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Ken Page

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Foreword

In spring 2005 the European Council relaunched the Lisbon strategy ([1]) calling for Europe to refocus on its priorities of growth and employment. In the revised strategy, Europe must renew the basis of its competitiveness, increase its growth potential and its productivity and strengthen social cohesion, placing the main emphasis on knowledge, innovation and optimisation of human capital. Knowledge and innovation are vital strands of the new strategy and engines of sustainable growth. Therefore, it is important to develop research, education and all forms of innovation as they make it possible to turn knowledge into an added value and create more and better jobs. Lifelong learning is a *sine qua non* for Europe to meet the defined objectives of the revised Lisbon strategy. The European Council calls for the Member States to facilitate availability of lifelong learning for all, especially targeting low-skilled workers and the staff of small and medium sized enterprises.

The Maastricht communiqué ([2]) signed by ministers responsible for vocational education and training in 32 European countries, the European social partners and the European Commission agreed on the future priorities of enhanced European cooperation in vocational education and training in December 2004. The communiqué emphasises the importance of achieving high levels of quality and innovation in VET systems to benefit all learners and make European VET contribute to a globally competitive economy, offering all Europeans, young and old workers, unemployed or disadvantaged, the qualifications and competences they need to be fully integrated into the emerging knowledge based society. In addition, the communiqué set the priority to develop learning-conducive environments in training institutions and at the workplace in Member States. Improving and implementing pedagogical approaches which support self-organised learning and utilise the potential provided by information and communication technologies and e-learning in lifelong learning are seen as concrete means of contributing to the Lisbon strategy.

The preliminary study on the current state of e-learning in lifelong learning was initiated to address to the priorities of the revised Lisbon strategy and the Maastricht communiqué and the need to develop further the potential provided by ICT and e-learning in providing lifelong learning for the European workforce and innovation in European education and VET. The aim of the study is to contribute to the Commission policy development of ICT in the Integrated lifelong learning programme. This desk research aims to help prepare the ground for identifying the needs for further investigation of ICT for innovation and lifelong learning for all.

Eila Heikkilä
Project manager

([1]) http://www.eu2005.lu/en/actualites/conseil/2005/03/23conseileuropen/ceconcl.pdf

([2]) http://europa.eu.int/comm/education/news/ip/docs/maastricht_com_en.pdf

1. Introduction

This study aims to give an account of the current state of e-learning within the context of lifelong learning in five Member States of the EU. Information was gathered about Germany, Spain, Slovakia, Finland and the United Kingdom.

The objectives of this study are to conduct research from the perspective of:

- the individual learner;
- education and training organisation;
- work organisation.

The primary questions to be examined in this study are:

- what are the national policies of e-learning in lifelong learning?
- how is e-learning organised in lifelong learning?
- how does networking enhance e-learning in lifelong learning?
- what are the relevant issues in future developments?

The results of the study examining the above questions have been summarised to provide comparisons under each question rather than country-by-country analysis.

Information has been gathered through desk research by accessing publications by Cedefop, the OECD and other EU organisations. Proceedings from conferences and seminars and information from published material from the websites of relevant organisations in each of the countries have also been examined.

The report has been prepared from secondary data obtained through various sources e.g. published research and studies, European e-learning projects, conferences and seminars. Owing to the short time allocated to this study it has not been possible to collate in-depth information from questionnaires or other types of survey. As much as possible, data have been confined to the most recent information (over the months since September 2004) to present a clear picture of the current situation in e-learning in the five countries. In the absence of up-to-date data, the most recent useful data were used.

Each of the countries - Germany, Spain, Slovakia, Finland and the United Kingdom - has been examined from the point of view of the following lifelong learning environments:

- the individual learner in the context of continuing vocational education and training (CVET), career development and active citizenship;
- universities, colleges, other higher institutes of education and private providers;
- within the working environment e.g. corporations and SMEs, and the involvement of social partners.

The study concentrated on the application of e-learning in the context of lifelong learning only and has not examined other forms of learning such as full-time undergraduate studies or more traditional open and distance learning methodologies. Although there are many different definitions of e-learning, for the purposes of this study the following will be used as a general description of e-learning:

'The use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration ([3])'.

The term e-learning has evolved from Internet learning and web based training; today the term technology supported learning (TSL) is also used. The report on the pan-European conference on e-learning held in Brussels in May 2005 uses the term ICT supported learning. The term e-skills is also used but there is a distinction drawn between two terms in that e-skills relates to the ability to make use of a computer in:

(a) ICT practitioner skills;

(b) ICT user skills;

(c) e-business skills ([4]).

As the letter 'e' is appearing more and more in front of words used to describe all manner of terms, a decision should be made to settle on one term for the provision of courses electronically so that there is less confusion for any person who is new to ICT.

This study concentrates on the courses, on any subject, undertaken by a person using computer technology and not directly on a person's ability to make use of a computer.

E-learning has its roots in open and distance learning, which allowed the student to study at home at their own pace using a variety of media. Originally the information was in book form but was later augmented by cassette tape and television broadcasts. This is particularly true in the case of the Open University which commenced in the UK in the early 1970s. The organisations offering courses were normally universities and colleges which offered some form of accreditation and private institutions which offered their own form of certification.

The introduction of the microcomputer allowed open and distance learning to be updated to make use of the extensive capabilities of the computer. Initially CD ROMs were used and the course information was placed directly onto the media for ease of distribution and delivery. This media did not allow for any updating or changes to the content once produced. With the advent of the Internet, a new method of transmitting information – and learning – to students was made available via websites.

([3]) http://www.elearningeuropa.info/index.php?page=glossary&menuzone=1.

([4]) *E-skills in Europe: towards 2010 and beyond*; see http://europa.eu.int/comm/enterprise/ict/policy/doc/e-skills-forum-2004-09-fsr.pdf.

Initially when the Internet was used to provide online material it was as a depository for the notes and other teaching material which were pertinent to the course being taught; it was not seen as a medium for teaching all or part of a course. Over the past few years, however, the content of the course material has been greatly enhanced.

The educational content of the courses has been upgraded in universities through the introduction of training courses for lecturers, allowing them to develop their own material using computer content management systems (CMS).

Some institutions operate e-learning courses within the specific department offering the courses through a central system of computers using a learning management system (LMS) to simplify the administration of learning/training programmes. Most LMSs do not have the ability to create instructional content. The LMS allows students to access the main computer system and follow their progress through the course. It also gives the course providers the ability to monitor student activity and manage the administration of registration and fees.

A more advanced system is a learning content management system (LMCS) which combines the administrative and management abilities of a traditional LMS with the content creation and personalised assembly dimensions of a CMS.

Universities and private colleges saw the potential for encouraging more student enrolments by allowing access to accredited courses via the Internet. Large enterprises also became involved in e-learning (e.g. CISCO®, IBM®, Microsoft®, etc.) by providing training courses initially on their own products to their own employees and then to the general public. The e-learning business has developed throughout the world but presently the US is at the forefront of both technology and programme delivery.

It is widely believed that the EU is lagging behind broadband coverage with the rest of the world and especially with the US which has broadband coverage of over 50 % of households ([5]). Figures released by Nielsen/Netratings in October, 2005 show that in the case of the U.K., this belief is incorrect as the number of home broadband users has increased to 73% from 46% in October, 2004 ([6]).

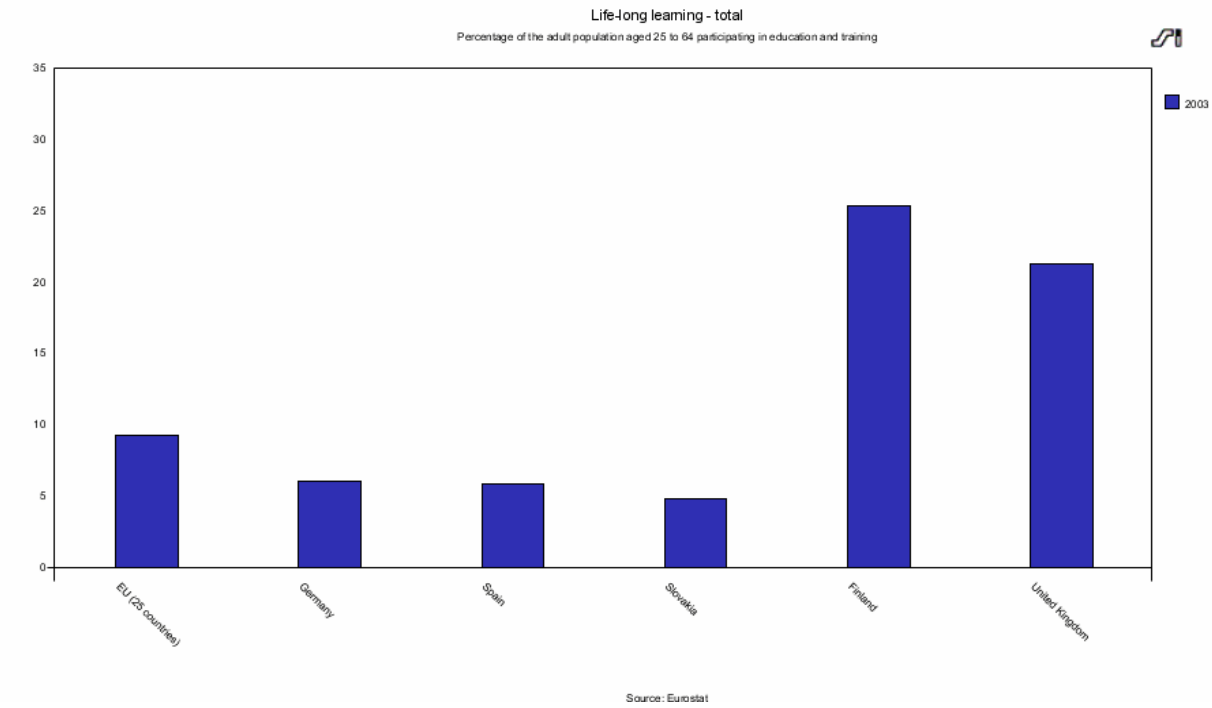
E-learning, however, is only one part of the lifelong learning (LLL) scenario and the current situation in LLL may be better than it appears. The Internet is a major learning tool and many of the structures needed for delivering training programmes are already in place but there is still a need for courses which are delivered in the traditional way and many universities have not entered into the open/distance learning or e-learning market.

([5]) http://www.nielsen-netratings.com/pr/pr_040818.pdf

([6]) http://www.netratings.com/pr/pr_051018_uk.pdf

The percentage of adult population aged 25 to 64 participating in education and training in 2003 totalled 9.2 % according to Eurostat. The equivalent percentages for the selected countries are: Germany 6 %, Spain 5.8 %, Slovakia 4.8 %, Finland 25.3 % and the UK 21.2 %.

Figure 1: Percentage of the adult population aged 25 to 64 participating in LLL in 2003



Source: Eurostat ([7])

Eurostat 2004 ([8]) indicates the percentage of lifelong learners having used the Internet for formalised education and training activities (school, university, etc.), as 10.1 %. The percentage of lifelong learners in EU 25 for other education courses related specifically to employment opportunities was 8.7 % in 2004.

Anyone with access to a computer can obtain off-the-shelf e-learning course material from computer stores. These are generally non-formal courses covering subjects such as word processing, typing skills and programming and there is no record of the volume of this learning. Figures can be obtained from universities which are obliged to provide such statistics for government departments but other e-learning activities in the private sector are not recorded.

The US now has over 50 % of users accessing the Internet via a broadband connection. This does not, however, give any indication as to the purpose for which the connection is being used. It cannot be assumed that the sole reason for using broadband is for learning purposes.

([7]) http://epp.eurostat.cec.eu.int/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=Yearlies_new_population&root=Yearlies_new_population/C/C3/C36/em051.

([8]) http://epp.eurostat.cec.eu.int/portal/page?_pageid=0,1136250,0_45572555&_dad=portal&_schema=PORTAL.

The following table shows a breakdown of the situation in the five countries relating to telephone lines and computer usage.

Country	Population in millions	Fixed lines (millions) 2002	Fixed lines (millions) 2003	Mobile phones (millions) 2003	Broadband lines per 100 2004	Personal computes per 100 2002	Internet users in thousands 2002
Finland	5.2	2.72	2.56	4.74	11	44.2	2 650 (51 %)
Germany	82.4	53.78	54.35	64.80	6.7	43.1	34 000 (41 %)
Spain	40.2	17.64	17.75	37.2	6.7	19.6	6 359 (16 %)
Slovakia	5.4	1.40	1.29	3.67	0.4	18	863 (16 %)
United Kingdom	59.6	30.77	No data	51.00 approx.	7.4	40.6	25 000 (42 %)

Source: derived from Finnish Statistics Office, 2005.

All countries are committed to making broadband available to all fixed line telephone customers. However, in some instances e.g. Slovakia, the numbers of fixed line installations has actually fallen over the past three years; the reason for this appears to be that people are using mobile telephones and removing their fixed lines. If people do not have a fixed line then they cannot access broadband by this method. There is the possibility of Internet access through the mobile telephone network but this is an expensive option as is satellite communications. Apart from the telephone, broadband access is also available though cable television networks and satellite.

Internet access via satellite is available throughout Europe and comes in two formats, one for home use and one for business use. The computer is connected to a satellite dish and accesses the Internet via a satellite instead of a telephone link. For organisations which have many computers accessing the Internet, both uploading and downloading large files, this system is faster than any broadband available at the moment. It is an expensive option with costs ranging from EUR 200 per month up to EUR 500 for larger systems. One advantage of the system is that it will operate almost anywhere within Europe. There are, however, additional fees if the user downloads more than the contracted volume of data. A home version is available at about EUR 400 per annum but again there are restrictions to the amount of data which can be downloaded. Unfortunately no accurate figures for this type of access were found.

2. European e-learning policy developments

The Lisbon European Council in March 2000 set the Union a major strategic goal of becoming, by 2010, 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion' (Lisbon Agreement, 2000). Part of the strategy put forward at the time was an emphasis on e-learning which was seen as the means by which millions of EU citizens could be quickly trained or retrained, thus providing Europe with a highly skilled and motivated workforce.

The Commission e-learning initiative in 2000 was based on four main lines of action:

(a) equipment: efforts are to concentrate on multimedia computers for the connection and improvement of access to digital networks. For example the ratio of users in schools was set at five to fifteen per multimedia computer by the year 2004;

(b) training at all levels: the training drive must also focus on developing the skills required to use the new technologies. It must be an integral part of initial and continuing training for teachers and trainers;

(c) the development of good quality multimedia services and content: the goal was to develop and stimulate a European market for content and services, which addresses the needs of the education and cultural communities and of European citizens.

(d) the development and networking of centres for acquiring knowledge: the principal proposal is to transform teaching and training centres into centres for acquiring knowledge which are versatile and accessible to everyone. E-learning will encourage the interconnection of virtual spaces and campuses, the networking of universities, schools, training centres and, in addition, cultural resource centres ([9]).

The Commission eLearning programme ([10]) aims at effective integration of information and communication technologies (ICT) in education and training systems in Europe (2004–06).

According to the programme, ICT, properly used, contribute to the quality of education and training and to Europe's move to a knowledge-based society. The eLearning programme is a further step towards realising the vision of technology serving lifelong learning. It focuses on a set of actions in high priority areas, chosen for their strategic relevance to modernising Europe's education and training systems.

The four action lines of the eLearning programme (2004-06) are: promoting digital literacy, European virtual campuses, e-twinning of schools in Europe, and promotion of teacher training and transversal actions for the promotion of e-learning in Europe.

([9]) Summarised from *e-learning – Designing tomorrow's education* COM (2000) 318 final. http://europa.eu.int/comm/education/doc/official/keydoc/com2000/com2000-318en.pdf

([10]) http://europa.eu.int/comm/education/programmes/elearning/programme_en.html

There have been three main political developments in 2005. In lifelong learning, the Council (Education, Youth and Culture) met (in February) and produced conclusions on Education and training in the mid-term review of the Lisbon Strategy; these conclusions were discussed at the European Council in March 2005. The Presidency conclusions state, 'The European Council calls on Member States to make lifelong learning an opportunity open to all in schools, businesses and households'. It also states that 'availability should also be facilitated by means of working time organisation, family support services, vocational guidance and new forms of cost-sharing'. The Council believes that the provision of lifelong learning facilities is essential for the future growth of the EU ([11]).

The Commission eLearning conference, Brussels 2005 ([12]) brought together representatives from the education, training, employment, industry and ICT sectors. The conclusions of the conference included:

- investment in ICT for learning should be effective, efficient and sustainable with adequate funding and organisational transformation;
- digital literacy is a fundamental element of the knowledge society;
- multi-stakeholder involvement in the development of e-learning services, identifying and promoting good practice and integrating ICT into education and training have proved essential for long term success.

The Commission has proposed a new strategic framework, i2010: the European information society 2010. It promotes an open and competitive digital economy and emphasises ICT as a driver of inclusion and quality of life. i2010 will build towards an integrated approach to information society and audio-visual media policies in the EU.

As the use of ICT grows, so does its impact on society. i2010 recognises this in three ways:

(a) completion of a single European information space which promotes an open and competitive internal market for information society and media;

(b) strengthening innovation and investment in ICT research to promote growth and more and better jobs;

(c) achieving an inclusive European information society that promotes growth and jobs in a manner that is consistent with sustainable development and that prioritises better public services and quality of life.

([11]) European Council Brussels March 2005 Presidency conclusions; http://europa.eu.int/comm/education/policies/2010/doc/lisbon05_en.pdf

([12]) http://www.elearningconference.org/pdf/press/conference_conclusions_20050520_v2b.pdf

The aim of this strategy is to provide a better infrastructure for developing the computer society in Europe. It will directly affect the development of e-learning throughout the EU in a positive way by promoting the development of the technologies which are the basis of an e-learning strategy ([13]).

On 14 July 2004, the Commission adopted a proposal for the next generation of an EU programme in the field of lifelong learning ([14]). The new Integrated action programme in the field of lifelong learning comprises sectoral programmes for which quantified targets have been set to ensure a significant, identifiable and measurable impact for the programme. These targets are as follows:

- Comenius programme: to involve at least one pupil in twenty in joint educational activities, for the period of the programme.
- Erasmus programme: to contribute to achieving, by 2011, three million individual participants in student mobility under the present programme and its predecessors.
- Leonardo da Vinci programme: to increase placements in enterprises to 150 000 per year by the end of the programme.
- Grundtvig programme: to support the mobility of 25 000 individuals involved in adult education per year, by 2013.

([13]) http://europa.eu.int/information_society/eeurope/i2010/index_en.htm

([14]) http://europa.eu.int/comm/education/programmes/newprog/index_en.html

3. National lifelong learning e-learning policies in five Member States

All countries have a national plan to develop ICT skills, either published, being implemented or under development. Slovakia has produced a development plan but has not yet implemented it.

According to the World Economic Forum (February 2004) Spain is ranked 17th among the 25 EU Member States in progress with the information society ([15]). The government is currently acting to improve this situation by introducing policies which will reinforce the principle of lifelong learning, adaptability and initiatives towards focus groups, e.g. the less qualified, women, youth and the over 45s.

Currently, the UK has implemented a number of strategies aimed specifically at the adult learner through government-backed projects. Apart from targeting adult literacy through the Skills for life initiative operated by the Learning Skills Council ([16]), there is also the portal Embedded learning which it describes as 'teaching and learning that combines the development of literacy, language and numeracy with vocational and other skills'. In adult learning and particularly e-learning, in 1998, the government initiated the National grid for learning (Ngfl) which incorporates the Learn direct website ([17]) which is 'the site for information, advice and guidance on learning and careers' and Directgov ([18]) which offers advice for adults returning to learning with ideas about what, where and how to study plus advice about financial help available. The government has also promised to have 99 % availability of broadband by the end of 2005. This does not mean that they will be using broadband but that the technology would be in place and accessible to all.

In March 2005 the UK Government issued a paper called *Connecting the UK: a digital strategy* ([19]). The actions proposed include:

- transform learning with ICT;
- set up a 'digital challenge' for local authorities;
- make the UK the safest place to use the Internet;
- promote the creation of innovative broadband content;
- set out a strategy for transformation of delivery of public services;
- improve competition and take-up in the broadband market;

([15]) http://europa.eu.int/idabc/en/document/3138/343.

([16]) http://www.lsc.gov.uk/National/Corporate/default.htm.

([17]) http://www.learndirect-advice.co.uk.

([18]) http://www.direct.gov.uk.

([19]) http://www.strategy.gov.uk/downloads/work_areas/digital_strategy/digital_strategy.pdf.

- improve accessibility to technology for the digitally excluded and ease of use for the disabled.

In Slovakia, lifelong learning in vocational training is still at a developmental stage. The Government has issued information which includes the following: the Government will prepare a long-term plan for training and education. In so doing, it is prepared to consider the comments and opinions of the most important political parties, regional representatives, employers, trade unions, teachers and parents to form the basis of the educational system during the next 15-20 years, regardless of changes of government. Following this plan, the Government will prepare a new Training and Education Act. The Government will guarantee the right of all citizens to training and education free of charge to the extent of their abilities to learn, at least until they become capable of managing their own affairs, in the labour market. It not only wants to provide the possibility of high school education for all citizens but also to increase the number of university graduates ([20]).

In 2004, Germany launched the policy document *Information Society Germany 2006* which sets out in detail exactly what is proposed to increase the level of ICT penetration across society, including dealing with an ageing population. Other initiatives supported by ministries include Women in the Information Society, Technology competence centre, Women online, an initiative to boost use of the Internet among older people, and the Digital Opportunities Foundation. The German Government has several strategies which deal specifically with e-learning, in addition to initiatives aimed at academic institutions. One example, Women online, is a joint action of the BMBF, the Federal Employment Agency, Deutsche Telekom AG, Brigitte magazine and the association *Frauen geben Technik neue Impulse e.V*. Its objective is to increase the percentage of women who are online, offering free beginner courses to acquaint women with the Internet in 30 cities and municipalities across Germany ([21]).

Finland has produced the Information society programme for education, training and research 2004-06. The aims for 2007 are:

- Finland is an open and secure, networked society with high level information society knowledge;
- all citizens have opportunities and the basic capabilities to use electronic services (e-services) and content;
- appropriate use of ICT in learning and teaching is part of everyday school life;
- ICT is used widely and appropriately in research;
- electronic materials are of a high quality, pedagogically justified, serve different user groups and are available openly;

([20]) http://www.government.gov.sk/VLADA/VLADA_1998/PROG_VYHL/en_programove_vyhlasenie_1998_kap_3_B.shtml

([21]) http://www.bmbf.de/en/527.php

- electronic materials are comprehensively available for science and research;
- programme actions are evaluated on a continual basis with a view to development.

The government also aims to make computers available to all through networks in libraries.

4. How e-learning is organised for lifelong learners

4.1. Individual learner

All the countries studied have a number of options for an adult learner wishing to further education and work prospects both in a formal and/or non-formal way. The type of option available can be influenced by many factors:

'A study undertaken in Finland in 2000, showed that only 37 % of people with only compulsory schooling pursued adult studies, while the corresponding figure among the graduate population was 76 %. Similarly, 64 % of employed people and only 37 % of the unemployed participated in adult education and training' ([22]).

Although this text does not specifically mention e-learning, the figures are reflect lifelong learning in general. All countries apart from Slovakia have had centres for the unemployed for many years where they can be given career guidance and access to information over the Internet.

The Public Employment Service (PES) in Slovakia has 88 district offices which have limited access to the Internet. This restricts their ability to offer appropriate self-service facilities that might reduce the routine work-load of front-line staff and free them for more intensive work with priority groups among the unemployed. Although the network of regional and district PES offices is relatively dense (one district labour office for every 61 700 of population), the times at which the office facilities are available to the public are limited; on average they are open for four hours per day and on only one afternoon per week ([23]).

Other countries have an office to population ratio as follows:

Germany:	one office for every 99 275 of population
Spain:	one office for every 52 503 of population
UK:	one office for every 40 063 of population
Finland:	one office for every 35 072 of population

Source: http://www.ilo.org/public/english/employment/skills/download/pesstats.pdf

All countries have government backed training programmes for the unemployed but figures relating to the types of courses offered are not readily available.

([22]) The report of the Adult Education and Training Committee 2002.

([23]) Joint Assessment of Employment Priorities in the Slovak Republic 26.11.2001.

An employed person may be able to access e-learning through an internal learning system set up by the employer to increase the skills and knowledge of the workforce. These courses can be accessed either at work or at home and are generally funded by the employer.

As part of their INFOVEK ([24]) project, the Ministry of Education in Slovakia is ensuring that all schools have Internet enabled computers. The idea is that these classrooms can double as vocational training centres outside of school hours.

In Spain an employee can request individual training leave, a leave of absence from work, during which the employee's job is retained, for the purpose of pursuing courses of vocational training or further training. The introduction of e-learning into companies in Spain has been slow.

Data concerning adult literacy levels in the EU are not generally available. The last partial survey was conducted in 1998 in only four countries. According to the National adult literacy survey ([25]), US conducted in 1992, '21 to 23 % - or some 40 to 44 million of the 191 million adults in this country - demonstrated skills in the lowest level of prose, document, and quantitative proficiencies (Level 1)'.

In the absence of accurate current data, it would not be unreasonable to suppose that the European figure may not be too different from that of the US. Lacking the ability to read and write well is a significant barrier to anyone taking an e-learning course. A person cannot begin to use computers until an acceptable literacy level has been achieved.

All countries apart from Slovakia, which claims a 99 % literacy level in its population, have dedicated government-backed organisations which provide information, backup and courses on adult literacy. These include:

Germany:	An Internet portal for public and tutor information on literacy and training	*www.apoll-online.de*
Finland:	A national website for adult literacy	*www.lukihero.fi*
Spain:	The Adult Education Centre, Barcelona	*www.neskes.net/projectverneda*
UK:	Department of Education and Science (DfES) has a website providing a literacy strategy and materials for employers	*www.dfes.gov.uk/readwriteplus*

It is obvious that these countries are taking the problem of adult literacy seriously. Finland, Ireland and the Netherlands have the best literacy rates in the EU.

A quick survey of computer costs throughout the EU has shown that these costs vary little from country to country. However, what does change is the cost of the computer relative to the average salary. Slovakia has the most expensive equipment in real terms owing to a low wage

([24]) http://www.infovek.sk/english/index.html.

([25]) http://nces.ed.gov/naal/resources/execsumm.asp#litskills.

structure. For the purposes of comparison, a typical computer system from a Europe-wide supplier was taken as being an average starter system for access to the Internet through broadband. This basic computer system consisted of a Pentium® 4 processor, 256 MB RAM, monitor, keyboard, mouse and Windows® XP Home edition and an Inkjet printer. A particular model was identified and the prices without VAT taken for comparison. The cost of a broadband installation was also taken into account. The average cost was about EUR 800 for a PC with the above specifications.

The average cost of a broadband installation in the US is EUR 138 and EUR 27 a month fee. The average cost per month in Europe is approximately EUR 35 (in some cases installation is free) this cost has been dramatically reduced to this level over the period December 2004 to May 2005. The drive to promote broadband and reduce prices is coming from the supplier as the market becomes more competitive. The marketing emphasis is on speed of access rather than promoting the fact that broadband is always on and available 24 hours a day.

The levels of digital literacy within the EU is not exactly known. The benefits of e-learning, from an individual learner's point-of-view, can be defined as:

- encourage anytime-anyplace access to course materials;
- provide self-directed and self-paced learning, allowing students to keep track of their own progress;
- increase opportunities for student participation, encouraging less confident students to take part;
- support different learning styles using flexible learning materials;
- promote student engagement using interactive learning materials, improving learner motivation and satisfaction;
- give direct access to relevant and up-to-date information;
- enhance opportunities for collaborative group work;
- improve communication with course tutor and teaching assistants;
- facilitate communication between students, promoting peer group support;
- aid preparation of future topics, and revision of previous topics;
- improve organisation of course materials;
- increase the accessibility of information and course materials to students with disabilities ([26]).

The e-learning courses available to the lifelong learner can be broken down into:

([26]) http://www.nottingham.ac.uk/is/services/e-learning/what/benefits-student.phtml.

(a) off-the-shelf mass produced CD-ROM courses, widely available for a large variety of topics. Generally these courses are not accredited. No statistics are available to quantify the size of this market;

(b) non-accredited courses conducted at work through an internal or external e-learning system set up by an employer;

(c) university or higher institute of education certified course taken through an open/distance learning department or a 'virtual university' via the Internet;

(d) computer training programmes certified by a manufacturer e.g. Microsoft® Certified Network Administrator. These courses are generally available through private providers which have been licensed by the manufacturer;

(e) courses on a large variety of subjects offered by private training organisations which may or may not have been developed by the training company itself. These are most often without formal accreditation;

(f) government sponsored courses delivered through the medium of e-learning, normally conducted in specialist centres.

A search of the Internet for e-learning courses in the five countries revealed that sites in Finland and the UK were the easiest to find followed by Germany, Spain and Slovakia. Although a search may be made to find e-learning courses, the resulting list of courses will certainly contain many courses may not necessarily delivered through e-learning.

The most common type of course offered was an open/distance learning type course delivered through e-learning by a university or other higher education institute, either via their own campus or via a virtual university. Formal courses provide certification of varying levels from basic ECDL through to university degrees and are provided by a range of organisations which may be government backed or private institutions.

The main issue with the non-formal courses provided by private companies is that there is no authority in any of the countries which oversees quality. In all the countries in this study, private organisations provide courses on the Internet which are not developed to any agreed standards.

An example of this is the Abet Open University ([27]) which markets its courses exclusively online throughout the world. It promotes MBA courses without explaining what MBA means and admits that it does not confer degrees despite calling itself a university. It merely states that its courses are accredited by the e-learning accreditation organisation ([28]) which only means that the courses they provide actually exist and that the content of the courses are as stated on their website. There is no mention of the quality of the course, nor its equivalent status in relation to normal university courses. It would appear that this company is based in

([27]) http://www.mba-open-university.net

([28]) http://www.e-learningaccreditation.org

Brazil. Courses are offered in a choice of four languages: Spanish, English, French and Portuguese.

It is very important that quality in e-learning products is promoted, as is happening through the European quality observatory (EQO) ([29]) which enables collaboration among users and experts and provides services to support the exchange of quality approaches to e-learning. Equally important is standardisation of accreditation of e-learning courses throughout the EU as is happening with qualifications levels.

A Cedefop study in 2001 ([30]) found that 61 % rated e-learning 'fair' or 'poor', 5 % rated e-learning as 'very good' and 1 % rated e-learning as 'excellent'. Developments in e-learning delivery have been extensive since the study was conducted.

For any type of learning to be successful, a key factor is the trainee's own desire to learn. The fact that someone is looking for a course to suit them which can be delivered through e-learning is indicative of a desire to progress their own education.

Therefore it is important to make the search for opportunities as easy as possible. This can be done by setting up a website (possibly developed through the EU) which would become a first step for anyone searching for courses and, step by step, direct the searcher to the various portals and sites which would most suit their needs. An interconnecting portal in each country which allowed prospective learners to search and find suitable courses either in their own country or abroad would be a big advantage to the learner. At present, unless learners have a good idea of what they are looking for and where to look, they can easily become disheartened. Once they have found what they perceive as the course for them, they must part with their money first with little or no prior knowledge of the quality or relevance of the product they are buying; this is particularly true in the case of private training companies.

A European wide portal with relevant links to sites in each country could be promoted as a form of 'one-stop shop' for e-learning courses throughout the community. This would make the search for suitable courses much easier.

An alternative has been suggested by Markku Markkula in his 2003-04 report *e-learning in Finland*. This suggests that 'through EU programme participation, Finnish actors, among others, have perceived that a Europe-wide market does not exist at the European level in most cases. Especially in terms of e-learning content and services, joint processes and models may be identified at the EU level. However, their implementation must take place separately in each member country, even in future'. This would suggest that the clustering of e-learning providers within specified regions in the EU would be a more practical approach.

([29]) http://www.eqo.info.

([30]) Cedefop, *E-learning and training in Europe - A survey into the use of e-learning in training and professional development in the European Union*. Luxembourg: Office for Official Publications of the European Communities, 2001.

4.2. Education and training organisation

There are normally three types of university:

- a traditional university which enrols undergraduates and provides courses on its own campus with no open or distance learning facilities;
- an established university which has a physical campus with undergraduate students combined with an open/distance learning virtual faculty;
- a 'virtual university' which has no physical campus and provides all its courses via the Internet.

All of the countries studied have universities of all three types. The vast majority are of the traditional type. Many universities are now realising that there is a market outside of their normal area of operation through courses conducted via e-learning, either in whole or in part.

A course which is solely conducted through of e-learning has a greater chance of being unfinished by the learner than a course which has some form of contact, either directly or indirectly, with a lecturer or tutor. The exception to this would very short informative courses which could be covered by a learner in a matter of a few hours.

Most institutions provide open and distance learning courses either with total e-learning content via the Internet, most suited to students living outside of the country in which the university is situated, or in a blended learning or flexible learning approach which combines traditional teaching methods with an element of e-learning. The qualifications on offer can vary from foundation diplomas up to degree level. Normally an adult can apply, as a mature student, for this type of course without having any previous educational qualifications. Courses delivered either partially or completely by e-learning are available in all of the countries studied.

With adequate digital skills, individual learners have the opportunity to access online courses either from a university within their own country or from universities across the globe. The majority of these courses provide academic accreditation from foundation diplomas through to degrees and masters. Self motivation, however, is a key factor in determining whether a person decides to take up one of these courses. Those taking up a recognised university or college certified programme are reasonably sure that the programme will be of good quality and that their qualification will be recognised.

For the mature learner, there are generally no specific educational requirements for basic courses. The large number of universities throughout the world offering courses for the adult learner can make it a daunting task for a new learner to make their way through the information before coming to a decision. Undergraduate study is usually either free or subject to a grant aid system but course fees normally apply to adult learning courses; fees may be much higher for a learner applying to a university outside his/her own country. An additional obstacle for the learner is the language barrier.

Although many universities are offering courses in a variety of languages, the secondary language is usually English.

The Open University (OU) ([31]) is the United Kingdom's only university dedicated solely to distance learning; however, other universities and colleges which set up open and distance learning departments also have full or partial e-learning faculties. The Open University has workshop and tutor time built into courses. With the international student, there are chat sessions and question and answer sessions with the course tutor conducted via the Internet. There are approximately 150 000 undergraduate and 30 000 post graduate students taking courses at the Open University. Included in this total are 10 000 students with disabilities. There are also about 25 000 students taking courses in their own countries through e-learning. The OU operates on what it calls supported open learning, which involves students attending workshops at 13 different centres throughout the country as well as obtaining training materials via the Internet.

Open and distance learning, and now e-learning, has been long established in Finland, Spain (since 1943) the UK and, to a lesser degree, Germany. Germany has a dual system of education and vocational training which ensures that there is a continuation of training throughout a person's working life. This has proved successful over the years and, as a result, there is a reluctance to change.

Slovakia has recently established a virtual university at the University of Kosice ([32]) which is one of 19 universities in the country. It operates in collaboration with other universities throughout Europe.

In Spain, the Open University of Catalonia ([33]) is the only true virtual university in Spain offering online courses in Spanish and English. Other public institutions provide open or distance learning programmes.

The Finnish virtual university (FVU) ([34]) is a partnership of universities in Finland. It is the result of collaboration between the universities and does not itself provide courses but rather directs the learner to a suitable university. Finland also has an open university Åbo Akademi University (http://www.abo.fi/aa/engelska/) which is Finland's Swedish university. Apart from providing standard distance learning programmes to Finland's Swedish speaking population (approximately 6 %) it also provides web based courses.

Two examples of virtual universities in Germany with opposite approaches are:

([31]) http://www.open.ac.uk

([32]) http://www.tuke.sk/index-e.html

([33]) http://www.uoc.edu/web/eng/index.html

([34]) http://www.virtuaaliyliopisto.fi/?node=vy_front_page_eng

(a) the FernUniversität in Hagen Virtual Study ([35]) which provides e-learning courses which are only in German;

(b) the Virtual Global University ([36]), designed to appeal to both German learners and learners from the rest of the world. It provides courses primarily in English together with information in 11 languages. A prerequisite to becoming a student at this university is that for a person whose mother tongue is not English, a certificate of competence in the English language is required.

The emphasis across the five countries appears to be on academic studies. There are courses available through government agencies such as Learndirect ([37]) which has a portal which allows anyone to search a database of 900 000 courses. It does not, however, give a breakdown of how many of these courses are delivered through e-learning.

It has proved difficult to source vocational type courses in the five countries other than courses provided by private training organisations which may or may not have accreditation.

4.3. Private providers of non-formal training courses

A large number of private training organisations offer courses online which are available to anyone with access to the Internet regardless of their ability. Some organisations offer e-learning presentations of their own courses. The majority of courses offered by private companies are short term and computer skills orientated.

Many providers are licensed by the originators of the courses to provide them via their own sites. These would include most Microsoft® system courses. There is little or no personal contact with the student other than via e-mail and most examinations are done online or at a nearby computer testing centre. There are no definitive statistics to show how many people enrol on these courses.

All of the countries have private companies offering courses which are certified either by an academic organisation or by another non-educational company. An example of this is Microsoft® which offers courses of varying skill levels entirely connected with their own products such as the Microsoft® Certified Software Engineer (MCSE). Some of these large companies have what they term a university. They were originally developed to benefit the company by providing online training programmes for their employees but it soon became apparent that there was also a large public market for their material.

([35]) http://vu.fernuni-hagen.de.

([36]) http://www.vg-u.de.

([37]) http://www.learndirect.co.uk.

These courses are available either entirely online or they can be presented in a 'blended format'. The certification offered is recognised within the computer industry but is seen as a vocational qualification rather than an academic one. Other companies have similar systems in operation (CISCO®, IBM®, Novell®). These courses were initially designed to train the employees within each of the companies but were later developed to provide courses delivered via e-learning to the general public. This type of course is useful to people seeking employment in a specific area working with computers or to people within employment seeking to upgrade their computer skills. The first large scale e-learning courses which were made available in Slovakia were computer courses offered by CISCO®.

In other areas of non-formal learning, the learner can obtain any number of courses via the Internet provided by independent training companies. These courses do not offer formalised certification and can be bought online and conducted over a set time frame; an example of this might be time management. It is difficult to gauge the extent of this business. In some of the countries, e.g. the UK, currently there is no legislation regulating the private training business; anyone can set up a training company and call themselves trainers. However, this situation is under review. There is no method of ensuring the quality of the courses on offer. In Slovakia all trainers are required to be registered with the Ministry of Education. Also in the UK, the Adult Learning Inspectorate ([38]) inspects courses which are paid for by the government and only reports on private organisations when requested by the organisation to produce a report.

There is no legislation governing private training companies in the UK at present; anyone can set up as a training organisation without legal requirements. The principals of the company need not have any qualifications in training or related skills. This applies to normally delivered training as it does to Internet delivered training.

Private e-learning companies rely heavily on marketing via the Internet. A random examination of 10 such companies showed many of the courses on offer were identical as they had been licensed from the same major provider.

It is possible for the same courses to be offered by a company trading under different names on different websites. The normal method of accessing these courses is to pay by the length of time you wish to have access to the material. The time can vary greatly from hours to weeks with different scales according to the length of time.

([38]) http://www.ali.gov.uk.

([40]) http://www.dfes.gov.uk.

4.4. Work environment

The e-learner may benefit from the training culture within a company. Some large multi-national organisations such as financial institutions make on-the-job learning part of the employee contract. The employee can benefit by taking the courses online and thereby enhance their salary scale and/or promotional prospects.

These companies very often contract an external company to provide a learning platform and to design courses suited to their needs. This is a more economical way of producing the programmes than trying to set up and develop their own system from the beginning. The general feeling amongst e-earning providers is that it is very important to involve the staff in developing courses.

Within the countries studied, there are a number of initiatives designed to assist both the employer and the worker in furthering their skills and education. All of the governments in the countries studied have systems which assist the learner and the employer.

An example is the UK Department of Education and Skills (DfES) website ([40]) which links to Learndirect ([41]). These sites allow adults wishing to improve their knowledge and skills to apply for and access any of 900 000 courses available throughout the country from different institutions. It is not known, however, how many of these courses are delivered through e-learning. They are directed at both employed and unemployed people. Fees are charged for the courses but in some instances grants may be available.

Other options include learning through work, which allows learners to enter into a learning contract with the relevant university and their employer. This system also allows accreditation of prior learning to be taken into account.

The European computer driving licence (ECDL) is a certification recognised throughout Europe. The courses can be delivered in a variety of ways including as an e-learning package. At some point, however, the participant must attend a testing centre to sit the required examinations.

Each country deals with training in the workplace slightly differently.

Germany, with its dual system of training and retraining, has invested substantially in lifelong learning. The facilities are already in place for this system and there is a reluctance to change. Under German law an employer is responsible for the cost of training for an employee providing the training is relevant to their work in the company. There is no mention of how the course can be delivered.

([41]) http://www.learndirect.co.uk.

In Slovakia ([42]), e-learning has still to take off outside universities; for example the training of government employees is almost exclusively conducted in the classroom and almost no e-learning is carried out.

A study of e-learning in continuing vocational training, particularly at the workplace, with emphasis on small and medium enterprises ([43]) concluded that it is hard to find representative information on e-learning in SMEs. Literature mainly documents theories on the subject rather than providing an accurate image of current use in SMEs. Further, the conclusion was that learning at SMEs is informal by nature rather than formal. One of the points raised concerning the design and implementation of e-learning in SMEs was that innovative solutions should be created to meet the specific needs of SMEs. Many reasons for not following the route of e-learning are given by SMEs, everything from not having the time to the cost of the courses. Governments should increase appropriate assistance for SMEs, though some countries already have a system which assists both the company and the employer.

([42]) US–EU–Slovakia Action Commission – 2003; see: http://www.csis.org/slovakia/2003workplan.pdf.

([43]) http://europa.eu.int/comm/education/programmes/elearning/doc/studies/vocational_f_en.pdf.

5. How networking enhances e-learning in lifelong learning

When a student enrols on an e-learning course, at a university for example, they immediately become part of a small network of students. Normally, there are online discussion boards which allow the students and tutors to interact. Except where blended learning takes place, a student taking an e-learning course may never actually come face to face with anyone connected with their studies. This can be a difficult way to study for some people.

There are a number of networking opportunities for learners throughout the UK apart from the network within an educational establishment where studying takes place. The UK Government launched a major scheme in 2004 called UK online centres. These centres are situated across the country in libraries and other such amenities and the figure of 6 000 centres has been quoted for England alone. They are principally designed for people who do not have access to a computer for their own personal use or they have never used one.

UK online centres aim to provide everyone in the UK with access to computers and the Internet near to where they live, and to help and advice on using them. Trained staff and volunteers are on hand to give advice and support and help people of all ages develop computer skills.

Help is at hand ([44]) is a site set up by Ufi Ltd ([45]) which is the organisation responsible for Learndirect, the largest government-backed supported e-learning initiative in the world, learndirect advice and UK online. Ufi was established in 1998 by the current UK government to take forward the concept of a 'university for industry'. Its mission is to use e-learning to boost the employability of individuals and the productivity and competitiveness of organisations.

In Germany Studying online ([46]) is the main website, where students, university teachers and developers can get an orientation on which subjects, modules, and seminars are offered on the Internet and what the requirements are to participate. The online-information system *Studieren im Netz* is a cooperation of *Bund und Länder in der BLK and Bund-Länder-Kommission*. The website links to courses available at any of the 15 or so German virtual universities.

In a European context, Ploteus ([47]) is a good example of a portal which provides information on courses of all descriptions available in different Member States; this should be promoted more widely. The site is designed for people who wish to study at universities, etc. in another country.

([44]) http://www.helpisathand.gov.uk/offers/adult-learner-support-training/.

([45]) http://www.ufi.com/ukol/.

([46]) http://www.online-studying.de.

([47]) http://europa.eu.int/ploteus.

5.1. Social partners

Apart from Slovakia, the social partners are heavily involved in the promotion and delivery of training in the workplace in the countries studied.

In Spain**,** for example, there is a tripartite agreement in place between the government, employers and trade unions in relation to employee lifelong learning.

The Finnish Confederation of Salaried Employees STTK ([48]) is one of three confederations of trade unions and has as one of its aims to 'promote life long learning and educational issues in general'.

The trade union movement in Germany is involved in delivering training along with many other training institutions. This has been the situation for many years.

TUC, the Trades Union Congress ([49]), in the United Kingdom is possibly the most involved of the five countries in actually providing training facilities. It has set up its own training centres to provide online facilities to its members. In 2004, there were 6 000 union members on courses at one of the 70 union learning centres delivering Learndirect courses around the country, compared to just 324 in 2002. The centres are funded from the Union learning fund ([50]).

Since September 1999, UK employees who are aged 16 or 17, not in full-time education, and not qualified to level 2 – as defined by the regulations – have the right to paid time off work to study or train for approved qualifications. Certain employees aged 18 also have the right to complete study or training already begun. The legislation aims to help young employees get the skills and qualifications they need, and to help businesses to be more competitive. A legal right to time off for study does not apply to employees over the stated ages ([51]).

5.2. Education and training organisation

Apart from the development of e-learning provision within existing universities, there are virtual universities which provide e-learning via the Internet but which have no physical campus. There are several methods by which a virtual university can operate, for example:

- as a website portal giving access to courses delivered via e-learning from a variety of linked universities; an example is the Finnish virtual university (FVU) which is a

([48]) http://www.sttk.fi/en/369/.

([49]) http://www.learningservices.org.uk.

([50]) http://www.unionlearningfund.org.uk.

([51]) http://www.dfes.gov.uk.

partnership of all 21 Finnish universities. There are 338 courses on its database with 35 currently active ([52]);

- Germany has approximately 15 virtual universities which provide courses in various languages designed for a global audience. These universities operate without having a physical campus and communication with the student is carried out almost entirely via the Internet. Courses can be delivered in a number of ways including live or recorded lectures broadcast via the Internet to enrolled students;
- within an existing university, a virtual faculty or faculties can be set up to deliver course material via the web which may have previously been written material delivered through open or distance learning. This means that there is little delay in providing up-to-date material;
- a university which is solely dedicated to distance/open learning and has developed from this area into offering e-learning programmes. The University of Catalonia is Spain's oldest virtual university with no physical campus and has been operational for over 10 years.

One thing that all of these universities have in common is that they are all involved in a network involving other universities which may or may not be within their own country. The result of these alliances is that each member of the network can share information, course material and, most important costs.

It makes economic sense for universities to come together to form alliances and share their experiences and knowledge. In Slovakia, the University of Economics in Bratislava (UEB) has concluded collaborative agreements with about 20 foreign universities. It is also involved in various multinational programmes with universities in the EU and in central and eastern Europe. These links allow students and university members to join an international network of more than 60 European universities. Student and teacher mobility is accomplished through programmes such as Socrates-Erasmus, Leonardo da Vinci, Ceepus, Mibp Peco, etc. ([53]).

Networking by universities developing e-learning courses could avoid unnecessary duplication, for example by exchanging source code for programmes, etc.

The collaborative European virtual university (cEVU) project supported by the European Commission and coordinated by EuroPACE, ran from 2001 to 2003, and was aimed at developing validated e-learning models and ideas for a European virtual university. It was a collaboration between five existing international university networks, which are already actively pursuing academic and organisational cohesion in distance and online learning: EuroPACE, EUNITE, ECIU, Coimbra Group and EUA. The project has now ended and all relevant information is available on their website ([54]).

([52]) http://www.virtuaaliyliopisto.fi/?node=vy_front_page_eng.

([53]) http://www.euba.sk/OZV/ozv-e.htm.

([54]) http://www.cevu.org.

The following information has been taken and summarised from the UK House of Commons Education and Skills Committee report on the UK e-University, published in February, 2005.

In 2000, the UK Government set up a virtual university called the UkeU from public funds. The university developed its own computer system and platform for developing its courses and eventually went 'live' in 2003. The university closed its doors in November 2004 after attracting only 900 students. It had cost the UK Government EUR 75m.

The reasons for its collapse are given as:

- it took a supply-driven rather than a demand-driven approach;
- the inability to work in effective partnership with the private sector;
- it did not have a learner-centred approach;
- it did not conduct any market research to develop strategies for selling its products;
- it assumed that once the computer platform (LMS) had been developed, then the students would flock to the university;
- the initial wave of enthusiasm of other universities to become involved did not last long.

This raises several issues for any institutions of higher education examining the possibility of entering the e-learning market. Some of the areas raised in the report are:

- the 'branding' of the e-learning provider is very important; in other words, nobody knew who or what the UKeU was. A known name like Cambridge University providing e-learning courses would receive more attention from learners;
- the cost of developing a learning management system (LMS) is not necessary; the UKeU decided to develop their own system which was time-consuming and costly. There are several 'Open Source' LMS systems available free of charge, for example Moodle® which allows website development and student portfolio management;
- the cost of developing a content management system for designing course material can be avoided by using the free sharable content object reference model (SCORM®) which aims to foster the creation of reusable learning content as 'instructional objects' within a common technical framework for computer and web-based learning;
- by having staff members run the e-learning website using the above systems, the organisation could save thousands of euro;
- strategic alliances with other institutions can lead to the sharing of material and promotion of courses, which benefits all parties;
- the training of teachers and trainers to produce the courses suitable for online delivery is extremely important. Several universities have developed packages for the training of staff in e-learning development techniques;

- universities which have a track record in e-learning can form networks with universities in the new Member States to offer them peer support in introducing e-learning to their curriculum;
- any institute of higher education launching e-learning courses through its website should offer a choice of languages as on many current Finnish, German, Slovakian and Spanish websites.

5.3. Networking SMEs

E-learning within the work environment is usually driven from the management down. Companies can follow several different routes in deploying training. Larger companies may decide to develop and produce their own training materials, though it is more likely is that they will buy in the expertise to host, design and manage the training programmes for them. This can be a very expensive option for a large company and is not feasible for an SME.

All of the countries in the study have organisations which provide this service. The name seen most frequently is CISCO® Systems, a computer equipment manufacturer which has branched out into providing customised e-learning packages. It is very important that the management of the organisation gets the backing of the staff before implementing any e-learning programme; the success of the project depends on the commitment of the staff.

Training is not high on SME agendas as they do not like employees to be away from their work for too long. E-learning can provide them with the opportunity to allow their employees time to learn while at their workplace.

Networking on e-learning among SMEs is common to all countries in the study.

Slovakia is a partner in the Leonardo project Regional development by distance learning of SME managers – REDILEM ([55]). The project has nine partners from six European countries: Austria, Bohemia, France, Germany, Slovakia and Sweden, The coordinating partner is the Slovak University of Technology, Bratislava.

The project has developed several e-learning courses for managers of SMEs. Its rationale is to create a system of distance learning to improve access to continuing vocational training and the acquisition of the necessary skills and competences for SME managers. It also aims to increase the competences of SME managers in remote regions with limited access to learning opportunities.

([55]) http://redilem.sjf.stuba.sk/.

The skills covered include:

(a) integrated management, fundamentals of entrepreneurship;

(b) strategic management;

(c) creating a business plan and sources for seed financing;

(d) how to offer and sell a product well.

All the countries have some form of networks for SMEs and many have links with universities, such as the SME knowledge network which is part of the University of Bradford School of Management's continuing commitment to provide businesses and organisations with overviews of contemporary, tried and tested, best practice management in plain English. This network operates in a totally informal manner by having network meetings which are attended by staff and owners and managers of SMEs in the locality. Different topics are discussed at each meeting ([56]).

One EU project has created a European small and medium enterprise e-learning Network (EseN) ([57]) involving project partners and SMEs from six countries, to share expertise and best-practice. Its aims are: 'Mid-career re-skilling of SME leaders and managers to equip them for the knowledge economy; a test of virtual learning in virtual environments'. ESeN aims to develop the capabilities of European SME leaders in understanding, managing and implementing innovation processes, which enable their firms to compete within the digital economy. The online course will help to develop a set of skills to assist SMEs in the use of the myriad of resources available via the web. It will introduce electronic planning tools and management techniques to enable problem-solving and innovative thinking, and enable effective communication.

In Germany, LERNET ([58]) is part of the action programme Innovation and jobs in the information society of the 21st century, and aims to develop web-based learning solutions for medium-sized enterprises and public administration. The goal of the project is to develop new forms of continuing education for SMEs as well as for public administration, based on current information and communication technologies. The Federal Ministry of Economics and Labour in Germany ([59]) has two projects to promote e-learning for SMEs and public administration: Content-sharing and Initiative for quality in German e-learning (QED).

([56]) http://www.brad.ac.uk/smenetwork/.

([57]) Contact person: Gillian Alexander: gillian.alexander@henleymc.ac.uk

([58]) http://www.lernet.info.

([59]) http://www.bmwa.bund.de/Navigation/Service/english.html

6. Relevant issues in future developments

It has only been five years since Lisbon and already changes in e-learning have been striking: better courseware, better delivery via faster computers, broadband has been introduced. The next five years may change as dramatically. This study has shown that the following areas will be most important in the next few years:

Technology:	mobile e-learning; faster speeds via broadband and satellite; improved computer power and affordability.
Courseware:	improved delivery systems that are compatible across computer platforms.
Networks:	universities and SMEs creating bigger networks for the development, exchange of information and software systems.
Literacy:	governments will increase efforts to raise the basic literacy levels of EU citizens.
Digital literacy:	greater investment in opportunities for people to step on to the e-learning platform.
Vocational training:	an overall increase in the investment of developing e-learning packages for the vocational sector and especially people in SMEs.

These are some of the proposed initiatives to address the e-learning situation in the countries studied. They have all shown a determination to provide as many resources as possible to promote the overall subject of lifelong learning, not just in e-learning on its own.

The UK government plans to unveil new proposals which will have a direct effect on the availability of learning for both the employed and unemployed. In both cases it is planned that financial assistance will be provided towards the cost of courses which the learner wishes to take. Time-off from work for study is also proposed.

Slovakia has announced that it will be spending in excess of EUR 25 million on ICT research and development. The bulk of this funding will go to universities in Slovakia.

All five countries have issued, or are in the process of issuing, plans for the next five years to meet the terms of the Lisbon Agreement.

It would be a cost-effective exercise if a website was developed under the auspices of the EU whereby all relevant e-learning material could be made available to interested parties in each Member State. This would speed up the development of e-learning across the EU.

There may be a need for a method of ensuring that successful EU lifelong learning projects can carry on after their allotted time if they have proven to be successful. One example of this is the Learning citizen website ([60]) which was associated with seven other EU funded projects

([60]) http://www.learningcitizen.net.

in a cluster. The projects ended on 31 January 2005 and the website will be there until next year. This was an excellent resource and an example of a project that should be renewed.

Many private providers have joined associations such as the Association for Learning Technology (ALT) ([61]) in the UK to bring their industry in line and to agree on standards and ethics of conduct.

'ALT is a professional and scholarly association which seeks to bring together all those with an interest in the use of learning technology. With over 200 organisations and over 500 individual members we aim to:

- promote good practice in the use of learning technology in education and industry;
- represent the members in areas of policy;
- facilitate collaboration between practitioners, researchers, and policy-makers.'

The British Learning Association is a similar organisation to ALT with very similar aims ([62]).

Unless the number of people able to take advantage of e-learning is increased dramatically, e-learning will stagnate. Citing Martinich, some innovations are subject to the network effect: the value of a product increases in proportion to the square of the number of users. Fax machines, for example, are of little value if only a few people own them, but of far greater value if millions of people own them. Many software innovations including e-learning are subject to the network effect ([63]).

([61]) http://www.alt.ac.uk.

([62]) http://www.british-learning.com.

([63]) http://www.educationau.edu.au/events/globalsummit/papers/lmartinich.htm.

7. Factors for e-learning in lifelong learning

7.1. Promoting factors

- Broadband connections have greatly increased in the last year; combined with a general reduction in costs, the installation of broadband is much more appealing to the general user.

- Many universities are expanding their range of courses available across the Internet by offering their programmes in a number of languages.

- The low level of digital literacy is being addressed through initiatives at Community and Member State level.

- The launch of the New Lisbon Strategy contains numerous initiatives to encourage research and development together with greater cooperation between industry, academia and public authorities.

- Greater cooperation between academia and SMEs is being encouraged. Several initiatives are being set up to promote networking between SMEs.

- The social partners are becoming more involved in the lifelong learning on behalf of their members and, in some, countries are taking up the challenge themselves to instigate online training.

- The creation of the European foundation for quality in e-learning is a positive step towards establishing a European e-learning quality mark. Previous sites have tended to be information portals for providers quoting best practice, etc. A recognisable award across the EU will be of great benefit to potential learners, although this may take several years to develop.

- More universities are embracing e-learning in a blended learning format and are providing professional development programmes for staff to allow them to meet increased demand for e-learning content in their programmes.

- There is a growing volume of free development software available to e-learning developers which will assist in keeping costs to a manageable level.

7.2. Inhibiting factors

- Alternatives to landline broadband availability are still much more expensive to install e.g. satellite connections. In some countries, the number of landlines has fallen and mobile broadband connection costs are still high.

- Although there is a significant increase in the availability of academic courses through universities and colleges, there is a lack of programmes and information available in the vocational sector. Employees who wish to improve their knowledge and skills in their own occupation have a difficult task in finding courses suitable for them. The academic route is not always suitable to everyone.

- As there are no quality standards set for private e-learning providers, other than through self administered associations, it is difficult for a prospective learner to assess whether or not a course is as advertised until they have paid their money.

- In some countries little is being done at government level to promote the availability of e-learning for continuing personal development. When broadband is advertised by providers the emphasis is on speed of access: little or no mention is made of the practical ways that this is of benefit to the user. Advertisers could mention in their promotions the benefits of broadband for learning.

- It is extremely difficult to promote lifelong learning to people unless they can see a positive outcome to their endeavours. A culture of learning cannot be developed quickly but will take time. It is important for governments to embrace the new Lisbon Strategy and promote best practice.

8. Conclusions

It is only five years since the Lisbon agreement and the whole area of learning via the Internet has progressed greatly through the improvement of technology and the improvement in courseware. E-learning has been going through a transition phase whereby it is now beginning to find its place in education and training and lifelong learning. Although available in all of the countries studied, it varies not only in quantity and quality but also in accessibility.

All countries apart from Slovakia have portals designed to encourage people to take up courses as part of a lifelong learning strategy. There are no accurate figures on how successful these have been as they have only been available for a few years. Germany and Finland are encouraging people currently outside the workforce to begin learning; the largest target group is the female population. A policy should be developed in each Member State to promote the idea of lifelong learning from the basis of the benefits to the individual and provide easy access to courses which will get them started. Subsidy may be possible, as in the UK where courses up to level 2 are free of charge when they are provided by the state.

The first contact with an e-learning course provider is often initiated by the lifelong learner who wishes to improve their own knowledge. To encourage people who would not normally take it upon themselves to register for an online course, there has to be a proven personal benefit. The idea of lifelong learning has to be 'sold' to the population as a whole in such a way that they can clearly see the benefit to themselves personally and not assume that it is for the benefit of others such as their employers.

There are many options throughout Europe for someone interested in a higher level e-learning course through a university or other institute of higher education. Many universities are offering multilingual courses to appeal to overseas students with the result that a student is not restricted to their own country. As an example, the Open University in the UK has 25 000 overseas students taking courses via e-learning. Most courses provided by universities, etc. feature blended learning, as it has been apparent for some time that it is extremely difficult for people to learn entirely on their own without any face-to-face contact. Non-accredited courses tend to have no physical contact with a tutor but some have an e-tutor available via e-mail. As the UK government discovered with their UKeU virtual university set up in 2000, it is not an easy job to set up such a university. The university closed last year at a cost of approximately EUR 75 million as a result of poor decision making and an attempt to create their own learning platform instead of taking on an existing product. Poor marketing was also a factor. The conclusion from this is that a virtual university should be set up within an existing establishment with a track record in distance learning.

There are many portals and sites available for university courses but accredited courses in the vocational area are more difficult to access. It would appear that the least training is carried out in SMEs; this is not a new phenomenon, but a continuation of a culture that has been developing for many years. SMEs tend to put up the most resistance to allowing staff time off for training. There are many pilot networks for SMEs in the countries studied which are

designed to allow them to share resources and thus reduce costs and labour downtime. A number of networks exist where the SMEs are aligned to a university which develops and provides the courseware for the companies.

An important feature in the countries has been the cooperation of the social partners in promoting lifelong learning including e-learning. The UK is a prime example of the trade unions promoting their own learning centres for members. In Spain the unions are heavily involved in training in companies but little is carried out by the way of e-learning. It has been obvious from this study that the involvement of the social partners in developing a successful lifelong learning programme is extremely important. A system where a national strategy to promote lifelong learning is conducted jointly would give a greater impetus and credibility to the strategy.

The level of literacy skills in the five countries studied is not known with any accuracy; there are variations in the understanding of literacy levels between the countries. People with low literacy skills are excluded from participating in any computer activity. All of the countries apart from Slovakia have a public portal providing information and tutor information on literacy. There should be programmes in all countries designed to allow people with poor literacy skills to have access to suitable programmes as the first part of a continuing programme to develop ICT skills and lead to accredited qualifications.

The true digital literacy level within the EU is not known exactly. The Commission is actively promoting projects to improve digital literacy skills as one of their four main priorities in the eLearning Programme for 2004 to 2006. A key factor of the development of e-learning, both in universities and elsewhere in lifelong learning environments, is the competence of the lecturer or trainer to design and produce suitable online material. Some universities already have a staff development programme to provide continuing training in authoring and management systems in use. The training of lecturers and trainers to design and develop courseware using the learning platforms would be made a great deal easier if a standard system could be adopted which would allow easy courseware transition from one system to another.

A major concern raised when examining the e-learning courses available on the Internet is that, apart from recognised institutions, there is no way of knowing the quality of the courses on offer. There are many sites which offer e-learning courses which are not accredited and have no indication as to the quality of the programme or even from which country they originate. There are no statutory standards bodies overseeing non-accredited training providers, which makes it difficult for a prospective student to judge the suitability of a course. A possible exception to this would be the courses offered by such companies as Microsoft®, CISCO® and IBM® who provide courses certified by the specific company but related to the use of their own equipment. Owing to the vast numbers of people taking courses provided by IT companies, these courses should be brought in line with qualifications standards to give them a standing outside the computer industry. The European computer driving licence (ECDL), has proved extremely successful. This type of programme should be

extended into new areas in ICT and possibly other types of learning. The question of the quality of courses available on the Internet should be seriously examined with a view to introducing a standards system throughout the EU which will indicate to a prospective student whether the certificate at the end of the course is worthwhile. The developments related to the recognition of higher education and VET qualifications and the introduction of the European qualifications framework could greatly improve the situation at European level.

The cost of access to the Internet via a broadband connection has steadily decreased over the past two years to the point that the cost in Europe is very similar to the cost in the US. Broadband is still not available to all the population via a land line. In some countries, the number of land lines is decreasing as mobile phones are replacing the handset in the home. Although mobile broadband is available, the cost is still high. Other methods of accessing the Internet are available, e.g. via satellite, but the cost is very high and they are used mostly by larger companies.

The cost of a computer system is fairly standard in all of the countries. The essential difference is in the spending power of the population. There are many open source e-learning management and authoring systems available which would greatly reduce the cost for a university or other organisation setting up a virtual university. There is a wealth of open source material, both for management and for courses, freely available on the Internet; this should be used by organisations to develop their own systems at a much reduced cost. Typical authoring tools and management systems are SCORM® and MOODLE®. These should be developed and made available to organisations throughout the EU on a similar basis. Forming links, even a mentoring system, between organisations in different countries to share and exchange packages and courseware would be beneficial to all and reduce costs and development time. This would also avoid a great deal of duplication.

At Community level, the results of EU sponsored projects should be held in a central databank which could be accessed by accredited organisations throughout the Member States as open sources. The programmes developed under these projects would save other organisations from reinventing systems which are already developed. A system should be put in place whereby successful projects sponsored by the EU are given a life after the end of their project life. Many useful portals which are still on the Internet have been closed down and are not being maintained. These portals are ones which provided useful information for the lay person in easy to understand formats.

As e-learning has been in a transition stage over the last few years, the overall situation of e-learning in LLL should be examined on a yearly basis in each Member State against a benchmark system. This would provide accurate information which could be used to adjust strategies and pass on best practice more easily.

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Annex 2: Additional information

The following is a non-exhaustive list of e-learning related projects which have been launched since January 2005 and a short list of projects connected to the subject of e-learning.

Index and description of projects:

http://europa.eu.int/comm/education/programmes/elearning/projects_descr_en.html

Projects

3DeL	3D Electronic Learning	http://www.xtec.es/3del/
@lf@-bet@	Le donne migranti verso le TIC attraverso le reti territoriali. (l'alphabétisation digitale pour les femmes immigrées, dans les contextes territoriaux identifiés).	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/@lf_bet@.pdf
BENTLI	Benchmarking regional strategies for Technological Literacy	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/bentli.pdf
CREATEL	New e-learning environment for European SME's employees	www.crea.es/innovacion/createl
DEA	Digital literacy open to impairments	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/dea.pdf
DELOS	Developing a European e-learning Observation System	http://www.education-observatories.net/delos
DELPHI	European Observatory of Emergent e-learning	http://www.ub.es/euelearning/delphi/index.htm
DigEuLit	A European framework for digital literacy.	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/digeulit.pdf
EL4EI	E-Learning for E-inclusion	http://www.el4ei.net
E.A.S.Y.	Agency for Easy access to virtual campus.	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/easy.pdf
E-ability	E-learning and social inclusion for people with disability	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/e_ability.pdf
E-Learn-Vip	E-learning for visually impaired persons	http://www.e-learn-vip.org
ELDA	E-learning Disability Access	http://www.eldanet.org
eLISHE	eLearning Inventory for Small and Handicraft Enterprises. Promoting digital literacy in SMEs.	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/elishe.pdf
eLene–TT	E-learning network for Teacher Training	http://www.elene-tt.net/
ELLEU	E-learning per le Lingue e le Letterature Europee	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/elleu.pdf
e-Leru	Creation of a LERU (League of European Research Universities) virtual campus.	http://weblog.leidenuniv.nl/bb/eleru/
Elifo	E-Learning Intercultural Forum	www.e-lifo.fr/CEMFOPINDEX.htm

eMigra	Promouvoir la culture numérique des immigrants. (Promoting digital literacy for immigrants in Europe).	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/emigra.pdf
E-RAIL	European Railway Access Interactive Learning	Contact person: Eric Manusset eric.manusset@sncf.fr
EQUEL	E-quality in e-learning	http://equel.net
EQO	European Quality Observatory.	http://www.eqo.info
ESEN	European Small and medium enterprise E-learning Network	The ESEN website is no longer active as the project finished some 18 months ago. contact person: Gillian Alexander - gillian.alexander@henleymc.ac.uk.
eTT.Campus	The aim is to develop a virtual campus for the training of European teachers.	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/eTTCampus.pdf
eTTnet	European Training of Trainers Network	http://communities.trainingvillage.gr/
E-xcellence	Creating a standard of excellence for e-learning to contribute to the European area of higher education.	http://www.eadtu.nl/e-xcellence/default.asp
GENIUS	Generic e-learning Environments and Paradigms for the New European Information and Communication Technologies Curricula	http://www.genius.rdg.ac.uk/index.html
ICETEL	Improving Continuing Education and Training through E-Learning	http://europa.eu.int/comm/education/programmes/elearning/projects_descr_en.htmls
ILAB	A virtual laboratory for collaboration and problem solving for the training of teachers and trainers in e-learning	http://www.theknownet.com/
LIFE	Learning Interoperability Framework for Europe (LIFE).	http://life.eun.org/sites/life/index.cfm
MASSIVE	Modelling Advice and Support Services to Integrate Virtual Component in Higher Education	http://www.europace.org/services/projects/massive/index.html
Qual-e-learning	The quality of e-learning	http://www.qual-elearning.net/
QUIS	Quality, interoperability and standards in e-learning.	http://www2.tisip.no/quis/
HELIOS	Horizontal E-Learning and Integrated Observation System.	http://www.education-observatories.net/helios
TRIANGLE	The overall project aim is to contribute to the quality of e-learning in Europe by building a sustainable environment that can express leadership in this domain.	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/triangle.pdf
LIVIUS	Learning in virtual integrated university system	http://www.uninettuno.it/Livius/Ing/home_livius.htm
MENU	Model for a European Networked University for e-learning	http://ans.hsh.no/lu/inf/menu/
REVE	Real Virtual Erasmus	http://www.europace.org/services/projects/reve/
SEEL	Supporting Excellence in E-Learning	http://www.eife-l.org/projects/past/seel

SEEQUEL	Sustainable Environment for the Evaluation of Quality in E-Learning	http://www.education-observatories.net/seequel/index
VICTORIOUS	Virtual Curricula Through Reliable Interoperating University Systems.	http://www.elearningeuropa.info/index.php?page=doc&doc_id=6029&doclng=6&menuzone=1
V I P A	Virtual campus for virtual space design provided for European architects	http://europa.eu.int/comm/education/programmes/elearning/projects_2004/vipa.pdf
Virtual Copernicus-campus	E-learning for sustainable development in the European higher education area.	http://www.copernicus-campus.org/VCC.html
WELCOME	Web-based E-Learning for SME and Craftsmen of Modern Europe	http://www.europace.org/services/projects/welcome/

Cedefop (European Centre for the Development of Vocational Training)

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