

NEW 2003 EDITION WITH PRACTICAL TOOLS

e-Learning

A Handy Guide to e-Learning
in Business

TECHNO *Compétences*

Comité sectoriel de main-d'œuvre
en technologies de l'information
et des communications

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www.technocompetences.qc.ca/elearning.

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- GRAVTI (Université de Montréal research group on lifelong learning through information technologies)
- MEQ (Quebec manufacturers and exporters).

e-Learning: an essential strategy for knowledge development

TECHNOCompétences seeks to contribute actively to the development of knowledge, which is the main asset that information and communications technology (ICT) firms possess. Our mission statement says that we are here to promote and develop training and professional development programs that meet the needs of firms in the information and communications technology industry. In reality, though, our efforts go much further: TECHNOCompétences also contributes to the development of a genuine culture of continuing education within ICT businesses.

Over the past several years, e-learning has assumed growing importance as a new approach to continuing education, chiefly in large corporations, and a growing number of firms of all sizes are now thinking about implementing e-learning programs. Such programs must, however, meet quality requirements in terms of both the content that they deliver and the technologies that they use to deliver it. Moreover, e-learning programs must be smoothly integrated into each company's continuing education culture and its business processes.

The present publication meets the need that many firms have expressed to provide decision-makers with an introductory guide to e-learning issues. This guide attempts to explain e-learning succinctly and effectively and to guide corporate training managers through the major change process that an e-learning implementation represents. This guide also attempts to provide companies with some ideas on how to choose the most effective learning methods according to the skills that the organization needs to develop and the broader organizational context in which skills development will take place.

The success of the first edition of this guide and the rapid changes in e-learning development approaches, methods, and technologies since it appeared have led us to produce this new, updated edition. One of the main changes that readers will note is the addition of practical tools that will give you a better understanding of the concepts presented in this guide and facilitate the implementation of e-learning in your firm. This new edition also places greater emphasis on instructional strategies, which are sometimes overlooked but are of course critical to any successful e-learning program.

I hope that you will enjoy reading this guide.

Sylvie Gagnon
Executive Director, TECHNOCompétences

A note on French terminology

In the French edition of this guide, the English term "e-learning" was translated as *apprentissage virtuel*. This is the term officially recommended by Quebec's Office de la langue française (www.oglf.gouv.qc.ca/) and would be translated back into English literally as "virtual learning". Other similar expressions include *apprentissage en ligne* (on-line learning), *apprentissage électronique* (electronic learning), *apprentissage à distance* (remote learning), and *téléapprentissage* (tele-learning). No one term is unanimously embraced by industry or by educational institutions. Whatever the term used, it is important to agree upon a definition. We have chosen the definition of *apprentissage virtuel* (e-learning) provided by the Office de la langue française, which may be translated into English as follows: "a learning method based on the use of new technologies, providing access to on-line, interactive, and sometimes customized training programs and delivered through the Internet, an intranet, or other electronic media, in order to develop skills while making the learning process independent of time and place."

TABLE OF CONTENTS

E-learning: a key component of business training strategies	6
Is your company ready for e-learning?	8
The 10 steps to a successful e-learning project	13
Step 1: Analyze your needs.....	13
Step 2: Choose the appropriate training methods	21
Step 3: Overcome the technical obstacles.....	26
Step 4: Prepare a business plan	32
Step 5: Develop a mobilization strategy.....	35
Step 6: Carry out a pilot project	37
Step 7: Design the content carefully	41
Step 8: Clearly define the trainers' role.....	46
Step 9: Measure the costs and benefits of e-learning	51
Step 10: Deploy your project throughout the organization.....	56
Conclusion.....	61
Glossary	62

HELP TOOLS

Help Tool 1: Characteristics of your target audiences	17
Help Tool 2: Technical infrastructure	18
Help Tool 3: Meetings with stakeholders.....	19
Help Tool 4: General references on e-learning	20
Help Tool 5: Considerations for choosing appropriate training methods.....	24
Help Tool 6: How to buy a learning management system	29
Help Tool 7: Top 10 mistakes to avoid when purchasing a learning management system.....	30
Help Tool 8: References on technology tools.....	31
Help Tool 9: Table of contents for your business plan	34

Help Tool 10: Strategies for communicating about the implementation of e-learning in your company	36
Help Tool 11: Questions to consider in a formative evaluation of a pilot project	39
Help Tool 12: Questions to consider in a summative evaluation of a pilot project.....	40
Help Tool 13: Questions to consider when validating content	44
Help Tool 14: Instructional references	45
Help Tool 15: Training your trainers for their role in synchronous e-learning activities...	48
Help Tool 16: Training your trainers for their role in asynchronous e-learning activities	49
Help Tool 17: Comparing the costs of classroom training with the costs of e-learning	52
Help Tool 18: Quantifiable benefits and costs of e-learning	54
Help Tool 19: Non-quantifiable benefits of e-learning	55
Help Tool 20: References on return on investment in e-learning	55
Help Tool 21: Elements of an e-learning implementation plan	58

New 2003 Edition

This new edition of this guide, including revised and augmented help tools, is available on the TECHNO*Compétences* web site at:

www.technocompetences.qc.ca/elearning.

e-Learning

a key component of business training strategies

In this guide, “e-learning” refers to any form of interactive training that is delivered electronically, whether via a Web browser over the Internet or an intranet (in **synchronous**¹ or **asynchronous** mode) or via multimedia platforms such as CD-ROM or DVD. In a broader sense, e-learning can even be said to include the telecommunication technologies such as videoconferencing and the collaborative tools such as structured discussion forums that have become essential for group learning.

In these many forms, e-learning is now a training strategy that a growing number of firms are incorporating into their skills-development programs. In recent years, e-learning initiatives have been attempted mainly in large companies, because of the high implementation costs involved. However, these costs have been reduced significantly, in particular through the standardization of applications. At the same time, many companies have now acquired more robust computer networks with **wider bandwidth**, thus enabling these firms to deliver interactive training and to support e-learning effectively.

The challenge of continuing skills development

The need to continue developing skills has become a critical challenge for almost all Quebec businesses and institutions. On the one hand, these organizations must equip their employees with the means of performing an ever-growing variety of tasks. On the other, they must provide them with the right tools and the right advanced knowledge at just the right time.

Under these demanding circumstances, developing employees’ strategic skills is a major objective, and businesses are increasingly turning to new technologies to deliver their continuing skills-development programs.

Many large and medium-sized businesses and institutions in Quebec have already experimented with e-learning, while others hope to be using this learning strategy for the first time in the very near future to deliver training to their employees or their clients. E-learning has many advantages, but it also involves a revolution in the training strategies and culture of the organizations concerned.

¹ Words printed in **grey** are defined in the glossary at the end of this guide.

The benefits of blended training strategies

Some of the benefits of e-learning are that it can make training more accessible, can enable employees to train more independently, and can reduce the costs of training by allowing it to be delivered at exactly the time when it is most relevant. However, many businesses have realized that along with e-learning, they must apply other training strategies, such as coaching and traditional classroom courses, in order to keep their target audiences alert and to optimize forms of learning that take more time to ripen. Blended training strategies take optimum advantage of all the instructional approaches and technological tools available.

Corporate instructional designers must draw on all their creativity to smoothly integrate such blended training strategies into their work environments. The challenge is sizeable, but experience has shown that e-learning plays a growing role in such strategies, because it allows flexibility and innovation while providing substantial returns on investment. As regards the learners themselves, their acceptance of e-learning grows as they acquire more experience with it—provided, of course, that the human contact so essential to the self-training process is maintained.

A guide for you and your company

We have designed this document to help guide you through your first venture into this new world with its many ramifications. We want to help you to make the most of interactive training technologies. This guide will help you to determine the major steps that your business must carry out to facilitate a successful implementation of new, technologically supported training strategies. This guide also provides you with valuable help tools and lists of references from which you can learn more about the constantly evolving world of e-learning.

Is your company

READY FOR E-LEARNING?

Some questions to think about

In a business setting, some specific conditions are required to ensure a successful, cost-effective implementation of e-learning. Here are some questions to consider before you begin implementing an e-learning process in your firm.

	YES	NO
Are the members of your target audience (learners) widely scattered across a large geographic area?		
Do you have a large number of employees to train (more than 200)?		
May you need to teach the same topics to several different groups of learners?		
Do you have any types of training that recur annually and on which you need to maintain records <ul style="list-style-type: none">▪ (for example, for a required annual re-certification)?		
Do you have trouble finding enough good trainers in your company?		
Do you have one or more major problems with employee turnover in certain positions within your company?		
Do you have some employees who cannot readily leave their workstations to attend training courses <ul style="list-style-type: none">▪ (for example, employees in call centres)?		
Do you expect to be hiring large numbers of new employees, or providing orientation to large numbers of new employees as the result of having combined departments or merged with another firm?		

If you answered yes to most of these questions, then your company would probably benefit from e-learning.

Main benefits of e-learning

1) Allows “just-in-time” training

E-learning lets employees train themselves in or refresh their memory on a wide range of subjects without having to wait for a course to be delivered at a specific time.

2) Can deliver training in a variety of settings

E-learning technologies expand the choice of settings in which training can be delivered: in appropriately equipped traditional classrooms, or in offices set aside for individual learning, or at training workstations distributed throughout the company for use by employees who do not have other access to computers, or even at home.

3) Helps to reduce training costs

E-learning requires a substantial initial investment but can often yield substantial savings afterward. These savings are realized chiefly through reductions in learners’ travel expenses, trainers’ fees, lost work time (because of the reduced time required for learning), and lost productivity (because training can be provided right in the workplace).

The exact payback on every e-learning project will differ, depending on the investment made and the savings realized. However, to address specific concerns at specific times, many companies may approve e-learning projects that they do not expect to yield a calculable financial return, regarding them instead as strategic investments.

4) Standardizes and customizes learning simultaneously

E-learning enables companies to achieve uniformity in their training while at the same time letting employees access courses and portions of courses according to the individual needs that each of them has expressed.

5) Can deliver the same content to a large audience simultaneously

If you are launching a new product or service and you need to teach a large number of people about it simultaneously, at a specific time, e-learning is the ideal strategy. It lets you reach, at the time you choose, everyone who has access to a computer connected to the Internet or to your company intranet. You can thus ensure that everyone receives the exact same training at the exact same time.

Many Quebec firms have used e-learning to successfully address the preceding concerns. Perhaps your firm can do so as well! Here are some specific examples of e-learning projects that have been carried out in Quebec businesses and institutions by Quebec firms that specialize in e-learning. These examples will let you consider some possible beneficial applications of this new training strategy.

Examples of e-learning projects carried out by Quebec firms

<p>Initial training content for orienting new employees</p>	<p>Identified need Classroom orientation training for new employees was provided only one time per year, because there were not enough trainers or new employees to make up a full class at other times. As a result, newly hired employees could go months without learning certain procedures or other information that would have greatly helped them to get up to speed in their new jobs.</p> <p>E-learning response Now, e-learning enables all new employees to be exposed to the company's initial training content immediately, starting their very first day on the job. Combined with coaching, this strategy has proven highly effective for integrating new employees into the organization. The employees can access all the information they need, while the coaches provide them with personalized contact without having to teach them about all of the company's products, services, and departments.</p>
<p>Training and certifying employees in the company code of ethics</p>	<p>Identified need Every year, many companies must certify their employees in the company code of ethics or procedures that guide their operations, or provide these employees with refresher training on this subject. This certification requires complex co-ordination and systematic recordkeeping, occupies the entire training team, and involves high costs.</p> <p>E-learning response Many companies have transferred their codes of ethics or procedures to digital media, which they have then made available through e-learning programs. Now, before taking any training, every employee can take a pre-test and then be guided to those sections of the code or procedures that he or she needs to review. The system identifies each employee and tracks his or her training electronically. The employee provides an electronic signature to confirm acceptance of the code of ethics or the end of the certification process. This e-learning solution saves substantial time while improving employees' understanding of this material.</p>

<p>Training to prepare for a training activity</p>	<p>Identified need The groups of employees to whom the company needs to provide training are fairly diverse. At the start of each course, the instructors must therefore spend time bringing everyone’s knowledge up to the same level, so that they can understand the material that follows. This represents a considerable loss of time and money for the firm, plus it is frustrating for those learners who already know the introductory material.</p> <p>E-learning response Many companies use both synchronous and asynchronous e-learning specifically to provide uniform background training before employees begin certain courses. In addition, these firms can use databases to track when employees have successfully completed their preparatory training and passed their qualifying exams, then automatically register them in the upcoming training course, where all the people in the class will thus have the same background knowledge.</p>
<p>Ongoing training in occupational health and safety rules</p>	<p>Identified need In Quebec, almost all companies have to provide their employees with annual refresher training on workplace health and safety rules and issue certifications in the form of “competency cards” that allow these employees to perform certain work within the company or on its work sites.</p> <p>E-learning response E-learning is a very effective means of providing employees with ongoing training on the very important subject of occupational health and safety. After completing their training courses, people forget many details; with e-learning, employees can review procedures on subjects such as emergency evacuations, first aid, or operation of special equipment, as many times as they like. Sometimes, it can be essential for an employee to quickly review a safety procedure before performing certain complex operations that require the application of knowledge not otherwise used very often. When a database is used to track the results of the examinations that employees take after completing their health and safety training, certifications can also be issued automatically.</p>
<p>Training call centre employees</p>	<p>Identified need At call centres, employee training must be provided without disturbing operations. These centres must also frequently hire and train new personnel. In addition, employees must be alert to new developments within the company and answer customers’ questions about them in a uniform fashion.</p> <p>E-learning response Call centres use e-learning extensively to provide employees with training about new products and services. Combined with coaching, e-learning lets companies set aside a few hours a week in which employees can take their training on their own in small doses without disrupting operations. This gradual learning method also ensures that</p>

	the knowledge acquired is transferred properly into the work environment.
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Click and learn at Bell Canada

by *Stéphane Sirard*, Assistant Chief, Human Resources Division, Bell Canada

What triggered the various on-line training initiatives at Bell Canada was the need to quickly train a large group of employees in a new technology—broadband. Since that beginning, the proportion of all its employee training courses that Bell provides on-line has risen to 50% from 15%. In addition, we have made many efforts to make our on-line courses more accessible by lowering the cost per learner and expanding our range of delivery methods, which already include intranet but will soon include the Internet as well.

Launched in May 2002, our *Click and Learn* program is a hands-down success. Since this program's launch, 11 000 employees have participated in it, generating over 70 000 registrations for a total of 400 different courses.

Beyond the costs saved by reducing training time and travel expenses, on-line training affords great flexibility to learners. It lets them train themselves where and when they like, and at the pace that suits them best.

Don't imagine, however, that on-line learning never involves any problems, or that it is the solution to every training need. I think that there is still a place for traditional classroom training, and that in many cases, a blended approach—part on-line and part in class—is the most effective.

THE 10 STEPS

to a successful e-learning project

This guide offers a 10-step procedure for successfully implementing an e-learning project in your company. This procedure was developed on the basis of a review of the specialized literature on this subject and the winning practices of Quebec firms that have implemented such projects.

This procedure must, of course, be adjusted to the realities of your business. In your company, you may have to place more emphasis on some of these steps while investing less effort in others. To use this guide successfully, you must apply your own best judgment as well.

For each of these steps, we present the main things to consider, in a brief, non-exhaustive fashion. We also present some tools to help you understand and apply the theory behind this procedure more effectively and to carry out each of the steps more easily. We also strongly encourage you to learn more about e-learning by visiting the Web sites listed in the Reference section of this guide, as well as to develop your own help tools according to your own needs.

Step 1

Analyze your needs

Are you ready to take the plunge into e-learning?

First of all, be aware that e-learning will represent a major change in the ways that you carry out your training projects and, like any change, it may encounter some resistance. Thus, before you even begin to effect this change, make sure you clearly understand the benefits that you may gain from it. Set some realistic targets. If all of the relevant stakeholders in your company properly understand and accept your e-learning project, your chances of implementing this new training approach successfully will be greatly increased. You should therefore conduct some preliminary analyses to assess your project's feasibility.

A) First of all, learn about your target audience.

Are all of the employees in your firm, or any particular groups that would be taking the proposed training, ready to adopt the e-learning approach?

Conduct a small survey of a sample group of employees and measure how familiar they are with computers and the Internet. Are these people comfortable in front of a computer? Do they have the basic skills they need to take an e-learning course with a minimum of supervision? What objections do they raise? To help prepare this survey, see Help Tool 1, *Characteristics of your target audiences*, on page 17.

B) Analyze your training setting and your technical infrastructure

To add e-learning to your training toolbox, you must next determine whether your company has the necessary resources to implement it. Conduct a technical and organizational audit to estimate what it would cost you to implement this technology and the timetable on which you could implement it.

Make an inventory of the hardware and software that might be helpful to you in on-line training. If you cannot manage to do this on your own, you may need to get help from a specialized consultant. Otherwise, conduct a small survey in-house. The time and money that you spend at this stage will save you trouble later on.

There are some-ready made tools to help you conduct your evaluation exercise. Some of these tools are very formalized and consist of multiple-choice questionnaires. The quantitative responses that you get from such tools will let you measure your score on a graduated scale, which will give you a good idea of your degree of readiness for e-learning.

To help prepare for this step, see Help Tool 2, *Technical infrastructure*, on page 18.

C) Prepare a list of your main potential e-learning projects

Identify the training projects that your decision-makers are most likely to approve. This initial list of strategic projects can be very helpful for illustrating the feasibility of implementing an e-learning strategy within your company.

In preparing your list of projects, follow these recommendations:

- Choose projects involving short courses (no more than three hours of training).
- Identify projects that will target several different groups of learners or several different divisions within your firm.
- To ensure that your projects will be viable, choose ones where the course content will be relatively stable (so that you will not have to keep updating them every month).
- For this first list of e-learning courses, avoid complex content. Choose content that will be easier to deliver in an e-learning format, such as procedural or cognitive information. For example:

- a basic course on workplace health and safety;
- a set of rules that employees must follow, such as a company code of ethics;
- basic sales concepts that you want students to be familiar with before receiving sales training in a classroom;
- procedures to follow for presenting management reports;
- basic information on how to use a corporate software application (such as client-management software, or a standardized form for insurers or for customer service representatives).

In a later step in this procedure, you will use the information that you compiled in this exercise to choose a pilot project with which you will start implementing e-learning in your firm.

D) Meet with the main stakeholders in your company and lay the groundwork.

You will need to hold meetings with the various stakeholders in your company who will have something to say about the implementation of e-learning. Get help from your manager, or set up a working committee. Plan meetings with your company's human resources department, trainers, information services, operations department, and, as necessary, with the targeted groups of employees. At these meetings, everyone should share their perceptions and concerns about this new strategy. Listen to the worries and fears expressed at these meetings, so that you can provide satisfactory responses. For help in preparing for this very important exercise, see Help Tool 3, *Stakeholder meetings* (page 19). Develop your own strategy.

The meetings you hold should provide a first opportunity to exchange ideas, to feel out your allies in the organization, and to assess any resistance you will face to implementing e-learning in your firm. It is better to come to these meetings over-prepared than under-prepared. For additional information on cases of successful e-learning implementations that you might discuss with your stakeholders, see Help Tool 4, *General references on e-learning* (page 20).

E) Deal with resistance.

As in most cases of major change, you may encounter many forms of resistance. This resistance is most likely to come from the following three sources.

From your own team of trainers

Your company's trainers may feel threatened by this new training medium. To reassure them, stress that e-learning is actually just one more new tool in your continuing- education strategy. You might suggest that e-learning can

co-exist productively with the traditional forms of training, or that it is going to be used to augment current methods, in a blended training approach.

Identify those trainers in your firm who are most apt to adopt these new training strategies and recruit them as agents of change. No matter what, you are never going to convert all of your training activities into e-learning courses. Give your trainers the chance to make this shift gradually and to derive the maximum benefit from every experiment.

From employees responsible for management information systems and user support

Your management information systems and user support staff may raise objections to e-learning, citing system-security issues or the additional user-support workload that e-learning might create. If some of your e-learning applications will run in common web browsers such as Internet Explorer or Netscape, they may require the installation of software such as Flash Media or Real Audio. Often, information systems managers are opposed to such plug-ins. Notify these managers of your intentions well in advance, and of course, make sure that they participate actively in the entire implementation process.

You may also have to address other objections regarding your e-learning application software—for example, that it will require costly additional bandwidth, or slow down operations, or require more capacity than your installed base of computers can provide, or sound cards that not all of your computers have. But if anyone raises these potential problems, you can show that there are many effective strategies for overcoming them.

From the learners themselves

There are always a number of people in any group who object to change or who fear technology like the plague. To assuage their fears, give demonstrations to show how user-friendly your e-learning applications are, and stress the benefits that these people will derive personally from e-learning.

Always bear in mind that all of these efforts may require additional human resources before, during, or after the implementation of e-learning. Make sure to budget accordingly (read the section on the costs and benefits of e-learning, Step 9, page 50).

F) Enlist and mobilize your allies.

For your e-learning implementation project to succeed, you must be able to count your firm's senior managers among your allies. Approach them and enlist their support. Your colleagues in the information systems department already have plenty of other projects on their plates, such as implementing e-

commerce or enterprise resource planning (ERP) programs. Often, a clear directive from senior management will convince them to make your project one of their priorities.

Also, within each of the relevant groups in your firm—trainers, information systems specialists, and learners as well—identify those individuals who are really enthused about your project, and involve them early, so that they can convince others and exert their influence within the firm to overcome resistance as it arises.

Lastly, make sure to communicate effectively. To help plan your communications strategically, read Step 5, *Develop a mobilization strategy* (page 35).

CHARACTERISTICS OF YOUR TARGET AUDIENCES

1. Who are your target audiences, by workstation or job function?
2. How many employees will your project target? How are they distributed geographically?
3. What level of education do they have? What tasks do they generally perform in their jobs?
4. How independently can these learners work with computers?
5. What level of support do you plan to give them? Will basic training in computers be a prerequisite for your e-learning course?
6. Will these learners be able to navigate successfully on their own through the various parts of the e-learning program that you are planning to make available to them on line?
7. Is there any place on your company's premises that is suitable for e-learning—far from the telephone and from any of the other interruptions that would otherwise occur constantly if your learners tried to use the e-learning software at their regular workstations? How do you plan to free these employees from their usual duties while they are taking their e-learning course?
8. How will the training time be managed? One of the advantages of e-learning is that it lets learners take their courses where and when they like. But in general, time is a scarce commodity for everyone. If employees are going to have to take their e-training courses at home, are they aware of this special effort that is going to be asked of them? What will their motivation be to train at home?

Note: If you want your employees to more willing to invest hours of their own time in your e-learning program, then you must communicate the objectives of this program to them clearly and highlight the benefits that these employees will derive from it.

TECHNICAL INFRASTRUCTURE

1. Are your users already connected to a company intranet or to the public Internet? In the latter case, what kind of Internet connection do they have? Is it fast? Who is the Internet service provider?
2. At what speed does your network operate? Is it powerful enough to accommodate all of the multimedia applications that you may use for e-learning? Are your users' computers equipped with sound cards and video cards?
3. Will the use of your network for e-learning purposes conflict with other applications that are critical for your company's operations?
4. What steps have to be taken to ensure the security of operations or protect the content of e-learning courses?
5. If your existing infrastructure is not adequate, how much would it cost to upgrade?
6. Do certain divisions or other parts of your company have suitable equipment that could be used to conduct a pilot project successfully?
7. How will any costs of upgrading your information systems be allocated? Will your training department be the only user or a marginal user of the new equipment? Will this department have to defray all of the costs of this equipment?
8. Have you considered having your e-learning infrastructure hosted externally?
9. Does your company have a computerized human-resource-management system into which you want to link or have to link your e-learning system?

MEETINGS WITH TAKEHOLDERS

Persons to contact	Method	Subjects to discuss
Human Resources Department	Face-to-face interviews	Perception of this training method Vision of the project Current expertise Commitment to/involvement in the implementation process People to include
Trainers	Group meeting	Level of knowledge Interest in e-learning Limitations of current training methods Expectations and resistance
Information Services	Face-to-face interviews	Current technological constraints Planned or required development plan for computer hardware and networks Commitment to/involvement in the implementation process
Operations Department	Face-to-face interviews	Expectations regarding training in operations support Desired commitment to/involvement in the implementation process Particular requirements of certain departments or regions Interest in pilot projects (particular topics, departments to target)
Employees	Sample survey or discussion groups in various units	Perceptions of this training method Evolution of training requirements Knowledge of computer tools
President or senior managers	Face-to-face interviews	Perception of this training method Level of support offered to experimental Projects Openness to considering investments Expectations in terms of results People to include
Others, if necessary	---	---

GENERAL REFERENCES ON E-LEARNING

ASTD (www.astd.org)

Brandon-Hall (www.brandon-hall.com)

Corporate University Xchange (www.corpu.com)

E-Learning Hub (www.e-learninghub.com)

Learning Circuits (www.learningcircuits.org)

Learning and Training Innovations (www.elearningmag.com)

Lguide (www.lguide.com)

Masie Center (www.masie.com)

Thot Cursus (<http://thot.cursus.edu>)

Training Media Review (www.tmreview.com)

Training on e-learning

If you want to get more training on the subject of e-learning, here are a few sites to consult:

Télé-Université (www.teluq.quebec.ca/perfectionnement/) (French only)

Université Laval (www.fsa.ulaval.ca/formation/2ecycle/) (French only)

Concordia University, Educational Technology (www.concordia.ca)

Information on e-learning companies

Répertoire des entreprises québécoises en formation virtuelle, TECHNOCompétences
(www.technocompetences.qc.ca/elearning) (French only)

Alliance NumériQC (www.numeriqc.ca/) (French only)

CANADIAN ELEARNING ENTERPRISE ALLIANCE (WWW.CELEA-ACEEL.CA)

Step 2

Choose the appropriate training methods

E-learning can take many different forms, which makes it easier to incorporate into your company's continuing-education strategy. E-learning products can range from existing PowerPoint presentations that you simply place on-line, to a wide assortment of standardized, ready-to-use training software, to custom systems developed especially for your firm, not to mention virtual classrooms. Remember that without interactivity, there is no learning. You must therefore provide mechanisms that give learners feedback either during or after their on-line learning sessions.

E-learning can and should also be combined with various more traditional forms of instruction, such as coaching and classroom teaching, so as to help learners develop certain more technical skills that require practice and feedback. Purely cognitive skills, on the other hand, can be developed through e-learning alone. Once your employees have acquired this new knowledge through e-learning, however, they must be given a chance to apply it in the workplace as soon as possible, so that they can assimilate and retain it more effectively.

By familiarizing yourself with the various e-learning methods available on the market, you will get a clearer idea of the method or combination of methods that will best meet your needs.

Help Tool 17, *Comparing the costs of classroom training with the costs of e-learning* (page 52) deals with the costs and benefits of e-learning. This tool will let you determine the cost differences between traditional classroom training and e-learning.

Asynchronous e-learning

Asynchronous e-learning is a method that adapts to the availability of the learners. It lets them access one or more learning tools, such as video clips, audio clips, text documents, or e-learning software packages, and use them as they please. To receive feedback on their learning process, the learners interact with a trainer or with the other members of their learning group by indirect means, such as e-mail or discussion forums.

The main benefits of asynchronous e-learning are as follows:

- the learners can learn at their own pace;
- they can adjust the order in which they cover the various components of the course they are taking;
- they can review certain aspects of the course and go into them at greater depth as they please;

- they can save time by skipping any course content that they already know thoroughly.

Synchronous e-learning

Synchronous e-learning, in contrast to asynchronous e-learning, is characterized by direct interaction between the learners and the trainer in real time. Synchronous e-learning is thus the method that comes closest to the traditional classroom. When all the members of a group of learners are on line with their trainer simultaneously, exchanging comments through a chat function, or sharing applications, or viewing the same screens, or receiving images via videoconferencing (Webcasting), they are engaged in synchronous e-learning.

The main benefits of synchronous e-learning are as follows:

- it lets the learners interact with the trainer intensively on screen using oral and visual language;
- the classroom model is familiar both to the learners and to the trainer;
- the group dynamic becomes established more quickly;
- the training content can be created and delivered quickly.

Blended learning

Blending learning, as its name suggests, draws on a variety of learning methods. This training method thus combines elements of on-line learning and traditional classroom instruction.

Here are a few examples of blended-learning approaches:

- before attending a traditional classroom course, the learners prepare by studying materials delivered to them via information technologies such as CD-ROM or the Internet. This preparation reduces the amount of classroom time and lets the classroom sessions focus on more in-depth discussions of the material in question;
- in between classroom sessions, the learners continue their training by means of structured virtual exchanges and collaborative tools;
- a class meets first in real time—that is, in synchronous mode—using methods such as videoconferencing or on-line chat, then continues its discussions asynchronously, by methods such as discussion forums, e-mail, and courseware packages;
- first learners acquire knowledge through e-learning, then they receive coaching either electronically or on site at the workplace, to help them assimilate and apply the knowledge that they have acquired.

The main benefits of blended learning are as follows:

- studies at universities have shown that students learned more effectively when they were instructed by a blend of methods that better suited their various learning styles;

- virtual classes in real time enable learners to attend courses from multiple training sites;
- when learners can record the course content as it is presented and save the exchanges among the participants, they can review any aspects of the course as they like later on, which represents a real advantage;
- by combining the use of standardized instructional software packages with in-class discussion and work methods, corporate trainers can considerably reduce the preparations required for training activities while still providing useful training experiences.

Collaborative methods

There are many different collaborative methods. All of them rely on a form of learning that is based on exchanges among the learners and between the learners and the trainer. Information and communication technologies are especially supportive of such collaboration, because they provide numerous tools for virtual exchanges, such as e-mail, electronic bulletin boards, and chat rooms. These collaborative methods are especially appropriate for creative activities such as brainstorming sessions, as well as for seeking solutions to specific problems and for creating e-learning teams or communities. Collaborative tools are a good fit for blended training programs.

Choosing the best method for the audience and the content

With so many new options available for developing your employees' skills, you face a sizeable challenge: how to choose the best training methods according to the specific needs of your learners and the requirements of your content. To make the best choices, it will be invaluable for you to know your training needs, the characteristics of your target audiences, and the benefits that each of these new options offers. There are no hard-and-fast rules. Many structured experiments and studies are currently being conducted to better identify the benefits and drawbacks of the various methods in specific contexts.

We already know that asynchronous training is especially suitable for learning how to use software tools or how to perform any function that requires knowledge of clear, well structured rules. Asynchronous training can also be combined very effectively with traditional classroom instruction, in a blended training program. It can also provide useful support for more traditional courses, for learning tasks that require the exercise of analytical judgment—for decision-making, for example. In contrast, physical tasks and tasks that depend on reflexes or sensory perceptions are better learned through actual practice under an instructor's live supervision, though asynchronous simulation programs can be effective for this purpose too.

Training to achieve results

As you investigate new training methods to use in your company, stay focused on your essential goal: you are looking for a way to achieve a learning objective more effectively, not just for a gimmick to impress people. Help Tool 5, *Considerations for choosing appropriate training methods* (page 24) presents some key information that will guide you toward the best choices to make according to your organization's particular situation. But eventually, one day you are going to have to dive in and take some risks. When necessary, get help from experts, and consult relevant web sites and specialized works on the subject.

CONSIDERATIONS FOR CHOOSING APPROPRIATE TRAINING METHODS

Consideration	Things to think about
<p>1. Duration of training program</p>	<p>If your training program is very long, it will be harder to implement via e-learning, especially if this will be your first attempt.</p> <p>One potentially helpful solution might be to incorporate some e-learning activities into your program so as to reduce classroom training time while experimenting with the blended-learning approach.</p> <p>Transmitting information electronically and developing collaborative mechanisms such as e-mail and on-line chat are two ways to let learners continue learning between classroom sessions, thus sustaining their interest while reducing the total time they spend in class.</p> <p>Very short training programs (lasting 1 hour or less) can be delivered effectively by synchronous methods</p>
<p>2. Required response time</p>	<p>Synchronous training programs (delivered through virtual classrooms on the Web or videoconferencing) are direct and can be prepared very quickly. They are therefore ideal for meeting urgent needs to train and inform employees.</p> <p>In contrast, asynchronous training programs often require several months of preparation, scripting, and production</p>
<p>3. Number of sites</p>	<p>The greater the number of physical sites where there are employees who have to be trained, and the greater the distances between them, the greater the advantages of e-learning. These are among your best arguments to justify investments in e-learning initiatives.</p>
<p>4. Type of skills to be learned</p>	<p>Asynchronous methods are most successful for teaching employees technical skills, such as using a particular piece of software, following a particular procedure, or operating a particular piece of equipment.</p> <p>Developing employees' soft skills through e-learning is much more complex and expensive.</p> <p>You can also make certain knowledge available to your employees permanently by providing them with ways to refer to it as needed (self-learning and task-support tools).</p>
<p>5. Stability of content</p>	<p>If the content changes continually, it should be delivered with very flexible tools, preferably in synchronous mode.</p> <p>In contrast, if the content has a relatively long life cycle, it can be delivered effectively by asynchronous means. Updates can even be provided by complementary methods such as hyperlinks, e-mails, and electronic bulletin boards.</p>

6. Learning styles	Not everyone learns in the same way. Observe learners' reactions carefully. This is an important requirement that must not be overlooked.
7. Scheduling constraints	Do you already find it hard to get all your employees together at the same time for classroom training? Then synchronous e-learning activities might not be for you. In contrast, asynchronous training lets you train your employees without worrying about any specific scheduling constraints. But this method still requires you to set aside time for employees to take their training.
8. Technology	Anything is possible, but maybe not in your particular company at this particular time. Make sure that you clearly understand the capabilities and limitations of your firm's technology infrastructure. Define your training team's technology requirements so that you can influence the future development of this infrastructure so as to meet them.
9. Training team's skills	You also need to consider your training team's degree of mastery of the various methods of delivering training content. Avoid scattering your efforts by attempting to use too many different delivery methods at once. Explore this new world gradually and build on what you learn.
10. Learners' motivation	Always remember that motivation is an essential factor in learning. If your company's employees feel that they are being abandoned without support in their e-learning activities, then you are courting disaster.

Step 3

Overcome the technical obstacles

E-learning generally produces savings in corporate training programs, but implementing e-learning can require substantial initial investments. You should carefully calibrate the size of these start-up investments to match your short-term and medium-term objectives. Don't get distracted by technological bells and whistles; instead, stay focused on implementing the solutions that will best meet your needs.

Once you have decided which e-learning tools to put in place, you will be living with them for a many years, so be sure to make the right choices. If you have to go back to square one with every new program you start up, your return on the capital that you invest in technology solutions will be relatively low. You should therefore adopt a technology that can evolve with your needs, that is compatible with your existing information systems, and that is user-friendly. Remember that your objective must

always be to improve the effectiveness of your training process, not expand your inventory of computer hardware!

Adopting and implementing standards

When you begin choosing vendors, get them to confirm whether the solutions that they are offering you comply with the new standards that will give you maximum manoeuvring room in future. Interoperability and integration of learning management systems have become a necessity. Your system must enable you to combine courses from various vendors and to transfer data into your employees' personnel files.

As far as developing training content is concerned, learning objects represent the latest industry standard. Once you have developed these individual capsules of information, which are independent of any particular training activity, you can classify them, organize them in various ways, and reuse them in a variety of training programs. By implementing standardized technologies and structuring your training content into learning objects, you will, over the years, be able to compile a veritable knowledge base and even exchange content with your partners.

The e-learning industry is still in its developmental phase and is in the process of implementing its technology standards now. Look for references to the AICC, IMS, SCORM and CanCore standards. These are the main standards that are currently emerging.² Make sure to draw a clear distinction between vendors' interest in these standards and their genuine compliance with them. Obtain a technical assessment from a qualified, independent consultant before making any purchase decision.

As a customer, discuss the issue of standards with your vendors and demand their respect. The emergence of universally recognized, respected standards will benefit everyone. It will give the entire corporate training community access to discrete pieces of content that can be shared through Web applications and that are compatible with a variety of e-learning tools.

The three main categories of technology tools associated with e-learning are as follows:

- learning management systems (LMS);
- content creation tools (authoring software);
- learning content management systems (LCMS).

More and more, these three types of tools are being integrated into single, complete systems. Depending on your requirements, this might represent an advantageous solution for you.

² Readers are strongly encouraged to consult two major studies on the importance of standards and their implementation in Quebec. Both of these studies are available on the web site of CRÉPUQ (the conference of presidents and principals of Quebec universities), at www.profetic.org.

Managing training

To manage your training program, you will use a Learning Management System (LMS)—software that automates the various functions involved in running training courses, such as registering the learners, tracking their progress, accessing course content, and liaising with trainers.

Some more-sophisticated applications even let employees measure their own skills, compare them with the requirements of their current positions or of positions for which they are applying, and identify the skills and training that they need. Learners can thus define and follow their own individualized training plans. To take optimal advantage of these capabilities, your organization should have a strong training culture and provide its training department with ongoing support from its human resources department.

Learning management systems usually involve a substantial up-front investment. Many LMS products are available on the market, so before you begin looking for one, prepare a list of your current expectations and foreseeable requirements that you want this system to satisfy. For example, do you want learners to be able to:

- do a self-assessment of their training requirements?
- register for their courses on line?
- register for an official certification process?

Next, identify the target audiences for your training activities and the number of training activities that you plan to carry out. (If the number of activities is limited, you do not necessarily need an LMS. Instead, you might simply be able to incorporate a basic computerized tracking function into each training activity.)

Who are the target audiences for your training activities?

- your employees? all of them, or only certain groups in particular?
- your distributors?
- your clients?
- your suppliers?

Purchasing and creating training content

You will have to determine what kind of content you want to put on line for e-learning purposes. You can either purchase ready-to-use training content that was created with a standardized program, or you can have content custom-developed within your organization or by an outside supplier, using an authoring system.

You will very likely be offered some generic, ready-to-use training content, in particular by international firms. Such course materials are the least expensive way for learners to acquire knowledge or skills that are not specific to your company (for example, how to use word-processor or spreadsheet software). Materials for teaching this type of content also generally provide high-quality instruction, because they are produced by specialists.

However, you may not find the courses that meet your company's needs exactly (or, if your target audience consists of Francophones, you may not find such courses in French). In such cases, you have a second option: use an authoring system to develop your courses in-house. This option can also prove relatively inexpensive. But it is risky, especially if your company does not have the required expertise in-house.

The third option is to hire specialized outside resources to develop or adapt your own training content. This option presents few risks, in that you benefit from the expertise of e-learning specialists. It is the most expensive of the three solutions, but the quality and appropriateness of the training that you thereby provide may result in a high level of satisfaction among learners, as well as better training results.

Managing training content

You can manage the basic components of your training content with another kind of tool, known as a Learning Content Management System. The purpose of this tool is to let you classify, search for, and retrieve your content elements or learning objects, so you will use it more the greater the volume of content that you have to manage.

If you have a large volume of training content and you are planning to create a fair number of e-learning courses, then it is important for you to assess the desirability of acquiring a Learning Content Management System (LCMS). As its name indicates, such a system will let you classify, manage, and rapidly re-use numerous training elements that can be combined into a variety of learning activities. This system will also make it easier for you to update multiple training courses simultaneously.

Determining your actual needs

Of course, it is not essential for you to acquire any of these systems to begin delivering e-learning activities. At the start, you can simply outsource any or all of these functions to an application service provider (ASP). As successful experiments have shown, for the first few courses that you deliver, you can also operate with a minimum of technological infrastructure.

The companies that produce these authoring tools, LMSs, and LCMSs have invested millions of dollars to develop their platforms, and just as many, if not more, to market them, so they are going to come knocking on your door. Be prepared for them. One important warning: they could also come calling on your colleagues in your company's information services department and make a sale to them—this has happened before. The problem is that their technology is supposed to support your training function, and not vice versa. Take steps to ensure that any tools that are implemented in your company will meet its actual training needs and training objectives.

To begin the process of assessing and selecting technologies to support your major e-learning project, go on now to consult Help Tool 6, *How to buy a Learning Management System*; Help Tool 7, *Top 10 mistakes to avoid when purchasing a Learning Management System* (page 30), and Help Tool 8, *References on technology tools* (page 31).

HELP TOOL 6

HOW TO BUY A LEARNING MANAGEMENT SYSTEM

1. Make sure that it will be compatible with your existing technology environment.
2. Calculate how far into the future you want to be using this system. Will your requirements be growing?
3. Make sure that this system can be adapted if your needs change.
4. Make sure that this learning management system can interact with any other relevant systems within your own company (such as an authoring system, a learning content management system, or a human resources management system) or with your suppliers' or partners' systems, if you work with them on joint projects.
5. Beware of any system that is built using computer code that is proprietary to its vendor. Instead, choose a system based on open source code, which will be more compatible with the rest of the world.

TOP 10 MISTAKES TO AVOID WHEN PURCHASING A LEARNING MANAGEMENT SYSTEM

The following list of the top 10 mistakes to avoid when purchasing a learning management system (LMS) is adapted from an article published on the Learning Circuits web site (www.learningcircuits.org) in March 2002.

1. Failing to obtain the agreement of senior management before you go shopping.
2. Failing to clearly spell out your needs and expectations to vendors.
3. Comparing apples with oranges. There are hundreds of LMSs, and they vary widely in their functionality, infrastructure, and price.
4. Excluding your IT department from the decision-making process. You could find yourself trying to run your system all on your own.
5. Focusing only on price. Some systems are technologically obsolete and therefore offered at bargain prices. But will that really save you time and money in the medium term?
6. Attaching too much importance to scalability (the ability to add new users). This is a problem that is easy to get around.
7. Ignoring interoperability, which is a fundamental requirement if you want to be able to incorporate courses from various sources into your system.
8. According too much importance to vendors' commercial success. The product that has sold the most isn't necessarily the one that your company needs.
9. Buying an LMS for yesterday's needs. Your technology tools must enable you to evolve. They are not there simply to let you computerize your current business processes.
10. Buying standardized tools that aren't adaptable to your needs.

REFERENCES ON TECHNOLOGY TOOLS

As will be obvious to you if you have read this far, e-learning is a complex world that offers a nearly infinite variety of choices. For example, you can find a list of over 240 e-learning platforms at Thot (thot.cursus.edu).

About 10 Quebec firms also offer their own learning management tools. For a complete list of these firms, visit the TECHNO *Compétences* web site (www.technocompetences.qc.ca/elearning).

Naturally, large firms such as IBM, SABA, Docent, and Centra are trying to capture the Quebec market, with very large companies as their first targets. Also, companies best known for their enterprise management systems (SAP and Oracle) and human resource management systems (PeopleSoft) are now entering the learning platforms market as well.

Brandon-Hall (www.brandon-hall.com) evaluates the main learning platforms available on the market and also publishes lists of authoring software packages and some evaluations of certain of these tools.

Specialized firms such as IDC (www.idc.com), the Gartner Group (www.gartner.com), and WRHambrecht + Co (www.wrhambrecht.com/ind/index.html) also offer detailed analyses of the available technology tools and company profiles.

For technology standards, consult these sites:

www.profetic.org – The following documents on e-learning standards are available (in French) in the *Normes et standards* section of this web site:

Les normes et standards de la formation en ligne, État des lieux et enjeux, September 2002.

Vers la création d'un patrimoine éducatif québécois, Normetic, 2003.

www.cancore.ca

Step 4

Prepare a business plan

Whether your company calls it a business plan, a project implementation plan, or an action plan, you need one before you launch your venture into e-learning. Use this plan to describe the ins and outs of the new medium and to sell the idea of e-learning to the rest of your company. Your plan should focus in particular on the costs and benefits of this new training method for your firm.

As with any new technology or any other kind of change, e-learning may meet with skepticism from people who do not yet perceive its advantages. You need to make these people see your e-learning initiative as an investment for the company and an integral part of its skills-development plan.

Main components of your business plan

Your internal business plan must define the main dimensions of your project and describe its benefits and its risks. This plan may cover the following subjects discussed in the various steps in this guide:

- the specific needs that you want to meet
- your choice of e-learning method or methods to meet these needs
- your choice of technologies for developing and delivering e-learning content
- your mobilization and communication strategy (implementation committee)
- the project that you have selected as your e-learning pilot project and the methods that you will use to carry it out
- identification of the most appropriate content
- expectations with regard to the trainers and managers involved
- required investments and expected return on investment.

Remember that the purpose of this business plan is to help your company's decision-makers make their decision about e-learning. Your plan should therefore contain the essentials of the information they need and should stress the factors that will carry the most weight in this decision.

At the very start of your project, form an implementation committee

One winning practice is to set up, at the very start of your project, a team that will be dedicated to implementing e-learning, then assign centralized responsibilities to this team. This team must not simply implement e-learning, but also implement the winning

practices of the leading organizations in this field. This committee will generally consist of people from the various functions within your organization, such as information technology, skills training, human resources, and employees representing the group who will be the target audience for the e-learning activities. You can also

bring in outside consultants or specialized firms to provide specific types of help at certain meetings. This consulting strategy will let you maximize your chances of success.

Present your business plan

Once your business plan is ready, schedule meetings again with the main stakeholders mentioned in Step 1 (human resources department, trainers, information services, operations department, personnel, president or senior management) to present and discuss your business plan. If you send your business plan to them by e-mail so that they can review it in their free time, it will not have the same impact as if you present it yourself. You should also take advantage of this opportunity to clarify certain aspects of your business plan, if need be, and to obtain the support of the other people around the table for certain strategic decisions.

Most importantly, don't forget to present your business plan to the members of your newly formed implementation committee, so that they too are included in your major e-learning project.

To prepare for this step, consult Help Tool 9, *Table of contents for your business plan* (page 34). Several manuals on how to carry out e-learning projects are now available; see, for example, those from Brandon Hall (www.brandon-hall.com) and ASTD (www.astd.org).

TABLE OF CONTENTS FOR YOUR BUSINESS PLAN

Executive summary (1 page)**Introduction**

- Growing importance of e-learning in business

Status of training in your company

- Changes in requirements
- Observations on forms of training now provided
- Strengths, weaknesses, constraints, and opportunities

Potential of e-learning for your company

- Constraints in current methods
- Opportunities afforded by e-learning
- Benefits and challenges
- Expected results

Instructional decisions

- Types of courses to be given priority
- Types of content to be taught
- Instructional approach

Technological decisions

- Current status of your technology infrastructure
- Kinds of options available on the market
- Criteria for choosing a technology solution
- Requirements for training (synchronous, asynchronous)
- Technological constraints to be satisfied
- Costs

Implementation process

- Project organization
 - Project implementation committee
- Steps and timetable
 - Pilot project
 - Deployment
- Monitoring and control mechanisms

Measures of achievement of results

- Successful learning
- Return on investment

Step 5

Develop a mobilization strategy

Use a communication plan

You can put together the greatest e-learning plan ever dreamed of, but it will do you no good if you can't win support for it from the managers and employees of your firm. Senior executives, middle managers, and end users all must understand and consent to this change that you are proposing to make in your company's current learning methods. A communication plan can be very useful for informing these people about this new training approach and getting them to buy into it.

Know how to communicate effectively

Choose a strategically favourable time to announce your project. As discussed in the preceding step, you can start by presenting your business plan to the stakeholders who will be your allies in the project, but you should also plan other communication strategies for reaching your company's entire work force, which often constitutes the target audience for your e-learning activities. Help Tool 10 – *Strategies for communicating about the implementation of e-learning in your company* (page 36) will give you some ideas about strategies that you might use.

Use high-impact communication methods to motivate people

Once your project is under way, tell people about your successes, the latest developments, and any other information that you consider useful. You may have to invent some new ways to get the members of your firm to embrace your project: for example, nothing will motivate your middle managers more effectively than if they see your senior managers using e-learning themselves.

Also adopt a theme or slogan that will be associated with your communication campaign to make your project clearly stand out among the many others going on in your firm. In your key messages, stress the benefits that your target audiences will derive from e-learning, such as flexibility and accessibility.

Listen to your users' reactions

Your communication plan should enable users to provide their reactions to this new training technology. For example, you could invite users to express their views in an on-line discussion forum. Or you could conduct a telephone survey and then disclose the respondents' views through appropriate media. Being able to measure users'

reactions to your e-learning program, and its effectiveness, are very important strengths that could help score points for your project.

Be as ingenious and creative as you can in the ways that you communicate about your e-learning project to your target audience, and gradually they will incorporate this new approach into your company's current business practices.

HELP TOOL

10

STRATEGIES FOR COMMUNICATING ABOUT THE IMPLEMENTATION OF E-LEARNING IN YOUR COMPANY

- Company newsletter (monthly articles on the implementation of e-learning)
- Company intranet site specially dedicated to your e-learning project (phases, results, timetable, etc.)
- Create a slogan.
- Contests – place question-and-answer games for your company's employees to play on the company intranet site or in the company newsletter to demystify the new synchronous and asynchronous training technologies.
- Hang posters symbolizing e-learning at locations throughout the building while your project is going on.
- Use the company intranet site or newsletter to publish first-person accounts by people who have participated in e-learning.
- Award prizes to, for example, the 50th, 100th, and 200th participants in e-learning.
- Have your manager or senior managers give speeches to employees.
- Have the union president give speeches to employees.
- Tour areas, units, and departments to demonstrate parts of projects carried out (during and after).

Step 6

Carry out a pilot project

Carrying out at least one pilot project is a crucial step in implementing e-learning within your organization. In this step, you will ask your users to actually work through the e-learning module that you have created or purchased, and then you will gather their opinions on this new training medium. But to get as much information as possible from your pilot project, you must prepare for it very carefully. By conducting a pilot project with a small group of individuals who are representative of your target audience, you will be able to trouble-shoot your new training approach before implementing your e-learning activity among a wider audience.

Organizing your pilot project

Selecting trial participants

First of all, select a group of employees who are representative of the target audience to whom you are planning to deploy the training. Set selection criteria such as: not already familiar with training content, perform well in other training activities, have various learning styles, come from various parts of the company, and so on. Generally, with a group of 8 to 12 participants, you will obtain credible results. For large-scale projects with a wide variety of target audiences, the instructional designer may choose to conduct several trial runs.

Reproducing the training setting

In conducting your training trials, make sure to do so in a setting that simulates the one in which employees will be participating in the actual training activity later on—for example, synchronous versus asynchronous or blended training; group versus individual training; training in a specially designed classroom, or a dedicated office, or at home.

Inviting the participants

Send the participants an official, written invitation by letter or e-mail far enough in advance to enable them to attend. Ask them to confirm whether they will attend. You can also invite some experts in the content of the training and some trainers who are interested in your project to participate in this pilot project so that they can benefit from directly observing how it goes. It is also very important for your list of invitees to include a technician who could help you to get the system up and running again if it fails during your trials—it would not be the first time that this has happened!

Gathering information

Prepare your questions and the aspects that you want to evaluate with this pilot project, and compile your results methodically. In general, at the end of the training activity, it is a good idea to hold a meeting with all the participants so that they can share their experiences. You can come to this meeting with a prepared list of the items that you want to discuss. Help Tools 11 and 12 deal with evaluation of pilot projects and should make your preparations easier.

Deciding what type of evaluation to perform

When a pilot project is carried out, there are two types of evaluations—formative and summative—that can be performed to gather two different kinds of information.

Formative evaluations

A formative evaluation gathers information about the instructional design of the course: the appropriateness of the content and objectives to the training needs to be met, the effectiveness of the exercises, the level of information presented, the clarity of the instructions, the usefulness of the task aids, etc. The formative evaluation will also analyze not only the content of the e-learning, but the entire context in which it takes place, such as navigation, interactivity, and the learning environment. For a list of questions that you should consider in a formative evaluation, see Help Tool 11, *Questions to consider in a formative evaluation of a pilot project* (page 39).

Summative evaluations

A summative evaluation deals more specifically with whether the learners score a passing mark in the training activity, and whether it enables them to learn. To perform a summative evaluation, you must develop and correct some evaluation tools. If you use a pre-test and a post-test, you must have the same evaluation tools completed twice: the pre-test at the start of the course and the post-test at the end of it. Once this evaluation is done, you can decide whether to keep this training activity in your inventory or to remove it if its content does not meet the target audience's needs. A summative evaluation is generally performed after the formative evaluation has been done and the necessary corrections have been made to the activity. Some companies will conduct both evaluations during the same pilot session, but in such cases they will analyze the results of the summative evaluation cautiously. For a list of questions that you should consider in a summative evaluation, see Help Tool 12, *Questions to consider in a summative evaluation of a pilot project* (page 40).

Applying corrections after the trial

After the pilot session, get together with your content experts and discuss the changes that need to be made in the training materials. Validate these changes, if necessary, by means of a second trial. Pay close attention to the participants while the pilot

project is going on. The information that you get from them will help you to make adjustments both in the product and in its strategic implementation, before you implement e-learning on a wider scale within your company.

HELP TOOL 1**QUESTIONS TO CONSIDER IN A FORMATIVE EVALUATION OF A PILOT PROJECT**

Technology	Did the learners experience any technical difficulties that made learning complicated, unpleasant, or impossible? <ul style="list-style-type: none">• Lack of sound or video cards• Slow computer performance• Slow network response
Navigation	Did the learners have any trouble in finding their way through the various steps or learning paths that they were supposed to follow?
Interactivity	Was the degree of interactivity satisfying enough to make learning pleasant?
Learning environment	Did the learners have a favourable environment for learning? <ul style="list-style-type: none">• Times set aside for training• Isolated setting, or a way of cutting off the telephone and the other usual disruptions
Content quality	Was the content suited to their needs? Was the content organized so that it could be fully understood and easily absorbed? (sequence of activities, appropriate objectives, evaluation tools, etc.) Were the exercises and the task aids clear and did they adhere to the reality of the setting?
Support	Did the learners have access to computer technicians, content experts, and coaches while they were taking their training? What were their expectations and needs in this regard?
Timing	Was the content organized so that learners could absorb it in small doses, that is, go through a short learning session, then leave off and come back and continue later on?
Incentives	Were the training objectives well understood? What were the incentives or obligations to take this training?
Statistics	Naturally, you will want to know how many people registered for the training, how much time they spent on it, what percentage dropped out, and so on. Your LMS should make all of these statistics available to you.

QUESTIONS TO CONSIDER IN A SUMMATIVE EVALUATION OF A PILOT PROJECT

Did the participants pass the course (the e-learning activity)?

- What percentage of the participants passed the course?
- Could the participants' marks have been better?
- Are the evaluations realistic?
- Was the sample selected properly?
- Were there any factors that interfered with learning (room too small or poorly lit, lack of feedback, etc.)?

Will this e-learning activity be retained in or removed from the training program?

- Does the activity need to be reworked in order for the desired learning to take place?
- What rework needs to be done to make this activity more effective?
 - Add theoretical content?
 - Spend more time on applied practice?
 - Adjust the duration of the activity?

Step 7

Design the content carefully

Identify the type of knowledge to be acquired

To create a high-quality e-learning product, you should choose the training method (synchronous, asynchronous, or blended) that suits the type of or types of knowledge that you want your learners to acquire. In their book on teaching plans,* Lebrun and Berthelot classify the various types of knowledge as follows:

- Verbal information: is acquired by watching or listening to media such as television and radio; by participating in conferences and workshops; by reading journals, magazines, and other publications; and by taking training courses. This form of knowledge consists of facts, as opposed to skills. For example, before you can learn how to repair an automobile, you need to become familiar with its mechanical systems.
- Intellectual skills: involve knowing how to perform specific mental tasks, as opposed to knowing facts. Intellectual skills are what enable learners to transform symbols into words or to apply rules and concepts.
- Cognitive strategies: are strategies for solving problems and for using particular procedures in particular work settings.
- Attitudes: are the sum of a person's sensations or feelings regarding a particular subject in a particular situation. People's attitudes govern their behaviours.
- Motor skills: are associated with activities such as driving a car, repairing a computer, climbing a utility pole, etc. Often, business skills are expressed in the form of motor skills but are composed of other skills, such as cognitive and intellectual abilities.

Identify the specific knowledge to be acquired in each learning activity

However excited you may be about all these new training methods, never forget that the purpose of training must be to achieve specific learning objectives. Your first step should be to prepare a list of the pieces of knowledge to be acquired in each training activity. Your next step should be to convert them into learning objectives.

Using the lists of knowledge (content) and learning objectives that you have prepared, analyze the feasibility of the participants' developing the desired

* *Plan pédagogique*, available in French only; for complete citation, see Help Tool 14.

knowledge using the synchronous, asynchronous, or blended learning method that you are considering using. Ask yourself the right questions:

- If you want to teach your employees motor skills, would it be realistic to do so through asynchronous training without providing any coaching or practice?
- If you want to teach your employees verbal information, can you do so successfully through a synchronous activity without placing it in context in a specific setting?
- If you want to develop specific attitudes among employees, can you do so through synchronous training alone, without observing them in their work setting?
- Exercise good judgment and provide a learning system that enables employees to do self-development successfully. Worry about the content as much as the container—in other words, don't rely on new technologies so much that you neglect the knowledge that you are trying to convey with them. For a list of questions that you should consider in validating your content, see Help Tool 13, *Questions to consider when validating content* (page 44).
- You can also use matrices provided in teaching guides such as Lebrun and Berthelot's (see Help Tool 14) to determine which strategies are best for teaching the types of knowledge you want to convey. These matrices apply in an e-learning context as well as in the traditional classroom.

Some basic advice

Avoid content overload

In purchasing or developing an e-learning program for your employees, opt for a strategy that focuses on the most essential content. It is often very tempting to cram as much information as possible onto a single Web page, at the expense of the interaction between the trainer and the learner. If you give in to this temptation, you may get the opposite result from what you intend, and the learners may absorb only a very small portion of the course content. As appropriate, provide the learners with tools in the form of printed documents or quick-reference cards that they can use after their training is over. For a list of reference works on writing for the Web, see Help Tool 14, *Instructional references* (page 45).

Don't let learning sessions run too long

Make sure that your course sessions don't run too long. Ideally, they should last 60 to 90 minutes. Beyond that, your audience's attention will drop off significantly. It is therefore important to design the content of the entire course accordingly—always opt for small modules that the learners can absorb easily. But make sure to provide as many logical and chronological links as possible among the various modules, so that the course as a whole is completely coherent.

Allow for differing styles and speeds of learning

Not everyone learns in the same way. Some people absorb material faster than others. And as we know, there are various difference forms of intelligence.

An effective teaching approach must take these realities into account. This is one particular advantage of e-learning: it always gives trainers access to a variety of tools to reach as many different styles of learners as possible. Here are some of these tools:

- Trainers can stimulate their learners' interpersonal intelligence by having them work in teams or engage in role playing.
- Trainers can awaken their learners' visual intelligence by making maximum use of graphic materials such as photos and animation. Such materials have the advantage of combining logical, gestural, and visual intelligence.
- Even if the trainer is not physically present, gestural intelligence should not be neglected. For example, the trainer can create short scripts based on the content of the course. The introduction of role playing is also beneficial in this case, in addition to calling on interpersonal intelligence.

These are just a few examples; there could be many others. There are numerous teaching strategies that take learners' differing styles and speeds of learning into account and that can be applied to e-learning.

QUESTIONS TO CONSIDER WHEN VALIDATING CONTENT

- What type of knowledge are you trying to convey?
- Can the learning objectives be achieved through synchronous or asynchronous training alone?
- What other training activities, such as coaching or classroom instruction, might be needed to achieve the learning objectives?
- Is the course content sufficient for the learning objectives to be achieved?
- Will the exercises enable the learners to acquire the desired knowledge? Are there enough of these exercises?
- Are task aids needed as part of the course and after it is over?
- Is feedback being provided at the right time in this activity?
- Is the content structured so as to facilitate learning? Is it broken down into appropriate "chunks", presented in a logical sequence that is easy to understand?
- Is the amount of time allowed for each piece of content (module or lesson) appropriate for the learning objectives?
- Have the learning strategies (demonstrations, teamwork, feedback, group discussions, etc.) been well selected?
- Can certain important parts of the content be printed out? Can the learners keep the task aids? Can the figures summarizing the course content be printed out?
- Has the content of the activity been validated by the company's subject-matter experts?
- Does the content meet the needs expressed by the clientele and can it be applied practically within the organization?

INSTRUCTIONAL REFERENCES

Plan pédagogique, Nicole Lebrun and Serge Berthelot, Éditions nouvelles, De Boeck Université, 1994, 318 pages. (French only). This book presents a systematic approach to instructional planning. It has one chapter on selecting instructional methods to suit the type of knowledge to be conveyed, and another on selecting instructional media and developing an instructional strategy.

De la conception des contenus en ligne. Petit livre blanc. February 2001.
www.lamine.com

Écrire pour le Web. www.multimania.com/guidcoul and
www.graphisearch.com

Michael Allen's Guide to E-Learning: Building Interactive, Fun, and Effective Learning Programs for Any Company, John Wiley & Sons Inc., 2003, 326 pages.

Step 8

Clearly define the trainers' role

Use a teaching syllabus

Just like when they teach in a traditional classroom, the trainers involved in e-learning activities must teach according to a syllabus that is defined when these activities are first designed. This teaching syllabus defines the sequence of all the learning activities in great detail, along with the amount of time allotted for each, so that the trainers cannot improvise the sequence in which they teach the course.

Thus, just as in traditional training, the trainers' role will be to guide the participants' learning process, but in an entirely different training setting.

Familiarize your trainers with the e-learning environment

First, you will have to familiarize your trainers with the synchronous e-learning environment. You will have to give them some time to master the course content, the teaching syllabus, and the technology to be used. You may have to guide your trainers through the course a number of times to make sure that they are comfortable with teaching it in this new environment. If possible, involve your trainers in the process of designing the e-learning course.

Make sure your trainers are well prepared to teach the course

Your trainers must prepare just as well as if they were going to be teaching a traditional classroom course. They must thoroughly master the course content and the teaching syllabus and make sure that the technology is working properly. All of this will contribute greatly to the success of the training activity.

It is also important to check certain things before the course begins, such as access to a technician in case the system malfunctions, the number of learners who will be connecting to the trainer, the composition of this group, where its members come from, the relationship between this group and the content to be taught, and so on.

Maximize interactivity

Because the trainers are not physically present while the course is in progress, they must make the learners feel their presence continuously by other means, so as to maintain the highest possible degree of interactivity. Otherwise, the trainers' absence could increase the number of learners who drop out of the course, as well as the

number whose attention fades so much that they end up absorbing only a few scattered pieces of the content being presented.

Here are a few ways of making your e-learning courses as interactive as possible:

- Congratulate and encourage the learners, especially at the beginning, and make sure to acknowledge their progress and successes as the course proceeds. Also, make sure to let them know whether they are on the right track and whether they have completed their assignments within the required times. As a trainer, when you are not in your learners' physical presence, it is all the more important for you to know how to give them positive feedback.
- If any of your learners have not been present on line for two course sessions in a row, contact them by telephone.
- Discourage your learners from spending too much time on line for a course. Ideally, they should spend no more than 8 to 10 hours per week on training, divided into several short sessions.
- Divide the class into small discussion groups. Larger groups tend to isolate those learners who naturally tend to contribute less actively to discussions. On the other hand, don't make the groups any smaller than 5 or 6 people, because, then, if 2 or 3 participants were ever absent at once, the group dynamic would fall apart.
- Ask each group to summarize its discussions for the benefit of the other groups. That way, the learners in each group will not have to read all of the other groups' discussion threads.

Turn your trainers into coaches when needed

With asynchronous training media, such as video clips, audio clips, text documents, and e-learning software, a trainer does not have to be present while the learning is taking place, because the learners use these media when they please, during their work day or at home. Trainers can, however, play a very important role after these asynchronous learning sessions are over, by coaching the learners to help them transfer what they have learned into their work environment.

Take a creative approach to training your trainers to be versatile coaches who can help learners successfully with a variety of training methods. Help tools 15 and 16 (pages 48 and 49) will help you to train your trainers to deliver both synchronous and asynchronous training activities.

TRAINING YOUR TRAINERS FOR THEIR ROLE IN SYNCHRONOUS E-LEARNING ACTIVITIES

- Choose the right number of trainers to provide the training. Ideally, prepare a training schedule, then have your trainers validate it.
- Make a list of the tasks that will be required before, during, and after the synchronous training by the trainers, then present this list to them:

Before:

- Familiarization with the training content and the process for delivering it
- Familiarization with the technology
- Demystification of their role
- Observations of sessions by an expert and guided practice sessions if necessary
- Familiarization with the characteristics of the target audience

During:

- Taking attendance
- Applying the planned training process
- Giving feedback and correcting exercises and exams
- Giving encouragement
- Leading discussions among discussion groups and the entire class
- Answering the learners' questions
- Administering a questionnaire on the learners' satisfaction with the activity

After:

- Coaching in the workplace (optional)
- Providing a report on the training activity to the instructional designer or someone else (learning results achieved by the learners, learners' satisfaction with the activity, attendance levels, ambiguities with regard to the content, etc.)
- Suggestions for improving the content (optional) by adding more examples, exercises, or explanations
- Following up with dropouts to determine why they dropped out
- Providing explanations about the dropouts.

TRAINING YOUR TRAINERS FOR THEIR ROLE IN ASYNCHRONOUS E-LEARNING ACTIVITIES

- Determine the trainers' role in the interventions required after the asynchronous e-learning activities:
 - Coaching
 - Classroom training
 - Telephone support
 - Workplace visits
- Determine a procedure for each intervention
- Require your trainers to provide statistics on the demand for and effectiveness of the various interventions.
- Improve your interventions continually to achieve the optimal results.

Step 9

Measure the costs and benefits of e-learning

Over the past few decades, many training specialists have faced the challenge of evaluating the benefits of skills development. When it comes to e-learning, this challenge is twice as difficult, because we must not only overcome the reservations that some managers have about training in general, but also prove that e-learning can provide more cost savings and more effective instruction than traditional forms of training.

Another problem is that most companies do not know the real costs of traditional forms of training. Many of these costs are hidden: a meeting room that is regularly used as a classroom, an employee who regularly “gives the trainers a hand” in running their training programs, the costs that went into designing the teaching materials that are already available, the costs of photocopying documents to be distributed to learners, the time lost to travel for training purposes, and so on.

Types of benefits to consider

The main problem that you will have in calculating your return on investment in e-learning is that though some of its benefits are tangible and directly quantifiable, others are more intangible and harder to quantify. You will have trouble in placing a value on the latter, and you will have to find a solution in order to be able to translate them into concrete data.

Quantifiable benefits

Quantifiable benefits of e-learning include reductions in expenses for items such as transportation, meals, accommodations, and trainer’s fees. Help Tool 18, *Quantifiable benefits and costs of e-learning* (page 54), lists the quantifiable benefits and costs that you should include in your calculations.

Non-quantifiable benefits

As noted above, e-learning not only has quantitative benefits, but qualitative ones as well—for example, the benefits of improved overall communication within the company, improved customer service, and higher employee productivity. You will find that it is not easy to assign a dollar value to such qualitative benefits. Help Tool 19, *Non-quantifiable benefits of e-learning* (page 55), lists the benefits that you should include in your calculations.

Calculating return on investment in e-learning

There are as many different formulas for calculating return on investment in e-learning as there are companies that specialize in developing and implementing e-learning programs. Some experts suggest preparing a list of costs and benefits for each step of the implementation process individually. This method has the advantage of letting you clearly identify those phases of the process that generate the best return on investment in your particular organization.

There are also some specialized tools for measuring all aspects of the return on investment in e-learning. One Quebec firm even specializes in this kind of exercise and has developed expertise and tools that can be very helpful for especially complex analyses.

For purposes of tracking your e-learning activities and justifying your investment in e-learning, a good Excel spreadsheet can work wonders. Help Tool 17, *Comparing the costs of classroom training with the costs of e-learning*, shows the items to include in your calculations.

COMPARING THE COSTS OF CLASSROOM TRAINING WITH THE COSTS OF E-LEARNING

ANALYSIS OF COSTS OF CLASSROOM TRAINING

Costs associated with current delivery method

Delivery costs –participants' salaries
 Training time (hours)
 Number of persons trained
 Average number of persons per group
 Average hourly salary of persons trained
 Coaching time
 Overhead costs attributable to participants

Sub-total

\$

Trainers' average hourly salary (including benefits)

Company trainer's salary (or applicable portion)
 Salary costs for monitoring learners and managing results
 External trainer's fees
 Total cost of coaching (or post-training follow-up) per individual
 Annual overhead costs for trainers (e.g., offices, equipment)

Sub-total

\$

Instructional materials

Initial development costs
 Average annual update costs
 Costs of printing instructional materials (time + printing)
 Costs of managing, transporting and storing materials (if incurred)
 Perishable materials used in training
 Specialized instruments dedicated to training

Sub-total

\$

Training rooms and equipment

Required classrooms (\$ / room / day)
 Projection equipment (digital projectors, PCs)
 Additional computer equipment
 Licences

Sub-total

\$

Transportation and accommodation

Average transportation expenses per person for training
 Accommodation expenses (hotel, meals, telecommunications, incidentals)
 Billable travel time (\$ / hour)
 Other travel-related expenses

Sub-total

\$

GRAND TOTAL

\$

ANALYSIS OF COSTS OF E-LEARNING

Costs associated with e-learning

Delivery costs –participants' salaries
 Training time (hours)
 Number of persons trained
 Average number of persons per group
 Average hourly salary of persons trained
 Coaching time
 Overhead costs attributable to participants

Sub-total

\$

Trainers' average hourly salary (including benefits)

Company trainer's salary (or applicable portion)
 Follow-up - logistics, monitoring learners' results
 External trainer's fees
 Total cost of coaching per individual
 Annual overhead costs for trainers (e.g., offices, equipment)

Sub-total

\$

Instructional materials

Initial development costs
 Average annual update costs
 Costs of printing instructional materials (time + printing)
 Costs of managing, transporting and storing materials (if incurred)
 Perishable materials and other training instruments

Sub-total

\$

Training rooms and equipment

Required classrooms (\$ / room / day)
 Projection equipment (digital projectors, PCs)
 Additional computer equipment
 Licences

Sub-total

\$

Transportation and accommodation

Average transportation expenses per person for training
 Trainers and employees
 Accommodation expenses (hotel and meals)
 Billable travel time (\$ / hour)
 Other travel-related expenses

Sub-total

\$

GRAND TOTAL

\$

Methods of determining costs of e-learning

E-learning solution vendors offer a number of different methods of calculating their fees. Here are some examples that you should consider in your cost calculations.

Fixed price per learner

In the most common method of charging for e-learning programs, the individual or organization purchasing the program pays a fixed price for each learner (for example, \$109 per learner). One advantage of this method is that businesses or associations of businesses might claim a discount off this price by enrolling large number of participants, or by joining forces to offer common courses to their employees.

Flat fees

This approach allows the participants to register for the desired number of courses as many times as they want during a year. Once again, the number of participants might allow some economies of scale.

Billing by the course

In this case, the participants pay only for the courses that they take, and nothing more.

Billing by time

This approach is like the one used for cellular telephone service, where the users pay according to the amount of time they spend on the phone.

Free courses

Yes, you read that right! Free e-learning is totally consistent with the philosophy of the Internet. You can already send electronic greeting cards, use e-mail services, and access various databases for free on the Web, though in exchange, you will sometimes have to view advertising and commercials on some of these free Web sites.

QUANTIFIABLE BENEFITS AND COSTS OF E-LEARNING

Quantifiable Benefits

Recurrent benefits attributable to reductions in the following expenses:

- Costs for transportation, accommodations, and meals
- Trainers' compensation and travel expenses
- Costs of setting up and equipping a classroom
- Cost of producing and distributing printed documents

Additional recurrent benefits:

- Productivity gains for your employees, because they do not have to spend company time and money on travelling to attend courses
- Productivity gains for your employees, because distance learning can by definition be modulated so as to reduce the time that learners need to absorb the overall contents of a course.

Quantifiable Costs

Recurrent costs:

- Updating course content
- Presence of an instructor during courses (when the method used requires it)
- Equipment maintenance and any necessary equipment repairs
- Hosting or, possibly, service charges for an application service provider (ASP)

Non-recurrent costs:

- Purchase of equipment
- Acquisition of an Internet server if your company's existing server does not have the capacity to host the training system
- Installation expenses
- High-speed Internet access
- Licences for the learning management systems and fees for use of courses.

NON-QUANTIFIABLE BENEFITS OF E-LEARNING

Here is a list of the main non-quantifiable benefits identified by Centra. Note that almost all of these benefits are recurrent.

- Improves overall communication within your company, because of the highly interactive approach inherent in e-learning.
- Lets you call on the services of top experts, even if they are at the other end of the world.
- Improves your service to your customers, and hence their satisfaction with your firm.
- Lets you implement “just in time” training practices, with all the benefits that this entails for your organization, in particular the ability for employees to learn, practically instantaneously, the things they really need to know to get their work done.
- Lets trainers assess their learners’ progress quickly on an individual basis. Trainers can quickly and accurately assess learners’ satisfaction, learning, and transfer of knowledge.
- Greater retention of course content than in traditional training.
- Increased employee productivity.

REFERENCES ON RETURN ON INVESTMENT IN E-LEARNING

Some companies, such as Montergy (www.montergy.com/roi/), provide tools on their Web sites that let you calculate return on investment in e-learning

BNH Expert Software. A Montreal-based firm, has developed tools for calculating return on investment in blended training (visit www.bnhadvisor.com).

Many specialized publications are available from Brandon Hall (www.brandonhall.com), and ASTD (www.astd.org) offers a specialized forum on return on investment.

Jack J. Phillips is a leading authority on return on investment in training and has written several publications on this subject. His latest is *Return on Investment in Training and Performance Improvement Programs*, published in 2003.

Step 10

Deploy your project throughout the organization

Deployment strategies

Here are four strategies for deploying e-learning in your company. If this is your first e-learning project, you can surely adopt one of these four approaches. But if you have already carried out several e-learning projects before without developing a deployment strategy, then you should develop one now, so that you can manage all of your e-learning projects more effectively. This will let you make any necessary corrections in your e-learning activities so as to maintain the good reputation that e-learning has already gained as a training method within your company.

Generic approach

For your very first ventures into e-learning, use some simple, generic programs to familiarize yourself with the e-learning environment. For example, such programs are available for learning how to use well known software packages such as Microsoft Word, Excel, and PowerPoint.

This approach will give you a basic understanding of how the e-learning concept works and will let you observe the rate of adoption among your employees.

Vertical approach

The vertical approach can also be very effective for your first ventures into e-learning. This approach lets you do your own learning without running too many risks. The vertical approach consists in replacing just one of your existing training programs with an e-learning program, or alternatively, presenting one new e-learning program to meet one specific need. This is a gradual, incremental approach, in which you target one group of learners at a time.

Horizontal, task-based approach

In this approach, you develop an e-learning program that teaches one specific task to several different groups of learners who need to perform it within your organization. For example, a restaurant chain might adopt this approach to teach one particular recipe or one particular work method to all of its franchisees. E-learning lets you develop a standardized solution that can be delivered to a widely scattered audience.

Integrated approach

Once you have carried out your first few e-learning projects successfully using one or more of the above approaches, you can begin planning a broader implementation of e-learning within your organization.

Your implementation plan

Implementing e-learning means not just introducing this training method, but also making sure that it will develop into a permanent feature of your organization. For this to happen, you will have to take a considerable number of factors into account, such as resistance to change, the effectiveness of your trainers, and the need to keep adjusting the e-learning content to suit the needs of your target audience. An e-learning implementation process may sometimes have to be spread out over a relatively long period of time. There is no magic recipe, but you should pay particular attention to certain elements that will influence the success of your implementation. Help Tool 21, *Elements of an e-learning implementation plan* (page 58), lists these elements.

Review your e-learning program while delivering it

Lastly, one important part of your implementation plan must be to keep reviewing your e-learning program as you deliver it, so that it continues to meet the needs of your target audience. To deliver e-learning effectively, your organization must be committed to making ongoing improvements as this learning proceeds. You need to review the contents of your e-learning courses regularly, update them, add new instructional strategies and discard old ones as the need arises—in short, do whatever is necessary to adapt e-learning to your organization's changing situation and the changing needs of your target audiences.

Other requirements for a successful implementation

Besides the instructional strategies employed, the successful implementation of an e-learning project depends on details such as providing learners with a good place and the right equipment to do their learning; ensuring that the instructors are skilled and well trained; ensuring that managers interact effectively with the learners after they have received their training; and establishing feedback mechanisms within the workplace. Be demanding about all such details surrounding the implementation.

ELEMENTS OF AN E-LEARNING IMPLEMENTATION PLAN

- Provide training sites, schedules, instructors, support equipment, and other required resources.
- Train a sufficient number of instructors at each training site.
- Appoint an implementation co-ordinator whose role will be to ensure that the learners are properly registered for the e-learning courses, that the instructors are available to run them, and that the equipment needed for them is working properly.
- Prepare a system for certifying successful completion of the training (if required).
- Take equipment availability and maintenance into account.
- Provide a knowledge-transfer system:
 - work to be done following the training in the workplace
 - coaching new employees
 - task aids for procedures and standards to be applied
 - mechanisms to enable learners to receive on-the-job feedback from experienced colleagues, managers, trainers, and other appropriate persons.
- Plan to meet with managers who have employees who will be training themselves through your e-learning program. Discuss these managers' role in following up on this training and helping their employees to apply it on the job. If necessary, demystify this new approach.

Some valuable advice before you take the plunge

by *Marie-Ève Pineault*, Head, On-Line Learning, Training Department,
Microcell Solutions (Fido)

In light of her own experience, Marie-Ève Pineault, Head of On-Line Learning in the Training Department at Microcell Solutions, offers the following seven pieces of advice for companies that are considering implementing e-learning:

1. Before you think about e-learning, have a good training strategy in place.
2. Develop an excellent relationship with your colleagues in the IT department, because their co-operation will be essential to the success of your venture.
3. Put together a solid business plan.
4. Start with a small project, then build on success.
5. Manage expectations: e-learning is not a magic bullet. It requires ongoing, sustained effort.
6. Select your partners (suppliers) carefully.
7. Consult other people and benefit from their experience.

"At Microcell", Ms. Pineault says, "we have achieved savings of 30 to 50% while also increasing the quality of our programs—we now update them more rapidly and have standardized them throughout Canada. The flexibility of e-learning has been a factor in its success among our sales representatives, whose schedules sometimes make it hard for them to take traditional training courses. We have also seen an improvement in our employees' performance following the implementation of blended training and our evaluation strategy."

She stresses, however, that the implementation of e-learning is not a task to be undertaken lightly. "You have to convince people and manage the change. It is also essential to assess your current installed base of computers before you begin: 'Do we have the computers we need? Do they satisfy the technical specifications for the e-learning solutions that we have adopted? Does our network have the bandwidth needed to handle multimedia?' "

Lastly, though e-learning will deliver substantial savings once it is up and running, the initial development costs are high and should not be overlooked.

CONCLUSION

The 10 steps presented in this guide should put you on the right track to implement e-learning smoothly within your company and to achieve positive results. Keep in mind that this guide was developed using specialized documentation and drawing on the winning practices of the firms in Quebec and elsewhere in North America that are the leaders in e-learning.

Also keep in mind that e-learning changes not only the way that people are trained, but also the way that training products are designed and delivered. With e-learning, other professionals, such as graphic designers, multimedia integrators, and systems engineers become part of the instructional-design process. Instructional designers must thus interact with more other professionals than ever before while also broadening their own expertise. And trainers must adapt to playing less traditional roles than the ones they are used to.

The training function faces some major challenges in any business organization. Most of the people who work in the training unit do not have the expertise needed to launch e-learning projects in their firms, but they can consider certain options. To begin with, the members of the training unit can bring in outside firms to develop their e-learning projects and can take advantage of this opportunity to train themselves and acquire some experience. They can also gradually upgrade their own skills and take courses in this field. (Many educational organizations now offer short programs on multimedia instructional design.)

Lastly, new training and communication technologies will affect the way that everyone throughout the organization does their job. Managers of training units must keep alert to the latest trends in training and be proactive in the services that they offer to their various clientele. Trainers must adapt their advisory and supporting roles to the new technologies being used to provide training. Instructional designers must master new processes for designing training activities. And employees must learn how to use new technologies to train themselves. In short, everyone must contribute their efforts if e-learning is to be implemented successfully within the organization!

GLOSSARY

AICC (Aviation Industry CBT Committee) – Originally established to set standards for training manuals used in the aviation industry. Today, some AICC standards are used in certain e-learning software packages.

ASP (Application Service Provider) – A company that rents out the use of application software to businesses, often on line, along with all the associated services.

ASTD – American Society for Training and Development

Asynchronous See: Asynchronous training

Asynchronous training A training method that does not involve any direct, simultaneous interaction between the members of a group of learners and their trainer or among the members themselves. In an asynchronous training program, learners communicate with their trainer and with one another by e-mail or through on-line discussion forums.

Authoring system A system with which an asynchronous Internet-based or intranet-based training activity can be created using pre-programmed screen pages. When an authoring system is used to incorporate the content into the screen pages, the software programming for the course is done automatically, so no multimedia integrators are required.

Bandwidth Capacity of a communication channel to transmit data. The channel's bandwidth is the maximum quantity of data that it can transmit per second. Bandwidth is calculated in bits per second (bit/s), a unit that measures both the flow rate and the transmission speed of the data. Bandwidth can thus act as an indicator of both speed and flow rate. That is why, in some contexts, the term "bandwidth" is replaced with the term "throughput".

Blended learning – A learning method that combines the elements of on-line learning and traditional classroom learning. In addition to benefiting from traditional classroom instruction, the learners have access to new technologies (such as the Internet and CD-ROM) either in real time (videoconferencing, on-line chat) or in non-real time (discussion forums, e-mail exchanges, instructional software).

CanCore Canadian Core Learning Resource Metadata Application Profile. This profile is designed to facilitate the retrieval and reuse of learning resources in Canada and around the world. CanCore is based on the IEEE Learning Object Metadata (LOM) management standard and the IMS Learning Resource Metadata specification, with which it is fully compatible. CanCore provides the instructions for all of the elements

relating to the LOM and identifies a subset of these elements to stress their particular usefulness for describing and searching for resources. (www.cancore.ca).

Chat session – Interactive discussion session that takes place in real time with the support of an Internet chat service.

Discussion thread An on-line exchange or discussion that does not take place in real time. A series of messages on a given subject, contributed by the members of a group.

E-learning – Learning carried out with the help of information technologies (Internet, intranet, videoconferencing, on-line discussion forums, on-line chat, e-mail exchanges, etc.) and new training technologies (CD-ROM, learning software, instructional software, etc.).

E-learning community Community of practitioners who use information technologies to share their knowledge and pursue their training. The members of e-learning communities use technologies such as the Internet, discussion groups, virtual meeting rooms, and teleconferencing.

ICT – Information and Communications Technologies

IMS (Instructional Management System) – Set up to develop standards regarding the operation of e-learning software programs.

Interoperability Interoperability refers to the reuse of on-line instructional resources by various organizations or by various programs or units within the same organization. Interoperability means that a program that runs on one open system will also run on another system by referring to common programming bases.

LCMS (Learning Content Management System) – System used to manage the distribution of on-line courses from the host server of an e-learning program.

Learning Object – Any digital or non-digital entity (structured information, exercise, defined piece of multimedia content, etc.) that may be used, reused, or called in an e-learning program.

LMS (Learning Management System) – A computerized system designed to automate the various functions involved in organizing courses, managing their content, tracking the participants' progress, and supervising the people in charge of the various training activities.

Metadata This term means “data about data”. It refers to the pieces of information that can be used to categorize, classify, and locate learning objects or data.

ROI Return on Investment

SCORM (Shareable Courseware Object Reference Model) – A model for standards specific to the e-learning industry. It incorporates the standards of the AICC and the IMS.

Synchronous – See: Synchronous training

Synchronous training The opposite of asynchronous training. A training method in which all of the people involved are in direct, simultaneous contact. In e-learning situations, synchronous training is the approach that comes closest to traditional real-time lecture courses: all of the learners in the e-class are in simultaneous contact and can communicate with their trainer and with one another by means of on-line chat, shared applications, shared electronic whiteboards, and videoconferencing systems.

Virtual classroom Interactive site where learners and trainers can communicate with one another in real time.

XML (Extensible Markup Language) – A language for presenting information on the Web. XML allows the style to be separated from the content, which gives content publishers a wider range of possibilities than with HTML, the markup language most commonly used now. In particular, XML will allow the interoperability of data from one application to another.

For French-language terminology related to e-learning, you may also consult the *Grand dictionnaire terminologique*, the on-line dictionary maintained by the Quebec government's *Office de la langue française*, at www.oqlf.gouv.qc.ca.

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