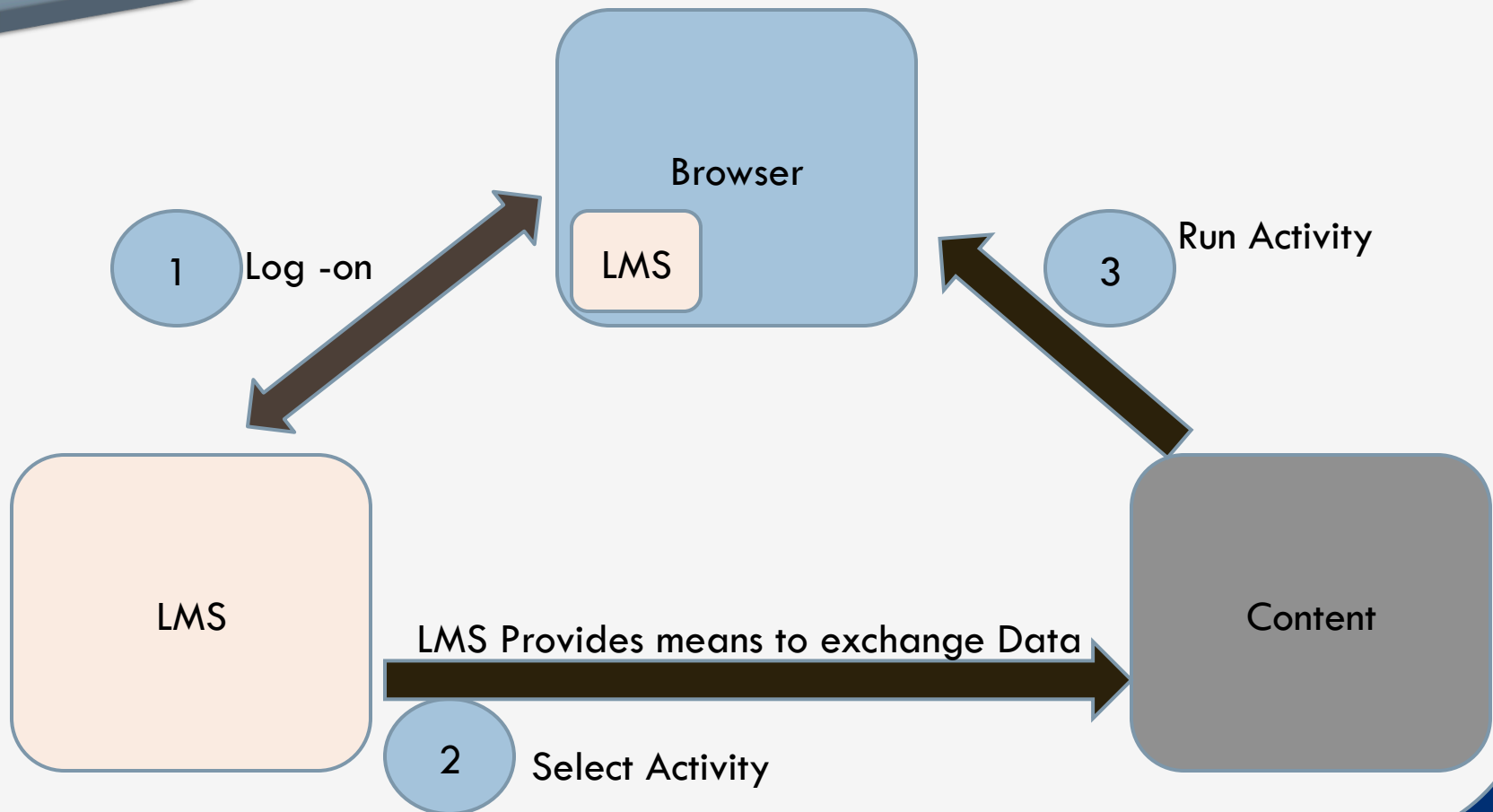**3.** eLearning Standards

SCORM Run Time Environment

The SCORM Run-Time Environment (RTE) handles requirements for launching content objects, establishing communication between learning management systems (LMSs) and shareable content objects (SCOs), and managing the tracking information that can be communicated between SCOs and LMSs. It basically defines three things

- Launching Content Object
- Run Time API
- Run Time Data Model

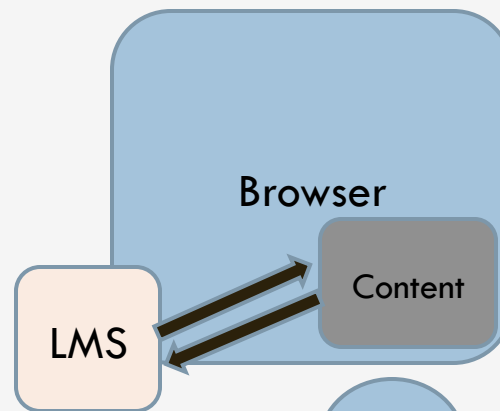NEUROSURGERY EDUCATION AND TRAINING SCHOOL

Department of Neurosurgery

All India Institute of Medical Sciences, New Delhi, India

3. eLearning Standards

LMS Activity Run Time Cycle

Browser

LMS

1 Log -on

3 Run Activity

LMS

Content

LMS Provides means to exchange Data

2 Select Activity

3. eLearning Standards

LMS Activity Run Time Cycle

Browser

LMS

Content

4 Run Time Communication

LMS

Content

3. eLearning Standards

Sequencing and Navigation

SCORM Sequencing.

SCORM Sequencing defines the behaviors and data model used by the SCORM run-time environment to determine how a content package will be delivered as a learning experience. It defines the functionality that a SCORM-conformant LMS must implement to process sequencing information at run-time based on learner interaction with content objects.

SCORM Sequencing depends on the following concepts:

- An activity tree representation of learning activities
- The Sequencing Definition Model
- The Sequencing Behaviors

SCORM Navigation

SCORM Navigation defines how learning and system-initiated navigation events are triggered and processed, resulting in the identification of learning activity for delivery. Navigation is the process by which a learner and an LMS cooperate to identify navigation requests to realize a learning experience.

4. Choosing eLearning Platform
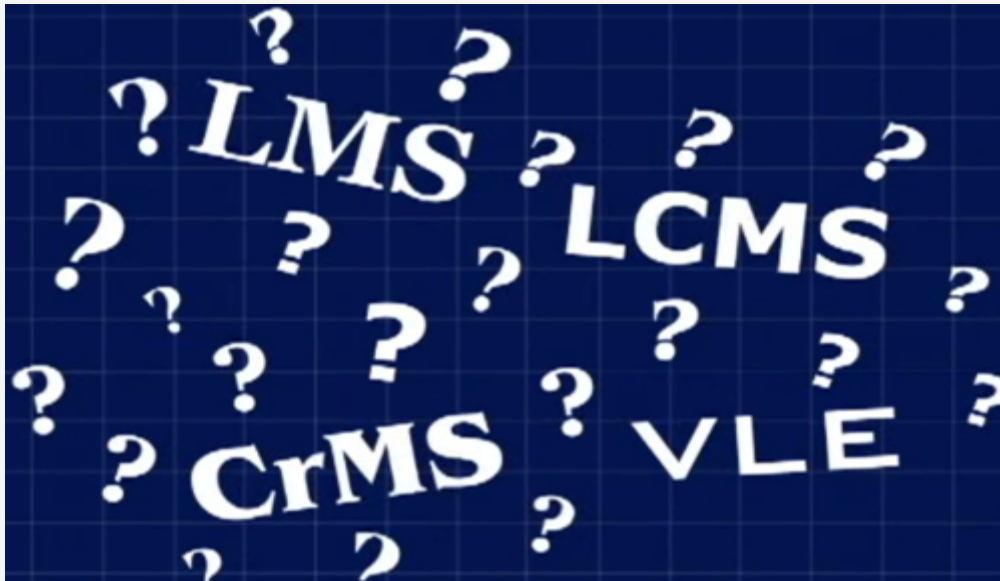
Basic Definition

LMS – Learning Management System

LCMS – Learning Content Management System

CrMs – Course Management System

VLE – Virtual Learning Environment.

4. Choosing eLearning Platform

Basic Definition

Category	Primary Function	Used By
LMS	A system primarily designed to manage & deliver asynchronous e-learning	Business & Government
LCMS	Content Authoring + delivery asynchronous Learning.	Business & Government
CrMS	Manage all aspects of live instructor led classroom training	Higher Education
VLE	Virtual Business meeting & Collaboration	Formal Education Environment.

4. Choosing eLearning Platform

Choosing a eLearning Platform for Specialized medical/ Surgical field

High level requirement for Patient Education.

- Need for the **content authoring** tool for transforming DICOM images into SCORM conformant eLearning content for online Diagnosis of patient.
- Patient profile management with complete Diagnosis report.
- Interaction with Patient using Web Conferencing, Wikis, IM and discussion forums.

4. Choosing eLearning Platform

Step – 1
Choosing a eLearning Platform for Specialized medical/ Surgical field

High level requirement for Neurosurgery Education.

- Content Authoring tools for development of eLearning content related to Virtual Medical Simulations(VMS).
- Centralized Repository.
- Knowledge Centre.
- Administration.
- Course Management.
- Facility for Providing Webinars and Live exam.
- News Forum.
- Profile Management.
- Mobile Portability.
- Grading & Testing.

4. Choosing eLearning Platform

Step – 2
Creating System Matrix

	DICOM in LMS	Patient + Student Profile Management	Knowledge Centre (Wiki)	Web Conferencing	Assessment + Tracking	Security + Authentication	Interaction	Portability On Mobile	Mailing	Integration With CMS
Product Name	(Weighting Factor)									
Moodle										
Sakai										
eFront										
ATutor										
Docebo LMS										
OLAT										

3. eLearning Standards

Thank You