

eLEARNING WITH LITTLE TIME – the need for context – based assistance and multimodal access

Introduction

Fifty years ago most jobs were for life. Keeping knowledge and skills of the workforce up-to-date was not a major problem. How different life is today. In the Information Technology industry, these two important statements will stay with us for the next fifty years:-

- Change is constant in the Information Technology industry.
- Information Technology is only as good as the people who manage it.

In any dynamic working environment even the most astute professionals need to keep on top of their business. Workshops, traditional training courses and more recently blend elearning approaches enable IT professionals to keep on top of current and emerging issues such as Microsoft's .Net development, Linux, system administration tools, software patch management or even the implication of using unlicensed software. The trouble is with IT professionals, that many of them do not have the time to learn!

That being said, the pace of this industry is so rapid and to keep up means progressing personal and skills development. With little learning time available, we wonder still about the promise of eLearning to help with our personal development in a dynamic working environment.

The eLearning future

eLearning was hailed in the 1990's as the future of management training, because of its perceived advantages: minimal cost, disruption and time away from the job.

Respected commentators such as John Chambers (Cisco) predicted in 1999 that the impact of online education as a whole 'would make email usage look like a rounding error'. Now, some years on, that early promise does not look like it has been realised. This point is brought home by a European study report in 2002 "Quality and eLearning in Europe". It revealed some disastrous facts about eLearning:

- 61% of all respondents rated the overall quality of eLearning negatively - as 'fair' or 'poor'.
- 1% rated it 'excellent' and only 5% rated it 'very good'.

That report is based on a web-based survey with 433 respondents. Perceived reasons for eLearning's slow growth is a combination of factors / barriers:

- Fear of poor investment due to lack of established solutions, companies, standards etc.
- Lack of time for eLearning
- Lack of expertise to use eLearning solutions
- Inadequate accessibility (barrier free access) and usability (interoperability)
- Lack of a customised, tailored eLearning service
- Failure to integrate eLearning with the work and life process
- Inadequate (restricted) low-quality learning content
- Doubts about eLearning benefits and expected expensiveness of some solutions.

Europe needs to rapidly expand educational opportunities and embed a culture of lifelong learning to evolving skill requirements that addresses the slow growth factors and barriers. In response, the European Commission established an

eLearning Action Plan. This could mean a second coming of eLearning, as the Commission has set a number of ambitious challenges to European education and training systems to:

- develop the comprehensive integration of ICT into education and training
- create flexible infrastructures that will make eLearning available to all
- promote universal digital literacy
- create a culture of lifelong learning
- develop high quality European educational content.

The net effect will give Europe an opportunity to achieve an expansion in education and training and as a result the future for eLearning looks brighter. Marketers would seem to agree. Comparative estimates for corporate eLearning revenues show some cohesiveness at around billion to \$7 billion in 2002.

Comparative Estimates: Worldwide Corporate E-Learning Revenues, 2000-2010 (in billions)

	2000	2001	2002	2005	2006	2010
Cortona Consulting*, November 2002	-	\$5.0	-	-	-	\$50.0
Gartner, 2001	\$2.1	-	-	\$33.6	-	-
International Data Corporation (IDC), January 2003	-	-	\$6.6	-	\$23.7	-

Note: *US and Europe only
Source: various, as noted, 2001-2003

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Projecting outward, Cortona Consulting says the eLearning market could reach \$50 billion by the end of the decade. Like many sectors spawned from the emergence of the Internet, it has suffered the slings and arrows of outrageous forecasts, but all indications now point to a growing and vibrant sector. This will be fuelled by the current generation that has grown up with the Internet.

Though eLearning will never replace the classroom, the current generation of students will respond particularly well to online educational opportunities, a notion, which brought about the concept 'blend eLearning'. Based on optimistic market forecasts from well-known market research companies like Cortona Consulting (2002), Gartner Group (2001) or IDC (2003) quite a large number of different eLearning applications have emerged and are emerging on the marketplace. As we have seen historically with battles over such things as video tape formats, email

protocols, and the platform battles between Microsoft, Apple, Sun, HP, and others, companies often start out with proprietary technology that will not work well with others. However, these technologies often do not meet the needs of end-users, and thus, the market typically drives the various leaders from business, academia, and government to work together to develop common "standards." This allows a variety of products to co-exist.

The convergence of technologies is also very important for the consumers of these technologies because products that adhere to standards will provide consumers with wider product choices and a better chance that the products in which they invest will avoid quick obsolescence. Likewise, common standards for things such as content meta-data, content packaging, content sequencing, question and test interoperability, learner profiles, run-time interaction, etc. are requisite for the success of the knowledge economy and for the future of learning. Fortunately, these standards and specifications are arriving. For example, the IMS Global Learning Consortium develops and promotes the adoption of open technical specifications for interoperable learning technology. Moreover, it maintains a catalogue, which lists a good number of products and suppliers, which comply with these open technical specifications: <http://www.imsglobal.org/direct/directory.cfm>.

“Education, training and research are the key to economic renewal ... we need an integrated strategy for education and research based on networking and mobility giving priority to the technologies of the future.”
—Romano Prodi, President of the European Commission to the European Parliament, January 2002

There are still many problems, opinions and challenges for people from different walks of life. From the employer's perspective, the challenge is to integrate learning into day-to-day working processes as part of an overall approach to manage knowledge and leverage the organisation's intellectual capital. The increasing relation to work implies the application of knowledge to real tasks with an element of 'learning-by-doing'. Still current approaches to ICT-supported vocational training mainly address the use of new technology within traditional training settings. The benefits sought are mostly cost reductions with little or no added value in the

learning process itself.

Users often fail to see the benefits of ICT-based training solutions, which are developed with little involvement of pedagogical experts. Current solutions also tend to focus mainly on technical subjects to be applied in large industrial organisations.

Further challenges arise to employees, highlighted in an important finding of a survey commissioned by the European Directorate General Education and Culture, called "Lifelong learning: a citizen's view". This survey identified the main obstacles to lifelong learning: **time and money**. *"Although European citizens recognise the personal and social benefits of learning, they underline that lack of time due to job and family commitments is an important obstacle. [...] This suggests that implementing lifelong learning effectively must find ways to enable people to combine activities in ways that suit them practically and personally"*. This could be interpreted to mean that individualised and flexible learning options are effective incentives. People mention diverse incentives, but most common are flexible working hours (21%), individualised programmes of study and personal choice of methods of study (20% each). This would perhaps suggest that implementing lifelong learning effectively must find ways to enable people to combine activities in ways that suit them practically and personally".

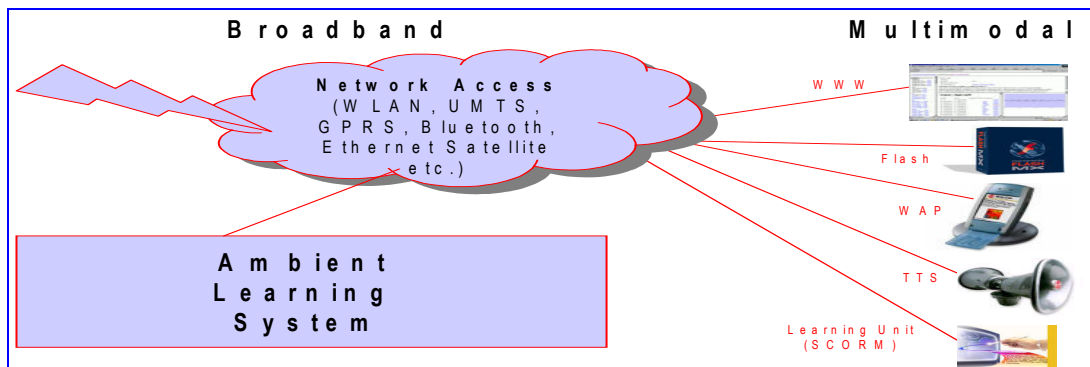
Ambient Learning

Exactly the above-identified obstacles started the AMBIENT LEARNING project. Its objective is to provide a pragmatic, easy-to-use eLearning service, which allows any time, anywhere and anyhow access to personalised, high quality learning content. AMBIENT LEARNING is an eLearning web-service, which allows to use "any content", from articles out of magazines, internet articles up to SCORM (Shareable Content Object Reference Model) based eLearning solutions and deliver it to the user based on the user context (time-, location-, device-dependent) at any time and any how. The service is based on stable and mature technology (CAS Teamwork) and offers ambient, multi-modal, multilingual, personalised and context-sensitive access to learning at work, at home, at a training institution or on the move. The service will be demonstrated around five European regions (Italy,

Germany, Greece, UK and Ireland). This project is at market validation stage and is partially funded by the eTEN Programme designed to help the deployment of telecommunication networks based services (e-services) with a trans-European dimension (http://europa.eu.int/information_society/activities/eten/index_en.htm).

Distinguishing Services of the System

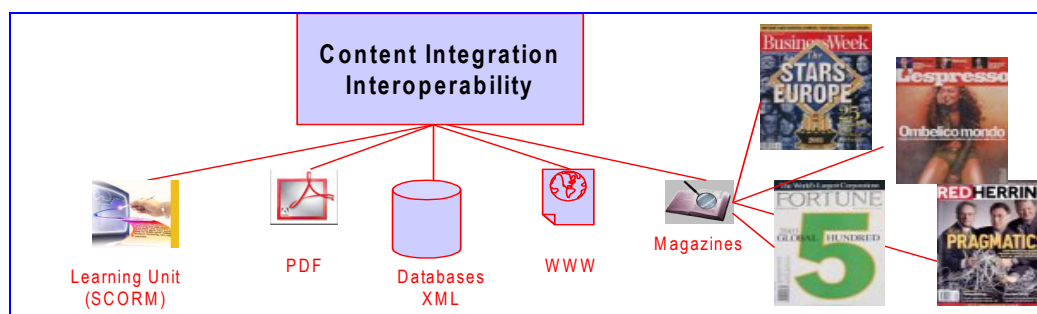
The main distinguishing services are highlighted below:



- **Multimodal Broadband Access** allows the user access to eLearning objects any time, anywhere and anyhow. The AMBIENT LEARNING system supports broadband network access: with LAN, WLAN, GPRS, UMTS, Bluetooth, Satellite etc. The content is available based on the context as Wen-Document, as (mobile) Flash, as WAP (2.0), as read-out text (voice-XML and TTS), as interactive learning object (e.g. SCORM-based), etc.
- **Multilingual Access** allows the user to define the language in which we wishes to receive the eLearning content.
- **Context Management** allows delivering the eLearning services in an individualised and flexible way. There is a long list of context dimensions which are taken into account, some of them are: Profile, Role, Schedule (Calendar), Tasks, Working Content, Interest, Existing Know-how, Time, Place, Available Device, Preferences, Network Access and many more. Based on the context the

learning content, which suits the user perfectly can be delivered context-specific taking into account the various context dimensions.

- **Content Integration** allows integrating existing knowledge catalogues and eLearning resources. The ability to leverage existing content is a critical component of eLearning. Reusing existing content not only accelerates these eLearning initiatives, but also improves overall quality. The benefit is to effectively 're-purpose' and target content, ending the costly cycle of recreating content for a particular need, audience, or distribution device, and to protect investments in already existing eLearning objects. For the pilot usage the content of European scientific and professional magazines is integrated.



Moreover, it assures interoperability. Interoperability is the ability of a system or a product to work with other systems or products without special effort on the part of the customer. The AMBIENT LEARNING system achieves interoperability with eLearning content either by adhering to published interface standards or by making use of a "broker" of services that can convert one product's interface into another product's interface on the fly.

Conclusion

eLearning, is on the way back! Research, European directives and more favourable market and technical conditions would suggest that second time around could be the right eLearning. The AMBIENT LEARNING system provides insight to practical ways to learn and it offers a pragmatic eLearning service. Thus,

eLearning can be approached in terms of flexible individual learning solutions available on a ubiquitous basis and with complete mobility. Mobility is a complex concept, not just a question of the use of portable devices. It includes the ability to learn on- or off the job, as well as flexibility at different times or in different places. Will the AMBIENT LEARNING system make a difference for the second coming of eLearning? Will the eLearning AMBIENT LEARNING approach embrace the life of professionals in a way that suits them practically and personally?

The web site is <http://www.ambientlearning.net/>

What is eTEN?

eTEN is the European Community Programme designed to help the deployment of telecommunication networks based services (e-services) with a trans-European dimension. It focuses strongly on public services, particularly in areas where Europe has a competitive advantage. The programme aims to accelerate the take up of services to sustain the European social model of an inclusive, cohesive society. Its objectives are at the very heart of the eEurope mission of "an information society for all". It promotes public interest services which give every citizen, enterprise and administration full opportunity to gain from the e-Society.

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Dr. Bernhard Kölmel is co-ordinating international research and strategic development within the CAS Software AG group, specifically he is overall project manager of the Ambient Learning project. Before he joined the CAS group he was head of the departments Technology Transfer Business Process Engineering and Management at the IT research center (FZI) in Karlsruhe. Dr. Kölmel received his PhD with honours from the University of Karlsruhe (economics of software engineering). Dr. Kölmel was project coordinator of more than 20 large international projects.



Dr. Kölmel has worked extensively for the European Commission in a series of different capacities.

Dr Adriane Rinsche

Dr Rinsche is Managing Director at The Language Technology Centre Ltd. She has overall responsibility for the company, financial planning, organisational tasks, choice of tools, and workflow control. Dr Rinsche has more than 15 years experience in the translation and language engineering industries and has a PhD. in Computational Linguistics from Bonn University, Germany. She founded LTC in 1992, and has worked as a language-engineering consultant for multinational companies, the European Commission and OVUM. She was appointed evaluator for several Calls for Proposals of DG XIII of the European Commission, and reviewer for several EU project evaluations



Tom Flynn

Tom Flynn is a member of the CPG team working on the AMBIENT LEARNING project (eTen 510749) and has worked in the software industry for over 20 years. Tom is also working on the development of system administration solutions for Corporate and SME industries separately from the AMBIENT LEARNING project. He was the President of the 5th European Software Quality Conference, is a member of the Editorial board of the American Society for Quality (Software Quality Professional) journal and has worked extensively for the European Commission in a series of different capacities.

