

4

Tools of the Trade

Newcomers to the world of e-learning can easily be overwhelmed by all the technology decisions they have to make, the number of choices available, and the terminology they may not be familiar with. This chapter will help you understand what tools you may need to acquire to create or manage an e-learning program.

You will learn about tools that help you:

- Build your courses as a whole (authoring tools)
- Build individual elements to be included in your course (element tools)
- Create and deliver a webcast (webcasting tools)
- Build a virtual classroom environment (virtual classroom tools)
- Track and manage your learning and training information (LMS and other information management tools)

This information works in conjunction with information in other chapters. Chapter 5, covering the analysis phase, will help you understand what sort of hardware and software needs your company has. Chapters 6 and 7, discussing the design phase of the project, will help you determine what specific features you want to incorporate into your courses. Making these decisions will help you know what the best tools are to meet your needs.

Authoring Tools

What is an authoring tool? Definitions may vary some based on who you ask. For the purposes of this book, an authoring tool is the software you use to assemble the course as a whole. It is the tool you would use to place all your course elements (text, graphics, questions, etc.) and turn individual screens into a complete course (pages, navigation, menus, buttons, etc.).

An authoring tool is the software you use to assemble the course as a whole.

Authoring tools have a variety of different features, come in a wide variety of prices, and require different levels of skill. Some tools are very simple to use with templates, wizards, and features that work just like common business software such as Word or PowerPoint. Other tools allow for greater design flexibility but are more difficult to learn – some even requiring programming knowledge.

Selecting the right tool involves consideration of the price, the level of skill of your users, and the features you want to include in your course.

Classifications of Authoring Tools

Web Authoring

An e-learning course can be considered a type of website or web page. Because of this, any tool that can be used to create a website can be used to create an e-learning course – even if the course will be delivered on CD instead of over the Internet.

Web authoring tools can be a good choice because they are widely used. This means it is easy to find training on how to use the software and easy to find team members who already have the needed skills. You may even have people in your company already (such as in the I.T. or marketing departments) who know how to use the software. The web authoring tool marketplace is also more stable. This means that the most widely used products have been around for a while and aren't likely to go away.

The disadvantage of web authoring tools is that they are not designed specifically for e-learning. Therefore many of the course elements have to be custom built, or you would need to buy third-party software to get around this issue and build some of the course structure for you.

HTML Editors

An HTML editor is a software package that allows you to build HTML pages either by creating the code yourself, or by designing the pages visually and allowing the software to create the code behind-the-scenes for you. The two most common HTML editors on the market are **Microsoft's FrontPage** and **Macromedia's Dreamweaver**.

Courses created with an HTML editor tend to be low-bandwidth, easy to update, and very compatible on different operating platforms. In addition, web programmers can use programming languages (such as Java or JavaScript) to create advanced features.

Media and Application Tools

For more advanced interactivity and media, you could consider using more advanced web applications such as **Macromedia's Flash** and **Director**. These programs are designed to create slick visual presentations and are even used to build new software programs. The capabilities are almost endless, but the learning curve is extensive. Flash is generally used more for web applications, websites, and e-learning and Director is generally used more for multi-media presentations on CD, DVD, or interactive kiosks.

Course Authoring – Advanced

There are many authoring tools on the market today that were specifically designed to create e-learning courses and that have great design flexibility. The advantage is that you can create your course with whatever features you want. The disadvantages are that you have to assemble everything yourself and may need to add your own programming to make it happen, the learning curve is steep, and it may take longer to assemble a course in this type of software than with a template-based system.

This class of products is best when you need full design flexibility and have a dedicated authoring team who is prepared for the learning curve. Tools in this category include **Macromedia's Authorware**, **SumTotal's ToolBook**, and **Allen Communication's Quest**.

Course Authoring – End User

Years ago, you had to have programming skills to create any sort of computer-based training. However, there are now more and more tools that are built for the non-techie. These systems are often template- or form-based and very easy for someone to learn and use.

These tools, such as **Trivantis' Lectora Publisher**, **EduPerformance's Tactic!**, and **ReadyGo's Web Course Builder**, are easy to learn and use. They can be used in a rapid development environment, when you don't have dedicated programmers on staff, and especially when you want subject matter experts to help build the content.

The downside of such tools is that you are locked into the features that come with the software and may not get every feature you want.

PowerPoint Conversion Tools

A new generation of tools is appearing that will automatically convert documents created in traditional desktop software such as Microsoft's Word or PowerPoint into an online course. Many of the software packages listed in the previous sections have the ability to import content from these programs, but there are also tools that allow you to author 100% in Word or PowerPoint.

Some of these conversion tools simply convert the PowerPoint document to a Flash file or other web-enabled format. While this doesn't make for very interactive learning, converting the file to Flash makes it a much smaller file and makes it accessible to more people (since 98% of computer users already have the Flash plug-in). Examples include **Impatica's Impatica for PowerPoint**, **Presentation Pro's PowerConverter**, and **Quarbon's Viewlet Presenter**.

Other conversion tools allow you to add e-learning elements such as quizzing and tracking. Often this is done with an additional menu added to your PowerPoint software with all the e-learning and conversion features. One example is **Articulate Global's Articulate Presenter**.

These tools allow for the shortest learning curve and development time, and allow any number of end users to create content. The downside is that the final product may really take more the form of an online presentation than online learning.

Features of Authoring Tools

Chapters 6 and 7 will help you make decisions about what features you want to build into your courses. One constraint on those decisions will be what your authoring tool can do. Figure 4.1 is a list of many possible features that might be included in an authoring tool. Use it to create your wish list, to help you create an RFP, to compare and rank similar products, or to make design decisions.

Checklist Terminology

SCORM/AICC – Interoperability standards that ensure e-learning products work together. For example, a SCORM-compliant course should successfully send data to a SCORM-compliant LMS. SCORM and AICC are two different standards that aim to accomplish the same thing.

Section 508 – A federal law for accessibility of electronic communications to people with disabilities. If a course is Section 508 compliant, it meets the guidelines for people with visual, auditory, or motor disabilities.

Packaged vs. Hosted – Packaged software is software that you purchase, install, and can use as much as you want. Microsoft Word is an example of packaged software. Hosted (or ASP) software is hosted by the vendor and you pay for access to it for a set period of time. There may also be fees to access it. America Online is an example of hosted software.

Figure 4.1 Course Authoring Tool Checklist

Feature	Importance	Tool 1:	Tool 2:
General			
Name of Company			
Website			
Access to Demo			
Packaged or Hosted			
Purchase Price			
Other Fees			
Training Provided			
Support Provided			
Can be Bought Alone (not with LMS)			
<u>Company Information</u>			
Years in business			
# of clients			
Year this tool was released			
Year this version was released			
Media			
<u>Audio</u>			
Accepts audio files (which formats?)			
Player(s) used to play audio			
User can turn audio on/off			
Lets you record audio			
Lets you edit audio			
Lets you compress audio			
Has audio clip library (music, effects)			
<u>Video</u>			
Accepts video files (which formats?)			
Player(s) used to play video			
<u>Graphics</u>			
File types accepted			
Can crop graphics on-screen			

Feature	Importance	Tool 1:	Tool 2:
Can re-size graphics on-screen			
Can add alt-tags to graphics			
Tool to create graphics			
Tool to edit graphics			
Comes with clip-art library			
<u>Other</u>			
Built-in static screen capture tool			
Built-in computer simulation tool			
Built-in animation features			
Other built-in tools			
Accepts Flash files			
<u>Questions</u>			
<u>Question Types</u>			
Multiple choice – single correct answer			
Multiple choice – multiple correct answer			
True/False			
Matching			
Drag-and-drop			
Label a diagram			
Put things in order			
Click somewhere on a graphic			
Fill-in-the-blank (single correct option)			
Fill-in-the-blank (multiple correct options)			
Likert scales (surveys)			
Games, puzzles, etc.			
Short answer			
Essay			
<u>Quiz Placement</u>			
Embedded throughout course			
Course pre-test			
Module pre-test			
Course post-test			
Module post-test			
<u>Randomization</u>			
Pull from randomized bank of questions			
Randomized bank pulls one question per objective			
Order of questions randomized			
Order of options randomized			
<u>Remediation</u>			
Custom remediation per question			
Custom remediation per option			
Wrong answer takes you back to learning page			
Suggests areas to study again			
Can include a hint			
Course branches based on response			
Remediation can be immediate (per screen)			

Feature	Importance	Tool 1:	Tool 2:
Remediation can be delayed (per course)			
Remediation can be turned off			
<u>Question options</u>			
Allows graphics on question screens			
Can designate number of attempts allowed			
Questions linked to objectives			
Questions can be given a weight			
Customizable pass percentage			
Partial credit for questions			
Timed quizzes			
Course Structure and Design			
<u>Industry Standards</u>			
AICC compliant			
IMS compliant			
SCORM compliant			
Section 508 compliant			
LMSs integrated with successfully in the past			
<u>Navigation</u>			
Forced navigation possible			
Flexible navigation possible			
Forced navigation for first pass through with flexible navigation after course is finished			
Pre-test with test-out capability			
Pre-test with custom learning path			
Custom learning paths based on log-in			
Require screen to be finished before advancing			
Number of outline levels per course (course, module, lesson, page, etc.)			
<u>Interface Design</u>			
Customizable screen size			
User-selected full media vs. text-only option			
Course menu always available			
Heading includes course/module title			
Interface templates available			
Supports foreign character sets			
<u>Output Options</u>			
Proprietary players required			
Standard players required for no-media version			
Output to web			
Output to CD			
Output to print			
Output to hand-held			
Output to other formats			
Typical files size per page/per course			
Can play on Mac, PC, Unix, others			
Can play on I.E., Netscape, others			
<u>Course Features</u>			

Feature	Importance	Tool 1:	Tool 2:
Bookmarking – automatic/user defined			
Glossary			
FAQ page			
Documents page (pdfs, etc.)			
Screen counter			
Notes page			
Print			
Help			
Send e-mail to designated mentor			
Course evaluation			
Search tool			
Hyperlinks (within course, to Web, to documents)			
Screen Layout			
Use of formatting styles			
Multiple template options			
Roll-over screen templates			
Pop-up screen templates			
Create your own templates			
Development Process & Tools			
Storyboarding tools			
Import content from Word			
Import content from PowerPoint			
Import content from other formats			
Supports learning objects			
On-screen editing and change tracking			
Version control/check-out process			
Other collaborative development features			
Spell check			
File management			
Ability to custom program with standard programming languages (JavaScript, etc.)			
Software available in different languages			
Component library to house course elements used frequently			
Error checker/de-bugging feature			
Utility to help upload files to server			
Intangibles			
Easy to learn			
Easy to use			
Flexible			
Finished courses look professional			
Technology Requirements			
Server Requirements			
Developer Requirements			
User Requirements			

Element Tools

While an authoring tool helps you assemble your course as a whole, you may also need additional tools to help you with individual elements of the course. These elements can then be pasted or imported into your authoring tool. In some cases, your authoring tool may have the capability to create these elements and you wouldn't need a separate tool.

Graphics

At a minimum, you will want the ability to crop and re-size graphics. Many authoring tools have this capability, but some do not. For the more ambitious, you may want the ability to edit or create graphics yourself.

Photo Editing Software

In addition to cropping and re-sizing graphics, you may want the ability to edit or manipulate graphics. For example, for a course on customer conflict, you may want to find a picture of an angry customer and make the whole photo red. Perhaps you would like to create a photo collage for a title graphic. Or maybe you returned from a photo shoot from your manufacturing floor and you need to lighten up some of the pictures.

Photo editing packages such as **Adobe's Photoshop Elements** and **Macromedia's Fireworks** give you the ability to modify and enhance photos and other graphics.

Graphics Creation Software

You may want the ability to custom-create graphics. Perhaps you want to create a cartoon character to serve as the "host" of the course. Maybe there are diagrams or processes you need to illustrate or maybe you want to create your own interface buttons. Your choices include:

- Illustration software such as **Macromedia's FreeHand** or **Adobe's Illustrator**.
- Photo editing software. (Some have drawing capability, such as **Fireworks**).
- End-user business applications. (Simple diagrams can be created in **PowerPoint** and then saved as a jpeg.)
- Animation software. (Many packages such as **Macromedia's Flash** allow you to create flat, static graphics.)

Interactions and Animations

Once again, the authoring tool you use may provide the ability to create the interactions (such as a roll-over screen) and animations (such as a moving diagram of a chemical or manufacturing process) you want. However, the use of animation software will often allow you to create more advanced, more flexible, and more creative interactive elements. **Macromedia's Flash** is, by far, the industry standard for creating these elements.

Simulations

Computer Simulations

When creating courses designed to teach software applications (such as an order processing or customer relations management software), you can include on-screen simulations of how the software works. You can even create practice or testing sessions where the student gets to try the steps themselves.

These simulations (whether for demonstration, practice, or testing) can be custom programmed in tools such as **Authorware** or **Flash**. However, special tools are available that make it much quicker and easier for an end-user to create these simulations. With tools such as **Macromedia's Captivate**, **Qarbon's ViewletBuilder**, and **TechSmith's Camtasia Studio**, you can create a software simulation in less than an hour.

Business and Technical Simulations

One way to make sure your students know how to apply what they have learned back on the job is to create a real-world simulation. These simulations may just be a series of screens outlining a situation, followed by some multiple-choice questions. This type of simulation or scenario can often be done in your authoring tool.

However, some software packages are available that allow you to create more complex and interactive business simulations where the students control variables, make decisions, and see the impact of their choices. Tools include **Forio's Broadcast** and **PowerSim Software's PowerSim Studio**. Some companies (such as **Forio** or **experiencepoint**) have pre-made simulations you can integrate into your courses.

In addition to these choices, there may be software or pre-made simulations specific to your industry. For example, **Brooks Automation's AutoMod** software lets you create simulations for the manufacturing industry. It may be worth the time to conduct an online search or to check with your professional associations to see if any such tools exist for your industry.

Assessments

Most authoring tools, learning management systems, and learning content management systems have the ability to create tests and assessments. You may want to look at software specifically designed for that purpose.

Quizzes and Tests

Tools such as **QuestionMark's Perception**, **ExamBuilder's ExamBuilder**, and **XStream Software's RapidExam** all allow you to create and manage tests and exams.

Games

If you'd like to get more creative with your quizzing and assessments, you may want to consider software that lets you create online games. There may be game capabilities in your authoring tool or in regular assessment software, or you can look at tools designed specifically for games such as **Quia Web**, **games2train.com**, or **LearningWare Inc.'s GameShow Pro**.

Audio and Video

In many ways, audio and video are a whole world of their own. If you plan to record and edit your own audio and video, you may need to acquire both equipment and software to do what you want to do. At the simplest level, you may be able to record audio clips in your authoring tool or even in PowerPoint. This is a quick and easy way to record, but there are limited editing options. You would need to re-record whenever there is a change or a mistake.

There are some tools such as **Microsoft's Windows Movie Maker**, **Pinnacle System's Studio**, and **Macromedia's Director** that provide a nice balance of capability and ease of use.

On the high end, you could purchase very expensive equipment to record, mix, and edit audio and video. Unless you have a large-scale production effort or other needs in the company for similar services, it is often best to contract out any high-end media production.

Synchronous Platforms

You learned in chapter 1 that synchronous learning occurs when an instructor and students are together at the same time – but not necessarily in the same physical place. One of the most common methods of synchronous e-learning is through webcasting.

A webcast is an event where students log into a session and an instructor presents live content. While a webcast could technically be one-way communication where the instructor presents and the participants just watch or listen, e-learning webcasts generally include two-way communication, collaboration tools, and interaction. These are the types of tools that will be discussed in this section.

The most popular webcasting tools on the market are **WebEx**, **Centra**, **Microsoft LiveMeeting**, and **Macromedia Breeze**.

Primary Synchronous Features

There are many features common among the major webcasting platforms. The following section will give you a general understanding of what is included. Refer to Figure 4.2 at the end of the section for a more detailed list of features.

Content Delivery

Content is generally delivered in a webcast using one or more of the following methods: audio, video, and visuals.

Audio

Most webcasts include an audio element. This can be done either over the phone or through the internet. If done over the phone, a conference line would be set up, the instructor would teach through the phone, and the participants would listen on the phone. If done through the internet, the

instructor would either teach through the phone or through a microphone attached to the computer and the participants would listen through their computer speakers or headphones. The audio could be one- or two-way.

Video

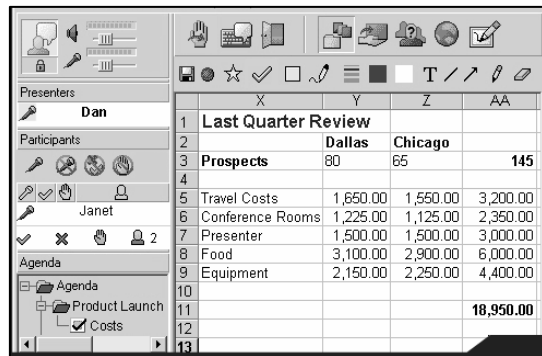
If all participants are using high-bandwidth connections, you could incorporate video into the broadcast. The presenter could hook up a simple webcam to the computer and the participants could watch a video of the presenter giving the lesson.

Visuals

The most common form of visual elements used in a webcast is imported PowerPoint slides. The presentation can be created in advance, uploaded into the system, and displayed for everyone attending. Many platforms allow other forms of content to be uploaded, with some even allowing you to create content right in their system.

Application Sharing

Webcasting can be a great choice for teaching a software application. The presenter can pull up any application on his or her desktop and everyone viewing the session can watch whatever the presenter does with the software. Some platforms allow the presenter to turn over control to any of the participants who can then try the procedure themselves.

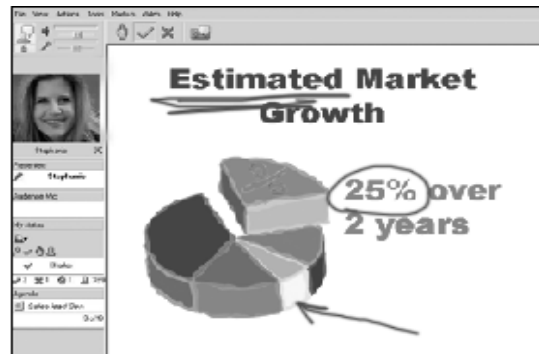


The screenshot shows a webcast interface with a toolbar at the top and a sidebar on the left. The main area displays a spreadsheet titled "Last Quarter Review". The spreadsheet has columns for X, Y, Z, and AA, and rows for various categories and their costs. The total for row 11 is 18,950.00.

	X	Y	Z	AA
1	Last Quarter Review			
2		Dallas	Chicago	
3	Prospects	80	65	145
4				
5	Travel Costs	1,650.00	1,550.00	3,200.00
6	Conference Rooms	1,225.00	1,125.00	2,350.00
7	Presenter	1,500.00	1,500.00	3,000.00
8	Food	3,100.00	2,900.00	6,000.00
9	Equipment	2,150.00	2,250.00	4,400.00
10				
11				18,950.00
12				
13				

Whiteboards

While the visuals for a webcast are generally prepared and loaded in advance, whiteboard capabilities let the presenter make marks on any of the slides, or on a blank screen. For example, the presenter can draw attention to a certain point by drawing a circle around it or highlighting it in yellow. Some platforms allow any of the participants to use the whiteboard as well.



Chat Features

Chat features can be used for communication with the instructor, between students, and for special projects.

Participants can send a message to the instructor to make a comment or ask a question. When the session uses only one-way audio, this is the only way participants can let the instructor know what's on their minds. If there is two-way audio, students may still choose to send a message to the instructor so they don't have to interrupt or because they want it to be private. Instructors can then either respond through the audio, or send a message back.

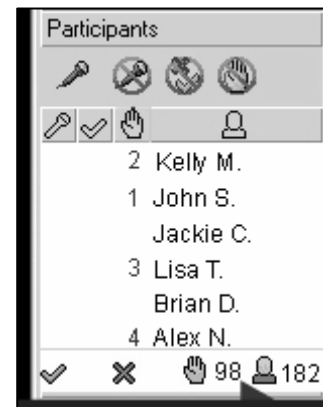
Students can also send messages to each other – to the whole group or to individual participants. Finally, the instructor can create “breakout” rooms where certain participants can chat in response to an issue, question, or assignment.



Surveys and Polls

In a classroom setting, the trainer will often ask formal or informal questions and get visual feedback from the audience. In a webcasting environment, there are tools that accomplish much of the same thing.

With most platforms, the instructor can ask a question and have participants vote yes or no. Participants click a button to respond and the presenter can tally the results. To help manage questions, the students can click a button to “raise their hand” to let the presenter know they have a question. The hand raising feature can also be used for polling.



Emoticons, or symbols that show expressions, can be used for participants to show how they are feeling. They can click buttons to indicate laughter or applause, for example.

Questions and polls can be created in advance or on-the-fly to get opinions from the audience or to check their knowledge.

Q1. How is an image refreshed after making changes?			
	Answers	Results	%
A	CTRL R	0/5	0
B	CTRL Shift	1/5	20
C✓	F9	2/5	40

Attendees	A	B	C✓
Jill Smith			•
Lisa Villasenor		•	
Todd Montgomery			•

✓ Correct Answer

Training Management

Webcasting platforms may come with a full set of tracking and reporting features, similar to what might be found in a Learning Management System. In addition, most systems will help you manage the registration process and help attendees know how to log in when it is time.

Figure 4.2 Synchronous Platform Feature Checklist

Feature	Importance	Tool 1:	Tool 2:
General			
Name of Company			
Website			
Access to Demo			
Hosted, Purchased, or Per Use			
Pricing			
Other Fees			
Training Provided			
Support Provided			
Company Information			
Years in business			
# of clients			
Year this tool was released			
Year this version was released			
Registration			
Web-based scheduling and registration			
Online self-registration			
User and event data stored in a database (types?)			
Import users from database or spreadsheet (types?)			
Can limit class size			
Automatic notification to registrants			
Single click access to session from e-mail			
Other special registration features			
Audio/Video			
Voice over IP (audio through the Internet instead of over a phone line)			
Conference bridge			
Simultaneous voices supported			
Video conference capability			
Imbed video files			
Teaching/Content Options			
Whiteboard			
Application demonstration			
Navigate to websites			
Import content from PowerPoint			
Import content from Word			
Other file types supported			

Feature	Importance	Tool 1:	Tool 2:
Templates for creating content in the tool			
Collaboration/Interaction			
Shared whiteboard			
Application sharing			
Group chat rooms			
Breakout or private chat rooms			
Public and private messaging			
Polling			
Surveys			
Quiz questions (question types supported?)			
Threaded discussions/forums			
Web surfing by each participant independently			
Hand raising			
Emoticons (laughter and applause indicators)			
Participants can send anonymous feedback			
"Step-out" indicator			
Tracking and Management			
Available reports			
Custom reports			
Report exporting options (.xls, .csv, etc.)			
Interoperability with LMS			
Interoperability with LCMS			
Any desired features from authoring tool list			
Any desired features from LMS list			
Any desired features from LCMS list			
Other			
Recording and archiving of sessions (List special archiving features offered)			
Interface available in other languages			
Customizable interface (branding)			
Supports foreign character types			
Supports multiple facilitators			
Note taking capability for students			
E-commerce capabilities			
Content can be pre-loaded on user's machine			
Pre-session features (such as self-paced content or documents)			
Post-session features (such as threaded discussions available after the session)			
Technology Requirements			
Server Requirements			
Developer Requirements			
User Requirements			
User system check prior to launch			
Can operate behind company firewall			

Virtual Classroom Platforms

A virtual classroom is an environment that is both synchronous and asynchronous. It mimics a university-class structure where everyone participates in the course together over a series of weeks. It is synchronous in that there is a beginning and an end with everyone participating together. It is asynchronous in that the actual reading and work can be done at any time within the schedule of the course.

For example, there may be reading and assignments for everyone to complete in week 3 of the course (the synchronous side). But, each participant is able to pick whether he or she will complete the work on Tuesday vs. Wednesday; morning or evening (the asynchronous side).

One significant difference between the virtual classroom and other instructor-led sessions, such as a webcast, is that with a virtual classroom environment the instructor does not usually teach the content personally. The content is usually gathered by the student from a traditional text, online documents, websites referenced, etc. The instructor is there to facilitate discussion, assign and grade homework and projects, and provide feedback.

Virtual classroom platforms are used almost exclusively in academic environments. **Blackboard** and **WebCT** are the most commonly used systems. Both companies' websites provide good information about what features are included.

Note: Many people consider the synchronous tools explained in the previous section to also be a virtual classroom.

The LMS and Other Management Tools

LMS: Learning Management Systems

Most e-learning initiatives require some sort of learning management. However, that does NOT mean that a formal Learning Management System must be purchased. Full-service Learning Management Systems

manage the administration of the training, as well as a number of employee development, learning, and knowledge issues.

Simple Learning Management Systems

At a minimum, you will need a place where the learner can go to find the course and launch it. Most people will want some way to restrict access, perhaps with a log-in and password. And many more still will want to find out who has completed the courses and who has passed the tests.

To gain these functions, you could choose to purchase a Learning Management System, or you could create a website and Access database for a simple project. A course catalog could be a simple HTML page and completion data can be sent to a database or even through an e-mail. Most web programmers could put something simple together to meet the most basic launching and tracking needs.

Advanced Learning Management Systems

Learning Management Systems can also do a lot more. An LMS can:

- Interface between the system you use to keep employee data and your training.
- Automatically manage complex registration issues such as individual catalogs or even course assignments based on the person's role with the company.
- Manage certifications.
- Create assessments and surveys – rather than using your authoring tool.
- Provide advanced reporting on completions.
- Manage other performance and development issues such as skill tracking, performance feedback, and gap analysis.
- Provide all the same features as an authoring tool, a learning content management system, or a synchronous platform.

Full-service LMS providers include **Saba**, **Thing**, and **Pathlore**.

Figure 4.3 Learning Management System Feature Checklist

Feature	Importance	Tool 1:	Tool 2:
General			
Name of Company			
Website			
Access to Demo			
Hosted or Purchased			
Pricing			
Other Fees			
Training Provided			
Support Provided			
Average Time it Takes to Implement			
Company Information			
Years in business			
# of clients			
Year this tool was released			
Year this version was released			
Registration and Catalog			
Pulls employee data from HRIS system			
Log in with user name and password			
Secure log-in technology			
Automatic password reminders			
Custom catalog based on log in			
Courses automatically assigned based on log in			
Individual learning plans			
Manager approval required			
Managers assign courses			
E-mail confirmation of registration			
Deadlines assigned for course completion			
Reminders set for upcoming deadlines			
Pre-requisite management			
Searchable index for content			
Courses grouped into content areas			
Can post and track documents other than courseware (PowerPoint, pdf document, etc.)			
Skills and Performance Management			
Certification programs			
Competencies tied to job titles			
Skills assessment/competency gap analysis			
Skills inventory			
360° feedback			
Completion Tracking			
Tracks course complete: Y/N			
Tracks course complete: % complete			
Tracks time spent on each course			
Can print certificates of completion			
Assessment Tracking			
Tracks pass vs. fail			

Feature	Importance	Tool 1:	Tool 2:
Tracks pass/fail and grade			
Ability to set pass rate			
Tracks number of attempts			
Keeps all scores (each attempt)			
Keeps only highest score			
Keeps only best score			
Tracks per-question responses			
Psychometric reports			
Reporting			
Available reports			
Custom report capabilities			
Web-based reporting			
Ability to export report data (file type options)			
Student transcripts			
Managers can see their employees' data			
Post-training evaluations			
Classroom Management			
Tracks classroom training completion			
Handles classroom training registration			
Manages facility usage			
Manages training equipment usage			
Schedules trainers			
Interoperability/Accessibility			
Interface available in multiple languages			
SCORM compliant			
AICC compliant			
Section 508 compliant			
Authoring tools that have integrated successfully			
LCMSs that have integrated successfully			
Off-the-shelf content that has integrated successfully			
Other			
e-commerce capability			
Chargebacks to individual departments			
Customizable interface (branding)			
Built-in authoring tool (use Fig. 4.1)			
Synchronous/collaboration tools (use Fig. 4.2)			
LCMS capabilities (use Fig. 4.4)			
Technology Requirements			
Server Requirements			
Developer Requirements			
User Requirements			

Implementation Options

The challenge when making decisions about an LMS is to make sure you know exactly what you do and don't need it to do, and then find the right tool. Some companies have spent too much money on systems with features they just don't need. Conversely, other companies have tried a home-grown system that wasn't flexible and scalable enough to meet everyone's needs a year later.

LMS systems vary widely in terms of capabilities, price, and implementation time. A large-scale implementation for a multi-location company with a full-service LMS that needs to integrate into several different systems could take 6 months or more to implement and comes with a 6-digit price tag. Mid-market systems with simpler integration needs might take a few weeks to a few months to implement and comes with a 5-digit price tag.

Bryan Chapman of brandon-hall.com offers some affordable LMS options:

WBT Manager (www.ielearning.com)

Oracle iLearning (www.oracle.com/ilearning)

KnowledgeBridge (www.websoft.com)

LearnCenter (www.learn.com)

IntraLearn (www.intralearn.com)

WebMentor (www.avilar.com)

Knowledge Centre (www.meridianksi.com)

LCMS: Learning Content Management Systems

A Learning Content Management System may be the most misunderstood of the e-learning tools discussed here. It may or may not have all the features of an authoring tool, an LMS, and a synchronous environment. This section will focus on what makes an LCMS different from the other tools, even though those features might be incorporated as well.

A Learning Content Management System is actually named well – it helps you manage the content. While an authoring tool helps you create content and a Learning Management System helps you manage the learning activity, an LCMS helps you manage the actual content itself.

Functions unique to an LCMS include:

- Organized storing, searching, and retrieval of course elements.
- Structuring of content into reusable learning objects that include all training material associated with a given objective – pre-test questions, teaching content, media elements, and post test questions. (You will learn more about learning objects in chapter 6.)
- Collaborative development tools that help coordinate the production efforts of the development team.

LCMSs are best used for large development efforts that include hours and hours of content, many developers, and the need to re-use content or content elements across courses. Smaller projects may find that an LCMS is not cost-effective and that they can manage these functions through effective file and project management.

Well-known LCMS companies include **ePath**, **Generation 21**, and **GeoLearning**.

Figure 4.4 Learning Content Management System Feature Checklist

Feature	Importance	Tool 1:	Tool 2:
General			
Name of Company			
Website			
Access to Demo			
Hosted or Purchased			
Pricing			
Other Fees			
Training Provided			
Support Provided			
Average Time it Takes to Implement			
<u>Company Information</u>			
Years in business			
# of clients			
Year this tool was released			
Year this version was released			
Content Authoring			
Built-in authoring tool (use Fig. 4.1)			
Authoring tools that have integrated successfully			
Built-in models for creating learning objects			
Synchronous/collaboration tools (use Fig. 4.2)			
Content Storage			
Types of files accepted (ppt, pdf, etc.)			
Drag and drop content into system			
Type(s) of database(s) used			

Feature	Importance	Tool 1:	Tool 2:
Metadata tagging			
Ability to upload existing courseware into system			
Learning content stored separately from interface and navigation			
Follow SCORM guidelines for creating and organizing content			
Use Word styles to organize objects			
Content Reusability			
Reuse of entire courses			
Reuse of entire topics/modules			
Reuse of objectives/learning objects			
Reuse of individual pages			
Reuse of individual elements			
Ease of search and retrieval			
Output formats for non-computer based training (such as a student workbook or instructor guide)			
Output to XML, Word, PowerPoint			
Collaborative Development			
Version control			
Change tracking			
Bug tracking			
Developer's notes per screen/element			
Check-in/check-out capability			
Project management/task assignments, etc.			
Development permissions based on log-in			
Tracking of approvals/sign-off			
Ability to send e-mail notifications to developers			
Interoperability/Accessibility			
Interface available in multiple languages			
SCORM compliant			
AICC compliant			
LMSs that have integrated successfully			
Off-the-shelf content that has integrated successfully			
Learning Management			
LMS capabilities (see Fig. 4.3)			
Technology Requirements			
Server Requirements			
Developer Requirements			
User Requirements			

Other Information Management Systems

You may already have systems in place that will help you with the administration of your e-learning program. Or, you may have programs in place that you will need to integrate with your e-learning program.

HRIS: Human Resource Information System

An HRIS system, such as **PeopleSoft** or **ADP**, generally tracks HR-related employee data such as personal information, salaries, performance, and payroll. These systems sometimes take different names such as ERP (Enterprise Resource Planning) and HCMD (Human Capital Management and Development).

Some of these systems have the ability to track training data and can therefore serve as your LMS. Older systems may not be built specifically to handle e-learning – just classroom training – but can perhaps be “tricked” into accepting data for an e-learning course. Newer systems may have e-learning tracking capabilities build right in.

Even if you will have a separate Learning Management System, it will need to “talk” to your HRIS system. You might want your HRIS system to send a file to your LMS once a week or so with updated employee data for log in purposes. Conversely, you may want your LMS to send data back to the HRIS system.

TMS: Training Management Systems

While the term LMS is fairly new, the concept of using software to track training is not new. Today, the term TMS can mean one of two things.

- A system that tracks only classroom training. These systems have been around for years and are still in use today by many companies.
- A system that tracks e-learning completion, but not other learning functions. If the system tracks registration, catalogs, log-ins, and completion tracking, some would refer to it as a TMS instead of an LMS. Some people only consider it an LMS if it includes other learning and development capabilities other than course management.

Summary

As you can see, there are many options that allow you to create, deliver, and manage your e-learning. Many products fill more than one purpose, and many companies provide more than one type of product. (Off-the-shelf courseware vendors often have LMS capability, for example.)

It is important to establish up front which features you want, prioritize them based on necessity, and then find the best product to meet your needs and your budget.