



“A Guide to E-Learning: Towards a Knowledge Enterprise”

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1. About this guide

This guide is aimed at anyone who has a professional interest in or need to know about e-learning. The modern business environment, whether private or public sector, is sharply competitive and every edge counts. Recruitment and retention are starting to be impacted by an organisation's strategy for learning and development.

In recent years, e-learning has caused a storm of debate, not least of all because it was originally seen as the "magic bullet", the one solution for all. Even better, it came with the promise of vast savings on training expenditure. Those myths have, by and large, been exploded, and the e-learning concept has matured into a more business orientated offering.

Today, we can see an increasing convergence in our business communications systems. We are seeing an evolution from the information based society into the knowledge based society, in which information for its own sake is no longer enough. Knowledge is managed information, and this is where e-learning comes in. The technology enabler of e-learning allows us to manage information, transforming it into knowledge with the objective of leveraging more from our most precious asset - employees.

I personally believe in the value of blended learning solutions, and the need for learning environments that allow the individual to learn at their own pace, and in the way that best suits them. Within this blended environment, e-learning has an important role to play. The contents of this booklet are based on real experiences, and accrued knowledge from being in the business of providing bespoke learning solutions over 15 years. I hope that you will find this a useful and even inspirational guide.....

2. What is e-Learning?

Good question! There are probably about as many definitions of e-learning as there are off the shelf e-learning packages! Which is why I've decided to start this section of the guide with a short walk down the corridors of history. Where did e-learning come from, how did it start?

A Little History...

In the late 1980's, a new kind of media called "multimedia" started to make an appearance in UK schools. Multimedia - often mistakenly referred to as a CD-ROM (which, of course, as we all know is merely the bucket in which the multimedia is stored) - was quite clearly defined then. A software application could be described as being multimedia if it combined the use of three or more different media types: text, audio, video, animation, graphics, etc. It could be described as being "interactive" if the application gave the user the ability *to interact with the content* to a greater or lesser degree.

As multimedia transitioned into something called "Computer Based Training " (CBT) during the early 1990s, it began to lose some of that clear cut definition. Programs were referred to as interactive even if all they did was allow you to click a button to run a video clip or navigate to the next page. CBT was billed as multimedia if all it

contained were pictures and text. Even Powerpoint presentations and word documents became included in the catch all phrase “CBT”. It was desperate!

Then, around the time of the dot com bubble, someone coined the phrase “e-learning”. But neglected to create either a standard or definition of what this was! In fact, more attention has been paid to the standards for Learning Management Systems and the technical format of learning content than has ever been paid to the content itself. The poor learner! Fortunately, things are changing.

Modern e-learning - a definition

I tend to define modern e-learning as a structured curriculum of learning content and assessment that is accessed via computer, and which is controlled via a Learning Management System or LMS. The content is clearly linked to learning or training objectives, and makes use of multimedia and interactivity as appropriate to those objectives, and the learning community.

As a framework approach, I like to use the ARCS model when designing an e-learning solution:

Attention: gain the learner’s attention and *keep it*

Relevant: ensure the learning objectives and content are relevant to the learner

Confidence: instil confidence in the learner through, for instance, timely feedback

Satisfaction: ensure that the learner gains satisfaction, both personally and with the learning itself

In other words, *learner motivation* is a key factor.

Later on in this guide, we’ll look at some models for good e-learning, and take a closer look at instructional design. Importantly, modern e-learning should always form part of a blended learning environment that includes other methods of teaching and learning to their best advantage.

The advantages of e-learning

It’s worth taking a moment to consider the unique advantages that e-learning brings to the learning environment. First, the practical benefits:

- E-learning can reduce the time spent learning by as much as 300%. This is based on converting a traditional classroom lesson 3 hours into an e-learning episode of one hour.
- Cost savings can be achieved through reducing the cost of logistics (eg, travel costs to off site training centres) and time spent away from work.
- Use of a Learning Management System brings greater control and accuracy to planning, skills gap analysis and support delivery.

Then there are the pedagogic advantages:

- E-learning offers self paced learning, often described as “Fixed Mastery, Variable Time”. That is, an individual can achieve a pre-determined level of knowledge and understanding, working at their own pace.
- E-learning is “on tap”: it’s available when and where it’s needed, and is always available for refresher training.
- Through the use of a Learning Management System and assessment, the learning provided to the learner will be relevant to their needs.
- Content can be used to support collaborative learning, and also instructor led learning.

Who’s using e-learning?

By far the biggest impetus in the take up of e-learning is coming from central and local government. Considerable investments are being made in developing new infrastructure and content most notably within education, health and defence.

In the private sector, organisations have been slower to take up the challenge, but fuelled by some early successes, we can now see specific market sectors taking a lead. Large dispersed retailers are replacing the cost and inconvenience of sending personnel to training sites with learning delivered at the point of work. Motor manufacturers are “driven” by a specific business need: new EU rules mean that demand for training could well expand considerably beyond their traditional classroom facilities. The Energy business is another market sector that made a relatively early entry into technology based training.

So, with the private sector, the move into e-learning has followed a clear pattern: organisations with geographically dispersed business units or franchises, which already have well established enterprise wide communications strategies, and which place a strong emphasis on personnel training and development.

Another initiative which has prompted the take up of e-learning is the government’s lifelong learning policy. Personnel development at the point of work is more and more an issue both with employers and employees. A 2003 survey of UK companies produced the surprising statistic that some 40% of young people leave their job because of dissatisfaction with training opportunities. In other words, learning and development have become part of the remuneration package: indeed, learning has become a *business process*.

Lessons learned combined with innovations in new technology have brought e-learning into the realm of affordability. E-learning, whether in the form of an off the shelf package, or a custom built system, is within the reach of all enterprises no matter their size.

Learning Management System - what it is?

In any learning environment, there is a system or process of control. Individuals need to be managed through their learning period. Adults learn best in an environment where they feel secure and comfortable, where the learning is relevant to them, and where they can easily check their own progress.

A Learning Management System or LMS is a software application that acts as a portal or gateway, allowing and managing access to linked content and applications, and which has a database that stores information on usage. Its key attributes and features are:

- Individual registration, login and password protocols;
- Individual learning or training plans;
- Managed access to online/offline learning and assessment content;
- Can offer point of booking facilities for offline or practical curriculum content;
- Tracks each user's use of learning content and performance in assessments;
- Bookmarking to enable users to store one or more places in learning content (and assessment, if desirable);
- Dynamic report generation;
- Access to the Course / Curriculum catalogue.

Desirable features can also include:

- Discussion forum;
- Chat room;
- News Groups;
- Online webinars and conferences
- Collaborative learning environments.

In the converging business system environment, it is wise to consider links and compatibility issues with existing or planned Enterprise Planning Systems, HR and payroll systems for instance.

The next evolution of LMS sees an integration with Knowledge Management Systems, providing enterprises not only with the ability to access learning and assessment content, but also to *generate* some of that content themselves.

3. Strategic Approach

Any new project should start with two questions, and e-learning is no different: why are we doing this, and how will we achieve it. The first sets out the aims of the project while the second explores means and methods of getting there.

One of the most important steps towards achieving success is to secure the sponsorship and endorsement of senior management. That doesn't just mean getting "buy in". It means ensuring that the opinion formers and influencers at the top of the organisation fully understand the aims of the project, and the changes that it is likely to effect on both the business and its people.

There are six key factors that should be considered and planned for:

1. The aims of the e-learning project must be aligned to business goals
2. The approach must be learner centric - the learner must be motivated
3. The project must aim to deliver some quick wins

4. Support must be invested in - the right kind of support, tailored to the enterprise and its people
5. Measurements for success must be meaningful
6. The project must be marketed within the organisation.

Learning is about change: change in skills and knowledge, attitudes and values. So, “change”, in both the personnel and organisational dimensions, needs to be addressed as an integrated element of any e-learning project. A useful model for this is:

Awareness
Desire
Knowledge
Ability
Reinforcement

4. Learning Design

Confucius said: “I read and I forget, I see and I remember, I do and I understand”.

The key to successful e-learning *content* is good learning design. This is the term given to the professional skill of designing the learning approach to be taken to a particular course, bearing in mind four factors:

- The subject matter and training or learning objectives
- The profile of the people who will take the course (eg different learning styles)
- The available technology and environment which will enable the course delivery
- And, of course, the requirements of any existing learning strategy.

I would always recommend the use of multimedia, where feasible, as a means of stimulating the senses, and interactivity to engage and compel the learner. In some circumstances, it may be necessary for the instructional design to find a compromise that suits radically different learning styles. This is why the profile of the potential learning community is important. There are also techniques that allow us to develop content in a way that enables the learner to customise the content to suit their preferences. This is particularly important where there is a need to take on board accessibility issues.

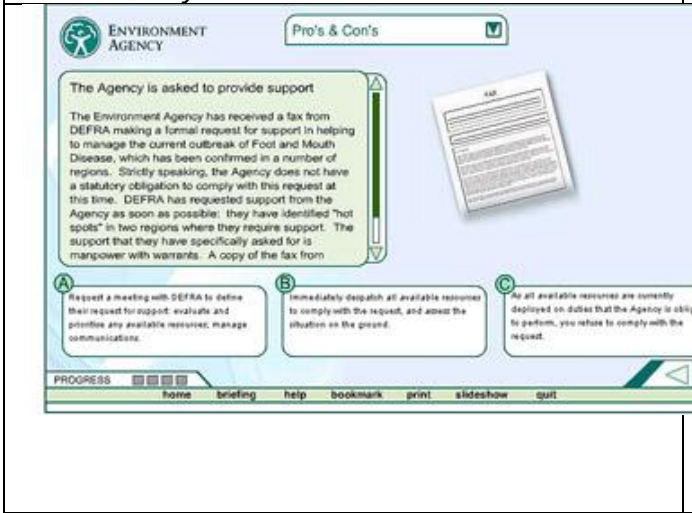
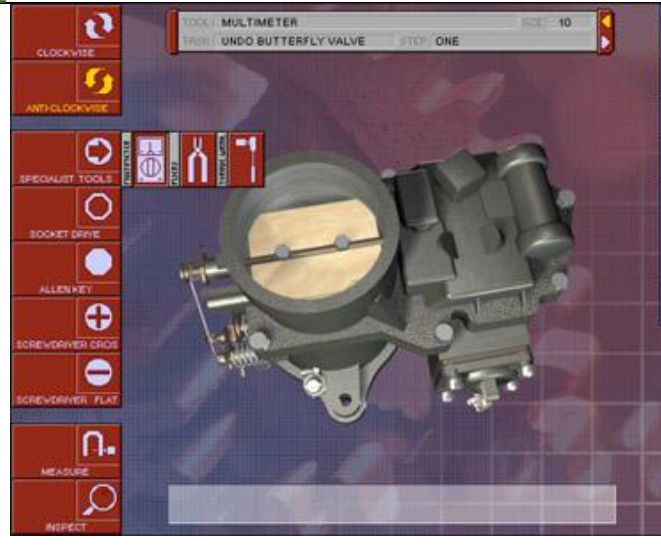
One of the most frequently asked questions is what type of learning course or topic most lends itself to being delivered as e-learning. The general rule of thumb is that any course that is based on theory, policy or procedure ideally lends itself to this environment. Competencies training can also be suited, particularly by using a scenario based approach.

Let’s explore some brief examples of good learning design.



Produced for the Royal Military Academy Sandhurst, this standalone distance learning program incorporates an effective and unusual feature: an “on screen mentor”. The mentor walks in and out of the screen, directly addressing the learner in response to decisions and selections made by the learner. So, his role is to provide responsive feedback, but also to encourage the learner to explore and expand their knowledge.

This screen shot is taken from an application that exemplifies how e-learning can be most effective in procedural training. An interactive, high resolution “as built accurate” 3D model of a carburettor, combined with a selection of “virtual tools”, allows the learner to study and practice the processes and procedures for dismantling and inspecting the equipment. This is a classic example of using e-learning combined with practical training to best effect. Once the procedures have been learned in the virtual environment, the time spent learning on the real equipment can be considerably reduced.



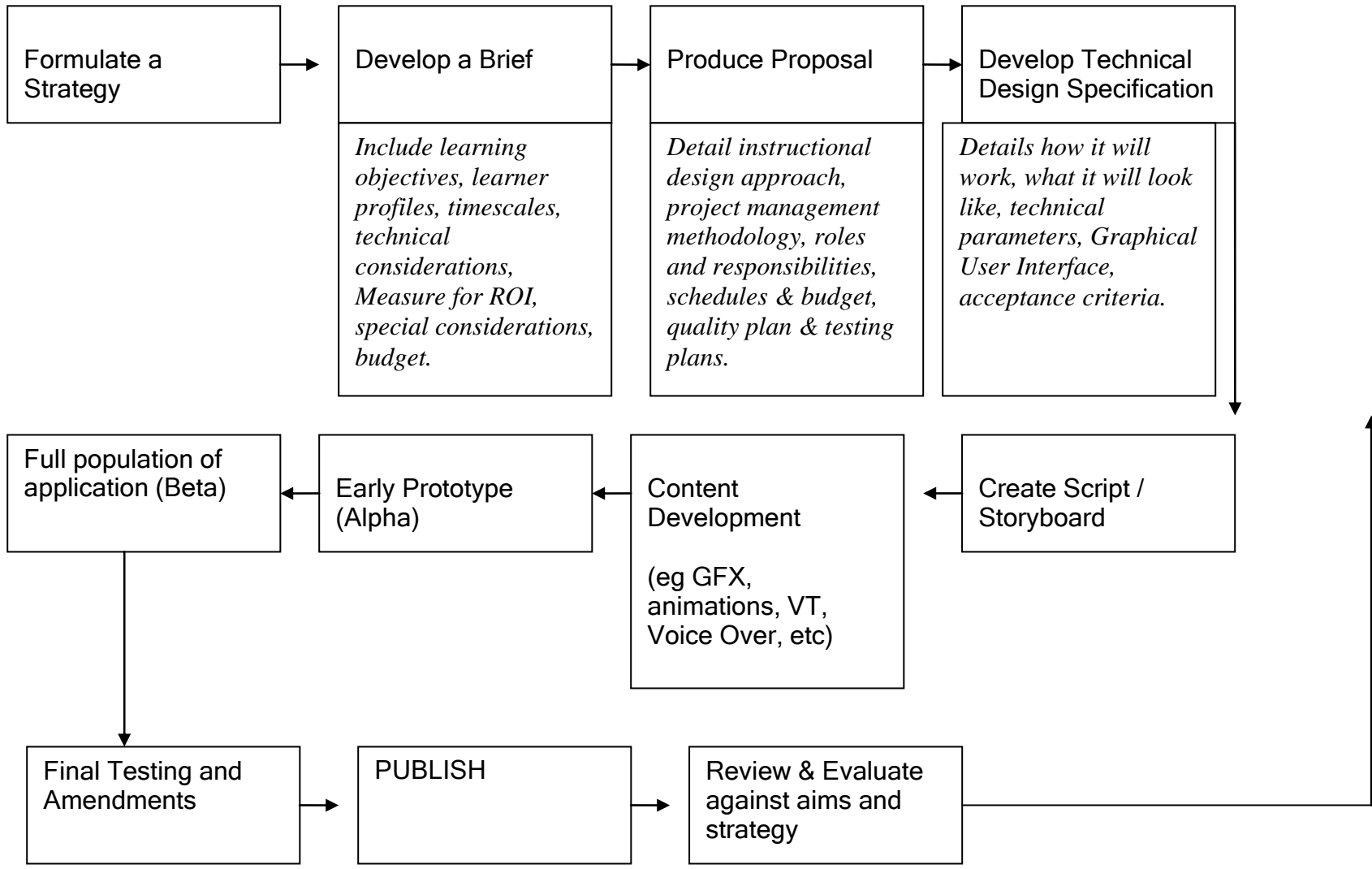
Developed for the Environment Agency, this Strategic and Tactical Incident Management (STIM) e-learning application exemplifies best practice in blended learning. The e-learning solution focused on policies and procedures, providing a solid grounding in the Agency’s responsibilities and roles in major incident management, which is then underpinned with a shortened practical off site course. The learning application took a scenario based approach, where learners are required to make best judgement decisions based on a variety of often conflicting information.

"Fire Alert" is a fire safety training application that uses pre-assessment to evaluate skills and competencies gaps, prior to engaging on the learning content. The program makes use of 3D environments and models to engage the learner, and incisive video clips with voice over to relate key points and visualise important procedures and practices.



5. Planning and Production

In broadbrush terms, an e-learning project can be split into three main phases: planning (25% of the total timeframe), production (50%) and testing (25%). This flowchart illustrates the various stages that a typical e-learning project will progress through, with brief descriptions of each one.



6. Testing and Evaluation

The importance of testing and evaluation should never be underestimated, nor the time allowed for this vital part of project development. The developer's policy and procedure should be to undertake continuous testing of software as it is developed, evaluating the application on two levels: technical compliance and overall project aims. It is through this rigorous and thorough attention to detail that developers are able to deliver projects that work in the environment for which they have been developed, both from technical and a learning delivery point of view.

Testing and evaluation should address the following specifics:

- Graphics and text are correct and in the right place
- Animations, audio and video content function as they should
- Navigation and links buttons function as stated in the technical design
- Functionality features work as expected
- The application works in the client's IT environment
- The application integrates smoothly with any other applications that it should
- Any copyright issues concerning content have been addressed

And

- The content is appropriate to the learning objectives.

The criteria for project acceptance - that is the handover of all deliverables to the client at the conclusion of the project - should be discussed and agreed early on in the project. Such criteria can include, for instance, a demonstration of the application running as it should on the client's "target hardware".

As we can see in the Planning and Production section of this guide, e-learning development is split into a number of stages, each of which has a milestone which is an opportunity for the client to review and approve, or request amendments to the work in progress. Following this methodology through to its conclusion results in a project outcome that meets and in many cases, surpasses the original aims set for it.

7. Standards

Some organisations, particularly public sector, have signed up to an international standard for the development of learning and information technologies called "SCORM"™. SCORM, or Shareable Content Object Reference Model, was developed by the US Department of Defence to define high level requirements for learning content such as content reusability, accessibility, durability and interoperability.

The current version is SCORM 1.3. The full definition of SCORM can be accessed via ADL's website (www.adlnet.org). This document outlines the requirements for LMS's, Shareable Content Objects, Meta-data and Content Packages.

8. Six steps to success

Let's assume that you want to introduce e-learning to your organisation. This simple set of six steps will help to guide you on the way to success.

1. Make sure that e-learning is the *right* choice. Consider all the options, and satisfy yourself and others that e-learning is going to offer the best solution.
2. Educate your project sponsors so that they fully understand the aims and intentions of the project, and ensure that the project aims are themselves supportive of the organisation's business aims.
3. Define the scope of your project: you may wish to start early discussions with e-learning solution providers to ensure that you consider *all* options. This will be very helpful in ensuring that your e-learning solutions partner fully understands and empathises with your aims, and your organisation's aims.
4. As soon as an early working prototype is ready, use it to market and promote your project internally. The risk is that the prototype may come in for considerable criticism, but this is a first opportunity to derive direct feedback, and incorporate this into future development work.
5. Prepare a document or even an intranet webpage that sets out the project aims and achievements for internal communications. Again, this helps to promote and market the project and its output early on.
6. Remember, learning is about change, and change must be managed as it will affect both individuals and the business. Early on in the project, start an integrated change management strategy using the ADKAR model (see Strategic Approach section).

Good luck!

8. Glossary

This is by no means an exhaustive list of definitions and terms, but does include those most commonly used and with which a degree of familiarity would be useful.

- CBT = Computer Based Training
- LMS = Learning Management System
- CMLS = Computer Managed Learning System (same thing as an LMS)
- SCORM = Shareable Content Object Reference Model
- Learning Object = a standalone module of learning with a single learning objective
- Portal = a software application that functions as a gateway, providing and managing access to linked applications
- Learning / Training Objective = the single statement that describes what an individual will be able to do on completion of a module of learning content. Words used should always be active, rather than passive.
- Meta-data tags = the coded links that connect one element of an application with another
- Interactivity = the level to which the content of an application can be manipulated, changed or modified by the user.
- Navigation = the method by which a user can move hierarchically - horizontally and/or vertically - within a software application

- Graphical User Interface or GUI = the physical look, style and functionality of the application through which its contents can be accessed
- Template = the software structure that is designed to contain all of the necessary code to enable the planned content to be presented and all functional features of the program
- Assessment or Analytics = tests used to measure the extent to which an individual has accrued knowledge and understood the learning objectives
- Login = the method by which a user accesses a secure application
- Administrator = the term given to privileged access to an application
- Storyboard / Script = the written / visualised document that plans the application to be created in every respect
- VO = Voice Over

END.