E-‐learning for Small Medium Enterprises

**Compendium & Bibliography**

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## A - Workshop Recommendations

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<td><strong>1</strong> Knowledge-based competitiveness can be achieved only in <strong>societies embracing creativity, knowledge and innovation culture</strong> within which <strong>lifelong learning</strong> is accepted as a <strong>leading principle</strong> of companies and individuals (benefiting from e-learning experiences at early age). In this context – and to the extent of having absorbed information and communication technologies - <strong>e-learning</strong> is accepted by everyone, including SMEs, as a <strong>new mode of learning</strong> and a <strong>useful instrument of competence building</strong>. Achieving Lisbon Agenda’s knowledge society targets requires policy makers at all levels to create a <strong>truly holistic and consistent support environment and effective incentives to encourage</strong> individuals and companies to <strong>translate and operationalise values and policies of knowledge society</strong> into priorities in their everyday activities.</td>
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<td><strong>2</strong> Learning should be integrated in <strong>knowledge management, knowledge sharing</strong> and <strong>change management</strong>, and e-learning introduced as part of a <strong>larger blend</strong> that includes the informal as well as the formal learning.</td>
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<td><strong>3</strong> Human capital development and competence building hardly receives needed attention in SMEs, however it is crucial to the same extent if not even more than for large companies (with HR departments and systematic training activities) to realise that HR development represents the key to innovative capacity of the company. In order to be able to benefit fully from e-learning <strong>SMEs should develop</strong> (possibly using also external expertise), adopt and consistently implement their <strong>HR strategies</strong> in which skills and knowledge needs have been properly assessed in the context of company’s business strategy. Being sufficiently flexible to reflect constant changes on the market the company’s HR strategy and its implementation instruments should motivate all employees to plan their education and training, including e-learning activities. HR development is to be treated as part of company’s overall strategy (product development, market positioning, innovation). Training expenses should be considered an investment and not a mere cost. SME managers would benefit from <strong>specialist training on HR management</strong>, including the potential benefits and limitations of e-learning.</td>
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<td><strong>4</strong> In most parts of society, including SMEs, <strong>e-learning is still relatively unknown</strong>. Therefore authorities at all levels, and e-learning providers in particular, should <strong>intensify awareness building and promotional activities</strong>, emphasising practical advantages and benefits of e-learning. Online information systems about e-learning, such as elearningeuropa.info and European Training Village (CEDEFOP) should be more systematically promoted specially by national and regional authorities and SME associations.</td>
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<td><strong>5</strong> The content of e-learning, if translated, is not strongly “national” (except in administrative or fiscal matters) but is “single market” sized. Therefore a <strong>‘one stop shop’ or single window</strong>, presented as an <strong>SME dedicated portal</strong> would be the most appropriate vehicle to increase awareness and disseminate information on e-learning possibilities to all internet connected SMEs.</td>
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<td><strong>6</strong> The European Commission should support and encourage language learning for SMEs, and better promote the existing portals, such as: alte.org; portalelingue.europa.eu; besides ICT skills, mastering foreign languages – particularly English – gives learners</td>
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| 7 | **Role of national, regional and local actors** should be strengthened particularly in:  
- raising awareness among SMEs and individual learners;  
- supporting a **lifelong learning culture**;  
- **sharing the mission** between SME owners, schools or universities;  
- supporting the **training of teachers** for e-learning;  
- **encouraging partnerships** and brokerage by grouping content,  
- **recognising learning communities** and awarding contributions  
- developing a **sharing culture** between SMEs, associations and universities. | X | X |
| 8 | **The professional e-learning providers** should develop and offer innovative and interactive, needs-specific solutions to SMEs. They should customise their products at a **reasonable cost**, and accept that their learning offer is **part of a larger mix**. including blended learning (combining e-learning with face-to-face teaching). In order to exploit the full potential of e-learning, course contents should be adapted accordingly and focused on the learner. | X |
| 9 | **Large companies** could be encouraged to “**coach**” SMEs (following successful examples in aeronautics and defence). They could encourage the creation of bundles of SMEs and provide them with **flexible resources in their environment**. This function can be performed also by chambers, clusters, support agencies, and other business associations. | X |
| 10 | National and regional authorities should provide the **physical and tutorial access** for e-learning in SMEs, **stimulate awareness** and organise or finance the implementation through the provision of “**e-learning points**”. These points – possibly organised as PPP - could be similar to **business centres**, where individuals benefit from common **infrastructure and services** (training programmes, online tests and certifications). | X |
| 11 | National and European wide support should refer primarily to policy framework and support, through a one-stop-shop portal (no FaceBook like portal, no content – **only basic info, links and “good practice examples”** with some web 2.0 features like Instant Messaging, User generated content, Micro learning, mobile learning, communities etc.) . Regarding **contents evaluation**: more systematic rating / feedback-system from users would be necessary. | X | X |
| 12 | **Open Knowledge Communities**, facilitating the use of **common infrastructure**, the development of **common content but also of common interests and strategies**, should be encouraged and supported. | X | X | X |
| 13 | Perhaps even more than with classical education, quality assurance presents an important issue for learners, but a system of accreditation at the global level does not seem to be feasible. **The best guarantee for quality of e-learning programmes is certification of teachers involved, including mentors.** | X | X |
| 14 | Being commercially less interesting to e-learning providers than large companies, SMEs do not receive suitable offers for e-learning services. A solution could be found in **active participation of providers in parenthoods between SMEs and large companies or/and regional bodies** that approach SMEs in a more comprehensive way, in which learning needs are linked to business needs, familiarity with the training market and funding possibilities, etc. **E-learning providers** could also operate as **part of a larger franchised network.** | X |
| 15 | SMEs should systematically use the **work environment and its e-tools and e-resources as a source for informal learning**, by recognising its importance during job evaluation and eventual resulting promotion. They should **customise the e-resources and associated services to fit better the formal and informal training**, as well as **knowledge sharing and management**. SMEs should also monitor and evaluate more systematically all **learning processes** in the company including benchmarking. | X |
| 16 | **E-learning providers** should **help SME owners** to better **understand how learning can help their organisations and where e-learning is the most appropriate solution for competency-based training**, **provide access to practical management information on e-learning**, the required investments and the expected return; **provide an easy access to** | X |
free e-learning content by installing a one-stop shop for learning, and setting up networks and communities to reduce its cost; work closely with SMEs, in their own culture and language, offer them coaching services for the definition of their e-learning needs and the solutions available.

17 If better e-learning solutions are to be found specific groups of SMEs with similar skills needed have to be identified. This is necessary as it is too expensive to develop single solutions for individual categories of SMEs. E-learning solutions in modular systems could then be easily adopted to different needs of groups of SMEs and could be upgraded or downsized according to the immediate learning needs of the individual company.

18 More emphasis should be placed on the establishment of staff exchange plans for coaching/tutoring work forces, transnational curriculum development and pan-European thematic networks based on international eLearning and eUniversity models providing proof of concepts and best practice guidelines. Content and curricula localisation efforts should be fostered together with the international migration and certification of online learning credits (eCredits).

19 Vast majority of teachers need specific ICT-skills with a strong focus on pedagogical implications to be able to use ICT more optimally in e-learning situations. Specific ICT training for teachers is required to equip them for quality e-teaching.

20 The EU and its Member States must invest more in educating and training all citizens to use ICT (ICT literacy or basic skills for life plus specific/professional ICT training). Training actions could be backed up by the Lifelong Learning Programme and its implementation into Lifelong Learning Strategies by the Member States.
B - Compendium

1. State of Play – Facts, Figures

So far, e-learning has primarily been used when there are many learners involved. The reason may be quite simple; the up-front investments related to e-learning are relatively high. Therefore it is necessary to distribute e-learning investments among a relatively large number of learners. The consequence is that e-learning first and foremost has been used by individuals who enroll in generic courses in a large open market and by large enterprises with so many employees that they can afford to develop specialized e-learning internally. Since SMEs have relatively few employees, few SMEs have much experience with e-learning. *(State of the Art Report: E-learning Quality in European SMEs – an Analysis of E-learning Experiences in European Small and Medium-sized Enterprises, pg. 9)*

Less than 25 percent of SME employees participate in vocational training courses, and less than 60 percent of employers provide any type of training for their staff. *(Op.cit, pg. 11)*

Most employers and managers, not least in SMEs, do not realize the potential of e-learning. Many managers know little about e-learning and quality of e-learning and often require strong evidence that e-learning works. Today, there is no doubt that e-learning has demonstrated its potential for high-quality and cost-effective learning. *(Ibid, pg. 11)*

Having either no PCs or only stand-alone PCs reduces considerably the possibilities for SMEs of having e-learning organised at the workplace. Things are nevertheless changing relatively fast, as is demonstrated in the following figure about access of SMEs to the Internet. Connection to the Internet increased substantially, especially in micro-enterprises. Together with the availability of a local network (and the possibilities of an intranet) it should create the conditions for using e-learning at the workplace.

*(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 18)*
SMEs 2003 report on competence development in SMEs, which notices this North-South division, not only concerning the percentage of SMEs involved in competence development activities, but also for the methods being employed (e.g. competence development through knowledge exchange and teamwork are more likely to be found in the North than in the South). *(Op.cit, pg. 20)*

Factors that affect training in general and e-learning in particular. **The smaller the enterprise, the more likely the owner is also the (general) manager who decides whether, when and which kind of training will be used.** Many of these owners/managers are highly skilled in their core business activities, but lack management knowledge, skills and attitudes to run an enterprise, and since barriers for training are most likely to be found in the attitude of employers, this person has a large impact on all aspects connected to training. This is also illustrated in a Scottish study about delivering work based learning where it comes out that the smaller the employer, the more chances the preference will go for training at the workplace. *(Op.cit, pg. 20)*

**Employers of small enterprises lack knowledge about the learning needs of their employees** *(EuroPACE 2004 found that especially small SMEs frequently report to have no training needs at all) and of the available training opportunities, including eventual funding possibilities for the purpose. They are often “too busy” with their core business, training is not a key focus, and they tend to consider it rather in terms of (high) cost than of investment. As training creates a temporary unavailability of the trainee for the core activity of the enterprise, it has a direct impact on its productivity, especially in micro-enterprises, and SME employers tend to fear the loss of their staff to competitors once it is well trained (see the Marchmont Observatory report, 2002); *(Op.cit, pg. 21)*

**Training in SMEs** is often of an informal nature, which implies that a lot of the training is organised “in-house” because it is of enterprise-specific nature. A British and a Swiss study reveal that SMEs resort to the training market only when they need to obtain skills and abilities that cannot be provided in house; *(Op.cit, pg. 21)*

**SMEs have a bigger need for custom-made courses rather than open courses.** These tailor made courses are quite expensive, so they are not regarded as a good option. This is confirmed in the already referenced Marchmont Observatory study (2002), which specifies that networking with eventual competitors might create economies of scale and make custom made courses affordable, but this is also not considered as an acceptable option. However, as SMEs often use short-term business strategies, it is difficult to develop customised trainings while maintaining cost-effectiveness. *(Op.cit, pg. 21)*

When asked which course topics are well adapted for e-learning, the providers make an extensive list. The subjects that are regularly mentioned are:

- Technical skills; (9)
- Management skills; (5)
- Accounting; (5)
- Languages; (4)
- Logistics (4)

Yet, providers stress that it is not the topic but the objectives that determine whether the subject is fit for e-learning or not: if you want interaction between the students, if you want hands-on sessions, if you want to share the “silent knowledge”, e-learning will not be the best delivery channel. The length of the course can also be a handicap: the attention of the learner will not remain focused on a screen for hours. *(Op.cit, pg. 30)*

SMEs have specific constraints: a same person has several responsibilities, most workers have little time and will look for only what they need, they will need it as soon as possible and very specific to their needs. No standard training will match 100% of the needs of individuals from SMEs.
Most of the learning in an SME is informal, i.e. it often takes place on the job, through a “sharing of knowledge” rather than in a “training”.

(Op.cit, pg. 36)

In EU policies with respect to training, e-learning only gets limited attention. Whenever training is mentioned, the focus is on upgrading the ICT skills of employees in companies and on training in ICT for the unemployed in order to widen their options on the market. The major preoccupation is to improve the digital skills of the workforce and to get companies on the digital track, so that they can compete with companies in the US or Japan.

(Op.cit, pg. 46)

Improving the e-skills of the general workforce is critical to the successful implementation of e-strategies in businesses. There are different paths to this goal, but in most cases a combination of different ways of learning (or “blended learning”), both formal and informal, will be the most effective, typically consisting of traditional trainings, self-learning and learning-on-the-job. Large firms often have established special IT training schemes for continuous training, either by organising their own programmes or by sending their employees to IT training provided by training organisations. Smaller firms often cannot provide such opportunities and have to rely on learning-on-the-job and self-learning activities of their employees. So e-learning techniques and applications, as a complement to traditional ways of learning, may be especially important to SMEs in managing the e-business skills requirements of their personnel.

Activities in this context are amongst others to increase awareness of the benefits that e-learning technologies can offer for SMEs employees; to provide incentives to SMEs to start using e-learning methods to train their employees.

(Op.cit, pg. 49)

“Despite its central importance in government policy and significant interest in the scale of the actual and potential market, there is an acute shortage of quantitative information on the extent of e-learning in providing initial and continuing vocational education and training and on the rate at which it is growing.

If meaningful results were to be obtained, it was important to differentiate between:

- Different countries and languages: E-learning suppliers have targeted first countries with English as a native language or with high levels of second language English speakers;
- Different vocational education and training systems in each country of the EU: these distinctive national features are likely to affect the development of e-learning in different countries, the way in which e-learning is incorporated into training, and the pace at which this happens;
- Different types of organisation: training providers of different kinds;
- Users and providers of training: the demand and supply sides of the market for e-learning. One of the most important findings of the study is that consumers or users are often both suppliers and providers simultaneously;
- Different subject areas: from training in ICT to other subject areas, such as language learning, etc;
- Current and capital spending: tension between investment in equipment and investment in content; the content of e-learning programmes tending to lag behind the capacity of hardware systems and the Internet to deliver.

(Ibid, pg. 55)

Results of studies show that less than 25% of SMEs staff participates in vocational training courses and less than 60% of employers provide any type of training for their staff. (Improving e-Learning 2.0-based Training Strategies of SMEs through Communities of Practice, pg. 1)

In Germany, for example, SMEs are a bit skeptical about the effectiveness of “pure” e-learning. Only 5% of small companies and 24% of medium-sized companies use e-learning in comparison with 46% of big companies. The major part of commercial e-learning software is modeled on the requirements of big enterprise or higher education. Software development is centered on big inclusive elearning platforms,
usually consisting of a basic product and additional modules. \((Competency-based\ \text{Training in SMEs: The Role of E-Learning and E-Competence},\ \text{pg. 3})\)

An evaluation study on online learning at the workplace (Oberski, Palomar, Noya, Ruggerio et al., 2000) shows that some workers indicated that they were unfamiliar with the Internet technology, that the connections were instable and slow, have unsuitable soft- and hardware to download files, and that there was limited technical support. These problems are not specific to implementing ICT for learning at the workplace in SMEs; also within formal educational settings these complaints are echoed. More specific for SMEs, at least in the Netherlands, it seems that not all workers have a computer and that knowledge, skills and especially the attitude required to use eLearning technology are not widely spread. This is particularly true for so-called micro companies. \((\text{ICT support for workplace learning: eLearning in Small and Medium Enterprises (SMEs)}, \ \text{pg. 5})\)

A case study conducted in Austria that appeared in a Cedefop report (2002) shows that there is little support from public bodies and branch or umbrella organisations like chambers of commerce for the implementation of eLearning in SMEs. They conclude that implementation of eLearning depends on knowledge, skills and attitudes of the managers or owners of the companies involved. \((\text{Op.cit}, \ \text{pg. 5})\)

A final issue in eLearning in SMEs is the accessibility of learning environments and content. The study executed by Cedefop (2002) indicates that as far as eLearning initiatives are concerned, it mostly remains limited to the white collar workers (managers and supervisors). This is especially the case in trying out or implementing new techniques in the work place. This is problematic as one of the reasons for using eLearning would be to make training and development more accessible to a wider group of people. An explanation for this might be the fact that the production of eLearning materials is in the hand of private companies. At the moment it is doubtful whether these private bodies are willing to take the risk to unclosed eLearning for blue-collar workers, who in general have little experience with learning at the workplace in combination with ICT. \((\text{Ibid}, \ \text{pg. 6})\)

According to different studies, learning assists organisations in three ways. Firstly, it increases the skills base of the workforce. Secondly, through the process of learning itself, it enables the organisation to manage and respond to change. Thirdly, it increases the knowledge base of the organisation, which is seen as the key to discovery and innovation. Set against this context, developments in work-based learning are seen as particularly appropriate to increasing the development of workplace skills and knowledge, whilst at the same time widening access to learning. \((\text{SMECTRA – an European network for online counselling on the application of new media in enterprise training}, \ \text{pg. 2})\)

In the years 2000 and 2001, the information and communications technologies (ICT) industry had high expectations for e-learning (EL). Market analysts predicted double digit growth in the US and Europe (IDC, 2001), all major ICT companies were promoting EL solutions, and media interest was high. Textbooks promoted EL’s advantages over existing ways to deliver education and training. Proposed advantages included cost savings, flexibility, learning customization, and time to market (Rosenberg, 2001). Recent industry and media attention has, however, been more cautious as diffusion of EL, in Europe at least, has not met expectations. \((\text{E-learning and SMEs, Do demand and supply speak the same language?}, \ \text{pg. 1})\)

Among those firms with an interest in training, diffusion of EL is higher, but its use is still not widespread. Low awareness, and consequent difficulty in identifying and evaluating EL products and services, appear to be particular limiting factors. Few SMEs are able to evaluate usefulness, relative advantage, or fit because they are not sufficiently aware of what is available in the market. \((\text{Ibid}, \ \text{pg. 1})\)

The spread of this training method seems to be strong from the trend of market data. As regards Italy, in recent years according to estimates, expenditure on e-learning is on an increase. In 2005, investments were estimated around 430.9 million Euro against 53.6 million in 2001 (Anee/Assinform, 2005). \((\text{What are the perspectives of e-learning in SMEs, pg. 1})\)
Results showed among others that **SMEs do not invest in e-learning**, because they feel that the added value offered by this type of education has not yet been adequately revealed. One of the most common methods of showing that investing in education is worthwhile is by comparing income and expenditure in a clearly defined manner. Calculating ROI, or return on investment, is a classical method which is used for this purpose. *(E-Learning Qualities in SMEs – Return on Investment in e-Learning in SMEs, pg. 3)*

Our most striking finding was that, with the exception of some case studies with large corporations there is **very little published evaluation of work-based e-learning or evidence of its impact**. Without this information, it is very difficult to identify the benefits of e-learning and discover what works in what circumstances. It is unclear whether this lack of evidence is because evaluation and impact assessment is:

- being undertaken, but not published
- not being undertaken because it is not being included in project plans
- not being undertaken because it is perceived as too difficult to undertake. *(Research into the use of ICT and e-learning in the skills sector, pg. 6)*

It should initially be stated that **evidence of demand for e-learning is fragmented and patchy**, particularly that emerging from SMEs themselves. Much of the available literature comes from e-learning providers and developers (see, for example, the Epic and Factiva reports below), who tend to report progress (almost invariably in large companies) to practitioner audiences in the online ‘trade press’. Although **e-learning vendors** are well placed to comment on the small business market, they have a vested interest in promoting demand for e-learning and so are **not unbiased sources**. The same applies to case studies of SME demand by Ufi, which have been selected by Ufi to illustrate successful examples rather than those that are more widely representative of the market. There is currently little balanced evidence in the academic literature to suggest a widespread independent move among UK businesses to adopt e-learning. *(Op.cit, pg. 23)*

**MBAs are natural courses to be offered online** as they will often appeal to managers in businesses who may like to study but are unable to spare long periods at any one time. Some other notable e-MBAs include two projects funded by the European Social Fund (ESF) at the University of Luton: ‘Enterprise development for SME managers’, which ran from 2002 to 2004; and a current project, the ‘MBA for owners and managers in developing businesses’. Herriot Watt University offers, through its Edinburgh Business School, the choice of studying entirely on campus, entirely online or a combination of the two, whatever suits the learner. Liverpool also offers an MBA online, as well as a number of other master’s degree programmes. They claim to provide small virtual class sizes of 20 students or fewer and 24/7 technical support. They are also keen to emphasis the high level of potential interaction between participants and both staff and other students. *(Ibid, pg. 32)*

A recent Chambers of Commerce of Ireland (CCI) MORI survey (September, 2003) found that **Irish SME’s demonstrated a significant lack of understanding of what eLearning is about**. The survey found that of the 681 respondents with Internet access, only 12 percent used eLearning on a “regular” basis. This is an interesting revelation, given that Ireland has won recognition on the international stage for our eLearning materials and businesses. *(e-Learning in Irish Organisations, pg. 20)*

The results of research carried out by the European Network for SME Research (ENSR) for the Observatory of European SMEs (http://europa.eu.int/comm/enterprise/enterprise_policy/analysis/observatory.htm) show large differences between countries in the existing provision of continuous vocational training (CVT) activities in European SMEs. General speaking Northern and Alpine countries have the highest proportion of SMEs offering CVT. The size of the company is determinant for the ability to take advantage of new ICT for sharing and creating knowledge and for the development (updating) of innovative skills. The **smaller the employer, the less likely they are to use formal courses or eLearning** and the more they are reliant on in-house workplace training. They also use visits to expos/trade fairs, conferences, reading of professional literature, etc to improve their competencies and resort to the training market only when they need to obtain skills that cannot be provided in house. *(Informal learning and the use of Web 2.0 within SME training strategies, pg. 2)*
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. (A preliminary study on the current state of e-learning in lifelong learning, pg. 43)

The findings of the survey illustrate that IT-applications are especially used to support the joint handling of documents or collaborative work processes in general respectively. Furthermore, it is evident that e-learning plays a rather minor role; the share of enterprises using e-learning increases with their size. Only 6% of small enterprises and 12% of medium-sized enterprises apply e-learning (cf. EBW 2003). (Analysing problems in ICT based learning in SMEs infrastructure, pg. 18)

Increase in mobility: Labour mobility and consequently the distance between one’s workplace and one’s home continue to rise. Job specialisation, the desire for self-fulfilment, and the frequent change of jobs lead to a rising number of commuters. Especially for the group of commuters mobile learning could be an attractive option, since many of them are already equipped with notebooks, PDAs or mobile phones. Particularly in the field of mobile learning, however, there is a lack of learning arrangements and contents. The development of e-learning applications for corporate training, which can be used on mobile devices like notebooks and PDAs, thus, seems to be above all desirable (cf. Michel 2004). (Ibid, pg. 18)
2. Doctrines & Methods

SME EXPECTATIONS
What is the view of providers on the expectations that SMEs have from e-learning:
• SMEs want to reduce their training budgets; (7)
• SMEs need just in time learning; (4)
• SMEs need to maintain the continuity of the business, e-learning will allow to have learning with a minimal disruption to day to day operations; (3)
• E-learning will not require the absence from the working place; (3)
• E-learning will bring a quick fix to skills gaps or shortages; (3)
• SMEs expect impact on staff performance/bottom line; (2)
• E-learning will allow them to react quickly to changing situations; (2)
• E-learning is good for knowledge acquisition; (2)
• E-learning is more efficient than traditional learning: it allows to save time;
• Courses can be tailored to the specific needs of the company;
• E-learning allows to meet others online;
• E-learning is the way for a better and increased knowledge.

(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 29)

Information should be very practical, give the indications where SME owners will find guidance for the assessment of the skills of their employees, for the definition of the development needs, for the learning options that will best meet these needs.

“The individual motivation of managers emerges as one of the major factors driving the adoption or otherwise of e-learning. Even with suitable learning materials, unless the business organisation supports the integration of e-learning, take-up will be limited. […] The attitude of individual managers emerged as the single most decisive factor in influencing the development of ICT for learning in SMEs, yet there seemed little support for individual SME managers or for SMEs in introducing e-learning.”23.

(Op.cit, pg. 38)

A number of pedagogical issues can be found that affect directly or indirectly e-learning for SMEs. They can be grouped around the following topics:
► Motivation of learner;
► Learning needs identification;
► Own development or outsourcing;
► Selection of learning objectives;
► Congruence of learning objectives and contents with SME goals;
► Learning environment (e- or blended learning ?);
► Design and implementation of learning strategies and learning environment;
► “Situated” and social aspects of learning, workplace and work organisation;
► Evaluation of learning.

(Op.cit, pg. 73)

In many publications it is stated that research is not offering sufficient consistency to create adapted e-learning models and a theoretical framework. In the actual situation of instructional design, more research and development is still needed for that purpose.

(Op.cit, pg. 81)

A method for designing a theoretical framework that should lead to practical implementation for e-learning was developed during the cEVU (collaborative European Virtual University) European e-learning project. It is extensively described in the “Background Paper of the cEVU workgroup Online Pedagogy. It starts with a list of pedagogical beliefs or pedagogical principles that bear consensus of educationalists that support constructivism as a valid theory for learning:
► Shift from teaching to learning;
► Student - centred approach;
► Construction of learning environments and learning advice;
► Focus on active learning and learning strategies;
► Self-organised and self-directed learning;
► Competences;
► Interactive and collaborative learning;
► International communication;
► Authentic situated learning;
► Problem-oriented, case-oriented and guided enquiry-oriented learning.

(Op.cit, pg. 84)

A pragmatic approach, aligning pedagogical praxis to educational functions that are organised within the perspective of the named educational beliefs around key elements of learning and instructional settings should be more helpful.

The identified functions are
► Authoring and representation;
► Moderation and facilitation;
► Working with tools and cognitive tools;
► Supporting learning strategies;
► Evaluation, self-direction, control and self-control.

(Op.cit, pg. 84)

A shift is needed from formal training (e-learning) towards integrated knowledge management, knowledge sharing (including informal learning) and change management. In other words a “fusion” of technology, learning and work should be realised. This will automatically lead to new pedagogical models and frameworks; however this shift must be supported with pedagogical research that is based in sound insights of instructional psychology and organisational learning.

(Op.cit, pg. 89)

Many authors suggest that the implementation of e-learning in SMEs should follow an incremental approach, which shifts gradually from traditional classroom training over blended learning towards e-learning. The question remains whether such an approach is capable of realising the full potential of e-learning. A more radical change as the one suggested in the mentioned “fusion” could be more beneficial, but should not be postponed too long if European SMEs want to remain competitive in the world.

(Op.cit, pg. 89)

Also considered the duality between two existing and possible business models:
► Free knowledge sharing (a growing need and success demonstrated by initiatives as the free encyclopaedia “Wikipedia”).
► Business knowledge model: need to build a sustainable market allowing e-Learning providers to build a viable economic activity (even is partly supported by government incentives or funding).

(Op.cit, pg. 90)

E-learning in SMEs cannot be disconnected from knowledge sharing between employees, knowledge management of the enterprise and management of its change. Since many, if not most SMEs miss such management and knowledge sharing attitudes, these as well have to be stimulated by larger policies and support measures of both the European and national/regional levels.

(Op.cit, pg. 107)

Supply and demand sides should to be able to understand each other: they need intermediaries, e.g. the Chambers of Commerce. The intermediaries must have a natural link with SMEs, providing them with a good understanding of their day-to-day activities. Their role will be to adapt the offer to the needs of the SMEs and to create the critical mass for the development of course content.
Intermediaries and catalysts of e-learning should be trained to both e-learning and the SME environment. In order to build a long-term relationship, the partners must be open and independent: they need a coordinated approach and a common agenda. (Ibid, pg. 109)

In short, the problem is not the technology or the delivery of e-Learning but with the learning culture. Every company has established an own learning culture. It is the way in which the organization teaches its employees to learn and be supported along the way. Two aspects are important in a learning process: the content being presented and skills to master and apply that content once the experience is over. Typically, skills to master and apply content are what make up an organization’s lifelong learning culture. So the companies need to understand the type of learning culture they have created and they are supporting. If it is a highly dependent one, they need to start introducing skills that foster a more independent approach. They need to introduce the correct learning options that support their current culture in the best way possible. One solution for making the transition to an “electronic” lifelong learning culture easier is to blend traditional learning delivery with e-Learning solutions (Hamburg et al., 2004). Professionals, managers and trade unions play a crucial role in this process. (Lifelong Learning, e-Learning and Business Development in Small and Medium Enterprises, pg. 3)

Many SMEs carried out work in various social settings which plays an important role in peoples’ live. Therefore in order to make a contribution to business improvement of SMEs by lifelong learning, this has to be embedded in their work organization from an economic, human and social point of view. A lifelong learning culture of SMEs that could support this process is missing in most SMEs and it remains open how such a culture can be developed. (Ibid, pg. 5)

Four major types of CoPs can be identified:
- Innovation communities which work out new solutions,
- Helping communities that solve problems,
- Best-practice communities that disseminate and elaborate best practice in a given field or on a given topic,
- Knowledge-stewarding communities that connect people and organise information transfer.

Possible topics for CoPs are
- Technologies, processes (quality assurance, internationalisation),
- Methods (job design, “learning to learn”),
- Products,
- Social relevant topics (ethics).

A growing number of associations are seeking such ways to focus on learning through reflection on practice because they need to offer high-value learning activities. Practical applications of CoPs are in business, organisational design, government, education, social sector, and international projects.

In business, for example, people look for innovative ways to manage knowledge strategically. The “traditional” tools and methods of information and communication in managing knowledge in business have not had the desired results. The social oriented approach of CoPs, focussed on people who learn from each other, may be a better way towards developing strategic capabilities of organisations. (Improving e-Learning 2.0-based Training Strategies of SMEs through Communities of Practice, pg. 3)

Some of the participants expressed the view that their lack of collaboration and motivation in using virtual learning was down to their age (average in 40s) and stated that a younger generation brought up with the internet and web-based learning at schools and colleges would be more accepting of virtual learning environments. (Virtual Action Learning: Experiences from a study of an SME e-Learning Programme, pg. 10)

Competency-based Training (CbT) thus goes far beyond the concept of “blended learning”, i.e. the combination of online and face-to-face forms of learning. By focusing on competencies it widens the scope considerably and puts the emphasis on the real objective of the learning process: the continuum between
competencies which the learners have already mastered and the competencies they want or should acquire. Here, the discussion on e-learning meets the discussion on e-competence, because in the digital age necessarily much of the required competencies are related to the mastery of digital technologies. E-competence implies not only technical understanding and the ability to “drive” the technology, but more importantly, the competence to use and manage digital technologies and media in a knowledgeable and, if necessary, critical way. (Competency-based Training in SMEs: The Role of E-Learning and E-Competence, pg. 4)

The current Web-based technology (Web 2.0) which is not only a technical revolution but first of all a social one, has a vast potential to create prospering environments for emerging communities of practice. Social software lends itself very well for support of activities within a community and for staff of SMEs to collaborate. These technologies are based on the idea of connectivism developed by Siemens (2005) where learning takes place in distributed networks of people. Content and services are adaptable and responsive for example to specific needs and goals of SMEs. (Communities of Practice and Web 2.0 to support learning in SMEs, pg. 4)

At present most European SME’s act alone in facing their training problems. For future development it is necessary to strengthen cooperation with other SME’s, with large enterprises, with training providers and public institutions (e.g. Chambers of Commerce). In this context, it seems to be a probably successful suitable solution for SME’s to build communities of practice to share knowledge, to apply best practices in technology-enhanced learning and to develop business oriented models of e-Learning. Such forms of co-operation would stimulate new experiments, new actions and new directions for learning, and especially the kind of informal learning most SME’s have already experience with in-company apprenticeships or by introducing new employees to the shop-floor or practical demonstrations or instructions of new equipment. (SME’s, e-Learning and Communities of Practice, pg. 2)

E-Learning should be conceived of as a fundamental social process. The new digital generation is a communicative generation connected via SMS, e-mail and Internet chats. A lot of informal learning happens within social networks. Tacit knowledge is exchanged spontaneously within so-called “communities of practice” between participants with different expertise. Interesting research referring to this last aspect has been undertaken in the field of organisational learning (Atwell, 2003), in attempts to explain how personal knowledge and skills become shared in communities of practice or organisations and how new knowledge is developed. Nonaka and Konno (1998) have described a knowledge development cycle showing how tacit or implicit knowledge can be made explicit as a part of learning processes. This work among others have pointed out, that knowledge developed in communities of practice is important for understanding that there are different types of knowledge and that knowledge can be developed in different contexts. These distinctions are important to analyse learning forms and knowledge development processes in SME’s. (Ibid, pg. 2)

Research on learning and professional development in SMEs is still in its infancy; little empirical research has been done and studies available are often limited in size (see Chaston, Badger, & Sadler-Smith, 1999). From these studies the following observations can be made:

• First there seems to be little time for learning available. Everyday work and pressure are often addressed in favour of structural dedicating time for workplace learning. (Bridge, O’Neil, & Cromie, 1998; Bruins & De Jong, 2000; Gibb, 1993; Ram, 2000; Seagraves, Osborne, Neal, Dockerell, and others, 1996). For SMEs, it is harder to disengage workers from their daily practices in order to attend a formal training or a course than in large enterprises. Therefore, much of the learning and education in SMEs is spontaneous or unplanned, often focused on dealing with or solving daily work-related problems (Gibb, 1999; Westhead & Storey, 1999).

• In the design of learning environments there seems to be little consideration of issues such as learner motivation and involvement. This is often linked with the large drop-out number of participants halfway during a course or training. These participants feel that the training does not deal with the problems they encounter in their work and the issues they would have liked to address during the training (Loots, Osborne & Seagraves, 1998).

• Professional development in SMEs still has a low priority, regardless of the increasing strategic value of this sector in the economy. This is not only due to daily-work pressure, but also to the lack of
knowledge about training and development by the management or the owner of the company and a related conservative attitude (Cedefop, 2002; Fulantelli & Allegra, 2003). 

**ICT support for workplace learning: eLearning in Small and Medium Enterprises (SMEs), pg. 2**

Can eLearning contribute to the realisation of a ‘life long learning’ for each worker in small organisations? Some researchers and (European) policy makers think that is possible. They depart from the assumption that **time and money are the two most important hurdles** for the lack of training and development of employees in SMEs. eLearning unfortunately does not seem to solve those problems either. It is true that managers are appealed to eLearning at the workplace, but at the same time they provide the workers with insufficient time and resources to be relieved from their daily-work pressure. **"eLearning at the workplace often means learning in your own time",** is a statement from an interviewed employee during a recent Cedefop research (Cedefop, 2002). (Ibid, pg. 3)

**a) Benefits**

E-learning advantages;
- Improved flexibility in time and location
- Reduced costs for travel, accommodation and seminar rooms
- Swifter and cheaper distribution of learning material
- Quicker introduction of new products due to accelerated training of many employees
- Increased sales because customers perceive e-learning as a sign of high competence
- Increased sales because e-learning could add value to the product
- Improved relations with customers and suppliers

(State of the Art Report: E-learning Quality in European SMEs – an Analysis of E-learning Experiences in European Small and Medium-sized Enterprises, pg. 9)

Online distance learning and e-learning can be a good alternative for competence development of SME employees. E-learning of high quality can be efficient and cost-effective. E-learning allows for just-in-time updating as it can be organised for anyone, anywhere and at any time. E-learning may also be cost-effective because the learner does not have to leave work to participate in courses that require presence and often imply both travel and accommodation expenses. The training can be tailored to the individual learner’s exact needs, learning style and time available. E-learning may require a minimum of ICT-literacy, but when participating in e-learning, the learner also develops ICT skills preparing for efficient work and future career development in the knowledge society. (Ibid, pg. 11)

Main advantages of e-learning:
- Organizational aspects, such as flexibility of hours, decentralization of the training process outside the training site, permanent availability of the courses or possibly to reach geographically disseminated populations;
- Cost, since distance training implies important savings related to the lessening of travel hours to the training site, the reduction in transfer cost (travel, lodging, etc), the possibility to train a large number of people from an initial investment in the course design. For this purpose, it is obvious that the contents should not change and the course has to be widely used by a large number of enterprises;
- Teaching aspects, such as simultaneous transmission of contents to all students, adaptability to different habits and learning rhythms, possibility of a more customized training and attention from the teachers.

(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 24)

One of the perceived **advantages of e-learning is the steadiness of its quality**: it will be the same **wherever it is delivered**, independently of the mood of the instructor or the time he had to prepare his course. Yet, determining the quality of an e-learning course is one of the difficulties. Books are perceived as easier to assess: you can open a book, have a quick look through it and decide on the value of its
contents. How can an SME owner make a quick assessment of an e-learning course? How can he evaluate the depth in which subjects are handled, the adequacy for his own environment? Easy access to figures and benchmarking information, quick assessment tools, as well as clear standards would provide SMEs with objective decision criteria.

(Ibid, pg. 38)

Many small and medium sized businesses only have limited financial and time resources allocated to staff training and the prospect of loosing staff for one or more days a week for a course is not a popular option either. However, the use of ICT based learning could be a solution rather than an unaffordable option as it is seen by some companies. It allows staff to study at the workplace (therefore avoid travel costs), use specific learning materials (if available) that are fitted to user needs and start acquiring further know-how whenever it is needed. It is understandable that many employers are reluctant to provide staff training that may provide the individual with accreditation and the opportunity to move in higher positions in another company but many managers/owners of SME’s have difficulties to accept the added value of further qualification of employees to the company in general (Scheuermann & Reich, 2002).

(E-Learning challenges in Austrian SMEs, pg. 4)

The learning culture in enterprises is of major influence on the quality of ICT-based learning. Hierarchies, power balances, controls, or the general esteem for training in SME’s can be major obstacles to successful application of ICT-based learning. Enterprises have to develop a “learning culture” where e-learning does not mean the same as playing games on the computer but is honoured as self development and therefore strengthening the company. Learning culture also embraces the planning of learning activities on longer terms and the embedding of ICT based learning in broader training concepts. In contrast to this concept employees are often forced to update their competencies by themselves. This is a very difficult task for many. As consequence Austrian enterprises often try do get rid of those employees who are not able to adapt their know-how to deal with new emerging trends and implementations. Learning culture also implies an understanding of qualification that is connected to real needs in working life. Certificates and formal qualifications only form a part of qualification. It’s getting more and more important to acquire skills and knowledge in a short time for special purposes (Scheuermann & Reich, 2002). ICT based learning directly addresses this continuous improvement of individual qualification, which is difficult to assess externally. Decision makers, personnel managers and superiors haven’t got direct insight in learning advancements of their employees and have to change their understanding of qualification. As a result employees that are engaged and interested in learning often feel that they do not get enough support and encouragement by their superiors. ICT-based learning can generally be made more attractive through gratuities, recognition of services, experiences and other ‘secondary’ effects. On the whole qualification, learning and further training should be recognized as essential components of culture and development in enterprises (Hipwell, 2000).

(Ibid, pg. 5)

E-Learning is creating new business development opportunities and improving competitiveness. The use of eLearning as a marketing and sales tool has been successfully piloted by several large, small and medium- sized businesses. It can have a direct effect on the bottom-line: e.g. faster time to market, sale of higher- margin products and services, decreased support costs. Further awareness raising and investment in the development of this application domain for eLearning will positively affect the adoption rate, especially by SMEs. Moreover, eLearning can lead to cost savings through better utilization of users’ time, efficiencies in personnel resources in institutions providing the eLearning services as well as reductions in physical requirements (such as the need for fewer classrooms). (2010i: Fostering European eLearning Content to Make Lisbon a Reality, pg. 5)

In addition e-Learning supports the achievement of the Lisbon objectives “by facilitating knowledge and skills acquisition, by providing flexible learning opportunities for students and citizens, personalising learning and by creating new collaborative learning opportunities. E-learning is an efficient and cost effective tool for fostering workforce development, it can lead to cost savings through better utilisation of a users time, efficiencies in personnel resources in institutions providing education and training as well as reductions in physical requirements.” (E-Learning Industry Group eLIG). (Lifelong Learning, e-Learning and Business Development in Small and Medium Enterprises, pg. 1)
The delivery of business skills by using e-Learning has many advantages for the SMEs in comparison with conventional training delivery techniques. **Delivery costs are considerably lower and staff will not be off site during training.** Downtime would be minimised and productivity would be maintained. Training could take place at any time and could be scheduled to take place during slack periods of the working day. Training courses could also be provided immediately almost on an à la carte basis, rather than waiting until the required number of participants has been gathered for a conventional, face to face, off-site course. *(Ibid, pg. 3)*

Such initiatives also need sound and concerned management if they are to be truly effective! As one local training practitioner put it: “The Internet is an excellent tool for distance learning and on-line support training. However, it can only be effective if it is managed, structured and supported by qualified and competent staff, and those receiving the training have access to the right equipment and software. Personally I think it is the way forward, especially where you have rural issues.” *(e-Learning for Smaller Rurally Based Businesses: A Demand-Led Challenge for Scottish Educational Institutions, pg. 4)*

The delivery of “e-Skills” by using e-Learning has, for the SMEs, many advantages over conventional training delivery techniques. Delivery costs are considerably lower and staff will not be off site while training. Downtime would be minimised and productivity would be maintained. Training could take place at any time and could be scheduled to take place during slack periods of the working day. Training courses could also be provided immediately almost on an “à la carte” basis, rather than waiting until the required number of participants has been gathered for a conventional, face to face, off-site course. *(E-skills in Small and Medium Sized Enterprises and the Contribution of E-Learning, pg. 4)*

ARIEL (www.ariel-eu.net) is an internationally joint project funded by the European Commission in the framework of the eLearning Initiative. The project was co-ordinated by IAT Gelsenkirchen, whereas the Consortium was formed of partners from Ireland, Romania, Italy and Hungary. The project investigated e-Learning supply for SMEs, particularly to develop “e-Skills”, concerning didactic approaches, benefits and fields of application. One of the major themes was the evaluation of the impact of former EU programmes in the field of electronic learning. On this basis, the ARIEL team built different scenarios of the future development of “e-Skills” and e-Learning in Europe, particularly referring to SMEs. *(Ibid, pg. 5)*

On the level of European policies, **e-learning was seen as one of the prerequisites to achieve the Lisbon objectives:** “by facilitating knowledge and skills acquisition, by providing flexible learning opportunities for students and citizens, personalising learning and by creating new collaborative learning opportunities. E learning could become an efficient and cost effective tool for fostering workforce development, it can lead to cost savings through better utilisation of a user’s time, efficiencies in personnel resources in institutions providing education and training as well as reductions in physical requirements” *(Competency-based Training in SMEs: The Role of E-Learning and E-Competence, pg. 1)*

The delivery of skills needed for their business by using e-Learning has, for SMEs, objectively many **advantages over conventional training delivery techniques.** Delivery costs are considerably lower and staff will not be off site while training. Downtime is minimised and productivity maintained. Training can take place at any time and can be scheduled to take place during slack times of the working day. In principle, training courses can also be provided almost on an à la carte basis, rather than waiting until the required number of participants has been gathered for a conventional, face to face, off-site course. *(Ibid, pg. 3)*

This includes reduced travel costs, training needs being met at a more appropriate time for the organization and its employees, and not having to replace employees during work hours. Servage (2005) mentions that e-Learning provides for a higher personnel retention rate, while Rosenberg (2002) notes a faster distribution of training materials and a more consistent delivery of course contents. Pantaziz (2002) mentions that e-Learning reduces training time and can lead to increased employee productivity and business performance. *(Meeting the Training Needs of SMEs: is e-Learning a Solution?, pg. 2)*

Benefits of e-Learning as a function of its characteristics
## Characteristics

### Flexibility and accessibility (availability)
Possibility for the employee and the firm to choose a course’s time (any time – 24 hours a day / 7 days a week) and place (any location) (Bélanger and Jordan 2000; Britt 2004; Cutshall 2002; Kenyon 2002; Melymuka 2002; Nonprofit World 2002; Perez and Foshay 2002; Phillips 1998; Rosenberg 2002; Sloman 2001).

### Modularity
Possibility for the employee to only complete the part of the course that pertains to his needs and not the entire course (Britt 2004; Emmond 2005; Melymuka 2002), along with the possibility of working on the course sections that are not as well understood (Youngers 2002).

### Speed
Possibility for each employee to learn at his or her own speed (Davis 2001; Nonprofit World 2002; Perez and Foshay 2002; Phillips 1998).

### Privacy
Possibility of completing the course alone at home (privacy) and of not having to suffer the discomforts (shyness, feeling of lack of knowledge, etc.) that some employees experience from time to time (Perez and Foshay 2002).

### Interactive feedback
Possibility of having an instructor and personalised support by this instructor, and of getting feedback by various means (telephone, fax, email, camera, etc.) (Bélanger and Jordan 2000; Melymuka 2002; Perez and Foshay 2002).

### Cost
Reduction in training costs (course fees, transportation, meals, lodging, time away from work). There are numerous courses already developed in e-Learning format that are free or available at reasonable prices. These courses, in addition to being less expensive than conventional courses, allow SMEs to save on travel, lodging and meal costs. These courses reduce the loss of employees’ production time or the need to replace employees (Bélanger and Jordan 2000; Britt 2004; Kenyon 2002; Kolbasuk McGee 2003; Masie 2000; Melymuka 2002; Pantazis 2002; Phillips 1998; Rosenberg 2002; Terry 2000; Youngers 2002).

### Learning style
Possibility of presenting the course material in various formats and meeting the various learning styles of employees (Bélanger and Jordan 2000; Melymuka 2002; Young 2002).

### Customisation
Possibility of customising the training according to each participant’s needs (Sloman 2001; Youngers 2002; Zahner 2002).

### Evaluation
Possibility of evaluating employees’ progress on a continuous basis (Britt 2004; Emmond 2005; Kenyon 2002; Youngers 2002).

### Distribution of training material
Faster distribution of the training material (Rosenberg 2002).

### Consistent delivery
Consistent delivery of the content of the course, from one time to another (EIU 2004; Halkett 2002; Rosenberg 2002).

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**Benefits of e-Learning as perceived by SMEs**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Explanation of the benefits of the characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility and accessibility (availability)</td>
<td>Possibility to choose the time and place to follow the course (Arthur, A; Edna, E; Ivan, I; Marie, M) Access to training outside work hours (Carl, C; Fiona, F).</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Flexibility, 24/7 (Denise, D)</td>
<td>Access to training that would be unavailable otherwise (Karen, K; Marie, M). Access to expertise that would be unavailable otherwise (Denise, D).</td>
</tr>
<tr>
<td>Modularity</td>
<td>Possibility of doing or re-doing only part of the course that is relevant to the employee (Edna, E).</td>
</tr>
<tr>
<td>Speed</td>
<td>Capacity to learn at your own speed as some people learn faster than others (Edna, E; Fiona, F; Ivan, I; Julien, J; Karen, K). Allows the firm to train more employees during the same period (Carl, C).</td>
</tr>
<tr>
<td>Privacy</td>
<td>Possibility of taking the course alone at home (Denise, D).</td>
</tr>
<tr>
<td>Interactive Feedback</td>
<td>Possibility of getting feedback by different means (telephone, fax, e-mail, camera, etc.) (Denise, D; Karen, K).</td>
</tr>
<tr>
<td>Cost</td>
<td>Cost reductions (course, travel, lost time) (Arthur, A; Ivan, I; Marie, M). It is training that is not costly when you only have 1 or 2 people to train, as it is not necessary to hire a trainer (Bert, B; Karen, K). It is an efficient way, cost-wise, to offer training. It reduces travel and meal costs [...] and reduces the time lost from work (Marie, M).</td>
</tr>
<tr>
<td>Learning style</td>
<td>Possibility of presenting the course material under various formats and matching the different learning styles of employees (Ivan, I).</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Possibility of evaluating employee progress during training (Edna, E).</td>
</tr>
<tr>
<td>Distribution of literature</td>
<td>The literature is always up-to-date; you don’t have a folder that collects dust on the shelves (Bert, B). Capability of acquiring knowledge that is rare or not used often, and to memorise it electronically for future use (Denise, D; Omer, O).</td>
</tr>
<tr>
<td>Consistent delivery</td>
<td>Assures that all employees receive the same training (Carl, C). The training is delivered in the same manner to all employees (Julien, J). Possibility of communicating information in an accurate and consistent manner (Denise, D).</td>
</tr>
</tbody>
</table>

(Ibid, pg. 5)

Moreover, this training method allows to plan courses with a high degree of personalization. This is due to its flexible characteristics especially as regards the time factor. In this regard, there is the opportunity for the user to follow a training course depending on his/her needs to achieve his/her training objectives. There is also the possibility of turning to multimedia means in order to easily reach these objectives. In addition, the use of the so-called “non-simultaneous” tools of e-learning, allow the people involved to attain a certain personalization even in the management of time given to learning. Another interesting aspect concerns the role that e-learning can have in collaborative and cooperative learning processes. In particular, one should consider the importance it can come to have in the development of the so-called professional practice communities. These communities are inclined towards encouraging individual learning processes, through processes of socialization of the problem, of best practices and of problem solving (Trentin, 2004). *(What are the perspectives of e-learning in SMEs, pg. 7)*

E-learning must not be considered as a substitute for traditional training. As a result of this viewpoint, there is a spread of so-called blended solutions where there is a mix of on-line and face-to-face training. This turns out to be particularly useful in situations where, given the characteristics of the professors, students and/or subjects, it become complicated to channel the contents using ICT
media exclusively (Benigno–Trentin, 1998; Esposito-Mantese, 2003; Felicioni, 2004). E-learning should therefore be seen as a tool of integration in traditional training, which is able to increase added value repositioning it on higher qualitative levels (Campi, 2005). *(Op.cit, pg. 7)*

This could be possible through the possibility of taking advantage of e-learning products and services less rigidly, and the forecasting of the pay-per-use method, that is paying only for what one uses. In this way smaller enterprises can have access to courses when they have the need and in what measure they really need them. Moreover, these solutions allow to meet the training demands with those of its non interference with production through time flexibility. This is especially important with respect to asynchronous means of online training, that allows employees to dedicate themselves to training when they have some free time. *(Op.cit, pg. 9)*

The development of e-learning is linked to the need for demonstrating its efficaciousness. In this regard, it must be pointed out that there is this widespread idea that training is effective only if it is formally certified. Therefore, there is need to give accreditation also to this type of training activity. As such systems of evaluation could be useful to guarantee quality of the courses (Leo, 2005). *(Ibid, pg. 10)*

E-learning potentially could help to deliver training to address these priorities. Unlike conventional face to face provision, it does not require a ‘minimum class size’ and in principle could deliver bespoke solutions to companies. Content could, on the other hand, include broader aspects of technical knowledge to complement often narrowly focussed in house training. E-learning is also a useful mechanism by which company specific knowledge can be spread across all employees and across to partner companies in the ‘cluster’. *(E-learning, A report on e-Learning for the EQUAL K4I DP, pg. 13)*

Increasing home use of the internet: Employees not only use the internet at their workplace, but increasingly at home. E-learning offers, however, are mainly applied at the workplace rather than at home or in one’s spare time. In order to make further education in connection with e-learning more attractive in a private context, Michel (2004) advises to develop arrangements for the allowability of time spent on further education and training in private surroundings. Thus, e-learning could play a more prominent role also off the job. The prerequisite for such arrangements, however, is the acquisition or increase respectively of self-learning competence. *(Analysing problems in ICT based learning in SMEs infrastructure, pg. 19)*

**b) Limitations**

Due to the small size of SMEs, the absence of employees for training activities can cause significant side effects on the enterprise’s functioning; *(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 22)*

Most SMEs, especially the smaller ones, perceive training as a cost rather than as an investment, they often prefer to recruit fully trained people or to outsource certain activities; *(Op.cit, pg. 22)*

Most SMEs have a short term business strategy, which makes it more difficult to develop training; *(Op.cit, pg. 22)*

SME employers are very often reluctant to invest in people, on the grounds that the employee is likely to be poached away by competitors. Measures can be taken as in Switzerland, where the employees have to refund the course if they leave the enterprise shortly after a training; *(Op.cit, pg. 22)*

Generally speaking, SMEs are not interested in improving the general skills of their employees, training has to be focused on the specific needs of the enterprise; *(Op.cit, pg. 22)*
The most quoted barrier by SMEs is the **high cost of courses** and the fact that the existing training offer is **too theoretical and not enough SME oriented**. *(Op.cit, pg. 22)*

Other barriers include **administrative procedures and the lack of transparency of the training market**. *(Op.cit, pg. 22)*

**SME managers use a short term approach**: they only set up a training action plan when they face real problems; *(Op.cit, pg. 22)*

Most SME managers and owners face delegation and lack-of-time problems since they cannot be away from the enterprise too long. They are uncertain about the development of their business, which makes it difficult to plan a long time in advance; *(Op.cit, pg. 22)*

Main difficulties with e-learning:
- Difficulties to study in-depth certain training contents;
- Difficulties for the exchange of ideas and problems of isolation. The problem is partially solved by the new communication technologies;
- Difficulties to set up feedback mechanisms;
- Difficulties for obtaining certain training goals linked to social and practical abilities;
- Difficulties for low-skilled workers and low-motivated students to follow up the training materials;
- Small existing supply of training materials well suited to the enterprises’ training needs, resulting in a need for purchasing tailor-made training materials, much more expensive. *(Op.cit, pg. 24)*

Barriers for SMEs to use ICT for distance training is described as follows in several studies:
- Problems of social isolation and lack of personal contacts;
- High costs, the difficulties in differentiating the myriad of providers and the frequent changes in technology;
- Limited access and knowledge of technical matters by customers, technical complications regarding the speed of communications, availability of appropriate infrastructures, high costs, scarce developments of textbooks, shortage of instructors; *(Op.cit, pg. 25)*

Whatever the country, there is a **general agreement that identifying the needs of the SMEs is an absolute necessity, yet a gigantic task**. As stated by Klaus Reich and Friedrich Scheuermann: “SME’s operate in almost every sector of the economy. As a consequence they vary widely in their learning and training needs. They have to deal with limited personnel, organisational and financial resources. The situation is furthermore stimulated by the difficulty to formulate detailed training strategies that will enable their employees to be better qualified to cope with increased competition”. *(Op.cit, pg. 26)*

Major e-learning solution providers are not targeting the SME market today: e-learning will be distributed by learning organisations or professional associations or e-learning SMEs, as our case studies, but not by the major providers.

When asked why SMEs would not implement e-learning solutions, the answers are very convergent:
- There is a problem of budget. E-learning requires an important investment to start with: you need the infrastructure, the broadband connectivity, the softwares. If you do not have the critical mass, e-learning could be more expensive than traditional learning; *(11)*
- SME owners are not aware of the advantages that e-learning will bring to their enterprise; *(8)*
- Currently, SMEs do not have the right infrastructure; *(7)*
- There are too many other pressures on the business; SME workers have no time for learning; *(7)*
- SMEs do not have the resources for the operations and support of e-learning; *(6)*
• Learning is the issue, not e-learning; (5)
• Most SMEs do not have any technological skills; (3)
• Today, there is a lack of scientific data on e-learning effectiveness; (3)
• The current e-learning offer is not appropriate; (2)
• Most SMEs do not have a Human Resource or training department who would introduce the e-
  learning;
• SMEs do lack the critical mass;
• SMEs are afraid that the introduction of e-learning would be a failure. It is a risk they will not take.  
  (Op.cit, pg. 29)

Here again, the answers from the providers are very consistent. Problems met are mainly of a technical nature:
• SMEs do not have the right infrastructure; (8)
• SMEs experience some technical problems, e.g. virtual classrooms are not always steady; (5)
• SMEs have a problem with the budget needed for e-learning; (3)
• SME workers do lack the computer literacy; (2)
• The speed of the on-line connection can be an issue; (2)
• SMEs do not have access to support/tutoring.  
  (Op.cit, pg. 31)

Language is an issue, not all people have the skills to follow a training in a non-native language. The image of the lonely learner behind his screen is also one of the frequent comments in the free-text fields. E-learning is often used as an introductory course, but it does not provide the practical sessions that bring the experience. The infrastructure can be an important investment.

SMEs do not seem to find the topics they want in the e-learning offer and the recognition of courses taken on the Internet still is low. Users need help to find their way in the offer, as well as during the training. The quality of the courses is not yet demonstrated.  
  (Op.cit, pg. 34)

Today, SME owners are not convinced of the effectiveness of e-learning, whereas they still trust that employees will get some benefits from classroom-based trainings. An awareness raising campaign will only be effective when there is a practical, user-friendly, easy to use offer behind it.  
  (Op.cit, pg. 38)

A web course with no human interaction is a course where you have no opportunity to ask questions. Traditional learning has a considerable social aspect, which needs to be reproduced in a web-based environment. Students must have access to an expert who can answer their questions. The credibility of the expert needs to be established. Some e-learning projects start with a “kick off” meeting, where students and tutors meet and get to know each other. Students should also have access to help when they experience technical problems: “Technology problems and glitches are frustrating to the learner when they happen”24. As an important characteristic of e-learning is the flexibility of the learning schedule, support must cover extensive time frames.  
  (Op.cit, pg. 40)

Learning is a cost, and the SME owner does not always consider it as an investment for the future. Depending on the size and turnover of the organisation, learning could easily become an activity that is out of reach: the enterprise needs to pay both the salary of an “improductive worker” and the price of the training. Education is a cost that is usually taken up by society. Not all SMEs do consider that the development of the skills of their employees is part of their mission.  
  (Op.cit, pg. 41)
E-learning requires more self-discipline than traditional classroom-based trainings. There is a risk to **increase the skills gap between individuals**: some could give up learning whereas others could become learning geeks. An early education of the lifelong learner and an individual follow up should prevent the risk of having too high a “drop out” rate. *(Op.cit, pg. 41)*

Between the e-learning providers and the SMEs, there is no dialogue: on one side, the providers say SMEs do not understand the advantages of e-learning, on the other side, SMEs believe e-learning does not meet their needs. A brokerage could support a better dialogue between providers and users.

“**SMEs are often unable to articulate and scope their learning needs.** There are difficulties in assessing the merit and value of available programmes and learning materials, which are often perceived as failing to meet firm-specific needs. Finding appropriate training is also made more difficult by a culture clash with external training providers, especially in the public sector, who are seen as unable to understand business processes.” *(Op.cit, pg. 42)*

Diverse spectrum in the approach towards e-learning in the different countries. E-learning can be embedded in the whole package of education as in countries such as Finland or Estonia. Or it can be supported by the Chambers of Commerce (e.g. Ireland), or in collaboration with Employment Agency (e.g. Flanders). A last example is Denmark where there is a specific action and structure to support e-learning. *(Ibid, pg. 72)*

The quality of human computer interaction in the context of eLearning is affected by a number of critical issues:

**Firstly**, the contact between human and computer has become an interaction between learner and teacher. **Secondly**, the computer tends to become more than just another instrument for learning. In comparison to textbooks computers have many advantages, e.g.

- **Technology advancement.** A stable condition of technology available is the guarantee for a productive learning activity. Besides, state-of-the-art technology has expanded interactive activities. For example, there is a new research tendency to create a Visual Language Tutor (VLT), a piece of language learning software that contains an agent (an animated 3D-figure) that you can talk to, and that talks back to you *(Beskow 2003, Granström & House 2003, Karlsson et. al 2003, Wik 2004, Granström 2004)*.

- **Detailed feedback.** A computer can give sufficient help, tips and feedback when requested by a learner.

- **Individualization.** A variety of choices of learning tasks which can individualize a practice according to a student’s needs. *(Analysing Interaction with Computer of SME Staff in eLearning Processes, pg. 2)*

Another important factor is scalability: SMEs are forced to go global. Therefore there is a need to create training that can be administrated to an audience that is dispersed and large. The ability to scale should be determined for every learning concept at the beginning of the blended learning programme. Also the aspect of qualified eLearning staff should be taken into consideration. A traditional training department in a SME most likely will not have staff with the skills necessary to conduct the online conversion or to design new online content. Such work requires the expertise of an instructional designer and a producer who understand the process of eLearning. Therefore outsourcing of these processes to a company, which is specialized in this field, might be a practicable solution. The traditional trainer can learn to facilitate online learning, as well as to develop online training sessions. *(Ibid, pg. 4)*

Many of the perceived problems are, however, based on misconceptions or prejudices born out of a general suspicion of an educational process in such companies where it is not teacher driven. They are afraid of high costs and overhead for the content maintenance. Another difficulty for SMEs is that most of them do not have a suitable infrastructure for learning. Staff will not in general be allowed to take time off
for study when it is necessary, and very often will not be funded to undertake further training. (*Lifelong Learning, e-Learning and Business Development in Small and Medium Enterprises, pg. 3*)

The most significant key factors negatively impacting e-learning and knowledge development in SMEs as identified in various studies are:

- Training culture within the SMEs – often this is dependent on a specific trainer and conventional training methods; skills needed for a more independent approach and the use of new media for learning are missing. Face-to-face activities such as conferences, workshops, lectures and seminars are preferred.
- Lack of appropriate software and contents – the major part of commercial e-learning software is modelled on the requirements of big enterprise or higher education. Software development is mostly centred on big inclusive e-learning platforms, usually consisting of a basic product and additional modules, which is costly and technologically demanding to install and maintain. Tailor-made contents are expensive, standardised contents largely inappropriate for SMEs.
- The attitude of managers – they often have not enough knowledge or are not convinced of the effectiveness of e-learning. Instead they put their trust in classroom-based training. Many of them prefer “learning from peers”.
- Lack of time and lack of access to sufficient bandwidth to ensure high quality training, especially user-friendly tools and quality content.
- The availability and access to ICT. This is a key barrier in sectors with a low level of computer penetration. Many computers in the workplace are not linked to the Internet.
- Lack of knowledge flows in the company corresponding to its business and staff work tasks.
- Lack of immediate context of applying the learning for example by incorporating new learning in a personal knowledge schema or portfolio.
- Lack of knowledge management in the company.
- Lack of knowledge of agreements and associations that could be useful both in resisting the power of intermediaries and large competitors as well as adopting policies of communication. (*Improving e-Learning 2.0-based Training Strategies of SMEs through Communities of Practice, pg. 3*)

Another problem is the poor quality of the e-Learning, practiced in SME’s. On the one hand, learning contents are mostly standardised courses without much interactivity and engagement of the learners. On the other hand, most e-Learning developments have been focussing on the technologies of Learning Management Systems (LMS) and Virtual Learning Environments (VLE), which are in the way they have been developed usually inadequate for small organisations. Commercial LMS are costly, difficult to handle and to maintain; they have made little impact within SME’s and are not sustainable. (*Ibid, pg. 1*)

Many managers think that their staff can complete their training informally and by experience only and that on the contrary e-Learning might, at best, have a role in improving the educational system, i.e. schools and universities rather than as a tool to enhance the competencies in their enterprise. SME managers are interested in e-Learning strategies only, if they offer real advantages for the business processes of their companies and for surviving in the market in a quick and informal way. (*Participation and Collaboration in Business-oriented e-Learning for SMEs, pg. 2*)

A lot of European SME’s, particularly in the new member states lack organisational and spatial prerequisites for e-Learning, because these are too expensive for them, as well as the technical know-how and basic e-competence. E-competence implies not only technical understanding and the ability to “drive” the technology, but more importantly, the competence to use and manage digital technologies and media in a knowledgeable and, if necessary, critical way. (*Ibid, pg. 2*)

A leading member of a SME interest group covering Aberdeenshire believed that "most of the training offered by higher education institutes was originally designed for large businesses and they have tried to modify it to suit small businesses. This hardly ever works... Few of those involved in designing the courses have ever owned or worked in a very small business and most patronize small business people. They usually have fixed courses based on what they can deliver rather than what the
businesses need. Only rarely will a college modify its courses to meet customer needs." (quoted by Goolnik, 2001). (e-Learning for Smaller Rurally Based Businesses: A Demand-Led Challenge for Scottish Educational Institutions, pg. 4)

SMEs do not seem to be very interested in using e-Learning system because of the nature of e-Learning products, which are mostly standard products. Standard products are not adapted to the specific needs and demands of SMEs. For big enterprises it is possible to use standard products for some tasks and goals while getting tailored products for specific needs, mostly in cooperation with an e-Learning manufacturer. For SMEs this strategy is too expensive. One approach to solve these problems is the so-called "Mass Customisation". This concept is based on modules of the teaching units. Sometimes it is even necessary to "destruct" produced eLearning units and to rebuild them into modules. Another important aspect for high quality and “payable” products is a "Content-Sharing-Platform" (see for example, the results of LERNET at www.lernet.info). (E-skills in Small and Medium Sized Enterprises and the Contribution of E-Learning, pg. 4)

Access to bandwidth may be a barrier to e-learning in many SMEs. But provision of bandwidth on its own fails to address the problem. Bandwidth without suitable and appropriate learning materials is fairly useless. And even with suitable learning materials, unless the business organisation supports the integration of e-learning then take-up will be limited. (SMECTRA – an European network for online counselling on the application of new media in enterprise training, pg. 2)

E-Learning provider have to be knowledgeable about the needs of SME or SMO and have to engage in establishing a relation of trust. Trust is a keyword and trust in e-learning-technology is problematic because the e-learning-supply-side is not transparent for SME or SMO and e-learning-solutions are not really standardized out-of-the-box-applications. Therefore personal relations between the supplier and the SME- or SMO-representatives are important. (Analysing and Reporting on the Implementation of Electronic Learning in Europe, pg. 5)

c) Pedagogical issues and support environment

The realisation of e-learning solutions using continuous assessment; the French Code of Practice in E-Learning developed by Association Française de Normalisation (AFNOR). The Quality Standards of the Norwegian Association for Distance and Flexible Education (NADE) also belong to this category. Another example is the Institute for IT training at the University of Warwick that for institutional purposes has developed a number of best practice documents, such as Code of Practice for E-learning Providers and even a Charter for e-learners to inform learners of what to require from an e-learning course. (State of the Art Report: E-learning Quality in European SMEs – an Analysis of E-learning Experiences in European Small and Medium-sized Enterprises, pg. 13)

In the overview of the different policy schemes, it is clear that SMEs are in all member states on the top of the political agenda and that there is a trend towards regionalisation and decentralisation. E-learning is hardly ever mentioned specifically. (E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 44)

In some countries, such as France and Norway, SMEs have the legal obligation to take part in continuing vocational training (CVT) activities. In Ireland and Belgium, a grant aid is given, in the Netherlands support is provided through tax relief. Other countries, such as Portugal, have set up a network of institutions to set up CVT activities. (Ibid, pg. 45)

Programmes aiming at eLearning should be based on the idea of learner orientation. To underline this recommendation we would like to refer to an example from Ireland. The idea behind this project is to give learners pedagogic choice through the use of eLearning. The project is geared towards the needs of
learners in SMEs. In particular it recognises that different learners will have different learning styles and approaches to learning and aims to allow flexibility in pedagogic techniques to take account of different social backgrounds and learning needs. Additionally, the project partners are conscious of the very different cultural backgrounds of learners. "We have to make sure the tools are sensitive to these backgrounds and will work in different cultural settings". The project has built in the funding to generate different language versions.

Some projects adopt a constructivist approach: the learning programmes invite the learner to choose a topic of interest, conduct experiments, draw conclusions and compare existing (archived) information with their current findings. In science and technology education, ICT is used in so-called virtual laboratories (computer simulations, animations, etc.) as well as in "real" laboratories (computer supported measurement, computer controlled devices). There are examples of this approach in a number of different subjects and areas including mechatronics, laser technology and medicine. (E-Learning in Europe – Results and Recommendations, pg. 31)

While eLearning platforms are fast-developing, one topic which plays a vital role in human computer interaction has been neglected: the creation and implementation of effective user interfaces. When students complain about computer-based training or express a preference for classroom-based instruction, it is usually not the training they object to, but the user interface with its confusing menus, unclear buttons, or illogical links that scare them off. This is also shown by the following examples of students’ complaints (KRUSE 2004):

- ‘What am I supposed to do now?’ This frustration often is the result of poor instructions or a lack of visual cues. Some linear tutorials that use audio narration don’t provide guidance as to when to move forward in the program. Students will click forward prematurely during a long verbal pause, or will linger too long, waiting for more audio to begin.
- ‘Did I finish everything there is?’ Students are feeling this anxiety more than ever before with the move to Web-based training. Unskilled developers sometimes provide too many hyper-links to various locations in the program and offer too many layers of content. Without a recommended path of navigation or an excellent tracking system, students find themselves ‘lost in hyper-space’.
- ‘How do I get out of this thing?’ With technology-based training, students have the flexibility of accessing it wherever and whenever they want. Without a clear and easy exit path, students can feel ‘stuck’ inside the program and might be reluctant to use it as a just-in-time resource in the future.
- ‘What’s it doing? Is it hung up?’ Computers can be slow in processing large programs, they can ‘crash,’ or simply ‘freeze.’ Without adequate information, students are likely to assume the worst, and may shut off the computer thinking that it isn’t working properly.

(Analysing Interaction with Computer of SME Staff in eLearning Processes, pg. 2)

Another neglected aspect in eLearning is the re-engineering of the learning process rather than using the dynamic and distributed nature of the technology. The most common strategy employed by educational institutions to date has been to replicate existing classroom training and course design practices. In the absence of any consistent vision of what an eLearning platform should be or do, the inherited paradigms also led to the patching together of existing technologies and systems, such as email, whiteboard and video streaming, to deliver the same kinds of functionalities as seen in the classroom. Often the users are left behind with multiple systems, each with their own passwords, interfaces, and navigation, increasing their frustration (E-LEARNING FRAMEWORK 2003). (Op.cit pg. 3)

Travel costs, costs for time of absence, training location fees and instructor costs must be weighed against the costs of redesigning the course into an interactive experience that engages the learners. Consider the amount of face-to-face interaction that is critical in the course and whether this can be accomplished through online collaborative meetings and activities. If an online course can provide a rich and engaging experience for the learner and will have repeated uses (with updates) by a distributed audience, the conversion endeavour is an investment worth doing. Essential factors to consider are (1) the live interaction requirement, (2) cost factors, (3) skilled e-learning staff/consultants and (4) re-education of learners to online learning taking into consideration the organisational learning culture. (Op.cit, pg. 3)
**Course conversion**, however, **does not make a complete eLearning program.** On the strength of past experience blended learning which combines online learning with traditional classroom courses may serve some companies and/or topics better than eLearning does – especially if the staff is not familiar in using computers for learning purposes: A training that requires a lot of ‘give and take’ among learners, such as a negotiation or facilitation class may not be the best candidate for conversion. If the course is built around the interaction of the learners, a face-to-face classroom course is more appropriate. However, background material in preparation for the classroom course may be done online. This online preparation allows the face-to-face instruction to begin on a level playing field.

**Blended learning** could also serve as solution for facilitating the transition to an ‘electronic’ learning culture in SMEs. Such a learning culture implies a mix of the following:

- varied delivery media e.g. non-technology-based and ICT-based – online,
- varied learning events e.g. individual, self-paced and collective ones, and
- electronic performance support e.g. instruction based and knowledge management support.

*(Op.cit, pg. 3)*

**Combining different delivery modes** has the potential to balance out and optimize the cost and time for developing and deploying the learning program. There could be different approaches for using blended learning in a SME:

- to blend individual, self-paced learning with interactive trainer support in face-to-face contact, e-mail, discussion forum, etc to develop individual knowledge and skills,
- to blend different delivery media and to organize learning events in order to develop specific behaviour and attitude,
- to blend different delivery media and to organize learning events with mentoring to develop workplace competence.

*(Op.cit, pg. 3)*

Blended learning and eLearning require a higher degree of self-managed learning than traditional classroom-based situations. So it is very important to focus on the learner and the learning process. In this context special attention has to be drawn to the human computer interaction and the related questions like interface design, didactic concepts and required skills to achieve the learning goals. Blended learning is one main step from a technology-based concept to a more learner-focused approach in eLearning. So let us finish with a quotation from the monitoring of Leonardo da Vinci:

"To be successful with eLearning in the future, we should be aware that designing new eLearning software and creating new eLearning technologies is not the highest priority: the main efforts in the future should focus on designing more intelligent learning processes. As a result of the individualisation of learning objectives and learning processes, these intelligent learning processes have to be based on a more constructivist and less on a cognitivist or even behaviouristic learning philosophy."

*(Op.cit, pg. 10)*

In general we should aim at more constructivist approaches. Those ‘intelligent learning processes’, for example, have to take into account:

- the individual learning objectives of the learner,
- the individual and social working and learning situation of the learner,
- that the learners have to be responsible for their own learning process and that eLearning should not take the responsibility away from the learner.’

*(Ibid, pg. 10)*

**Scenario planning** derives from the observation that, given the impossibility of knowing precisely how the future will play out, a good decision or strategy to adopt is one that plays out well across several possible futures. To find that "robust" strategy, scenarios are created in plural, such that each scenario diverges markedly from the others. These sets of scenarios are, essentially, specially constructed stories about the future, each one modelling a distinct, plausible world in which we might someday have to live and work. There is no legal definition about what scenarios exactly are (as revealed by the citations above) nor how they have to be constructed but a few attributes can be often found

- scenarios should contain all relevant key factors of the problem sphere
scenarios are political and normative, that means they are modelling desired and undesired social developments dependent from the values of the author

scenarios are creative-intuitive, e.g. a combination of single data and factors has to be condensed to a plastic picture of the future

scenarios are transparent, all steps, information and hypotheses leading to the scenario must be shown and explained

scenarios are practical, they are a call to achieve a positive future by active participation

scenarios are complex, they can not be reduced to a simple set of "if-then" relations

scenarios don’t neet to be of high probability, but at least they must be possible.

(Using e-Learning Scenarios for Making Decisions in Organisations, pg. 2)

Life long learning and the acquisition of knowledge for work tasks which have to be organised within small and medium enterprises (SMEs) is more complex than the provision of access to courses and traditional learning opportunities. It presupposes communication or direct face-to-face contact between individuals, needs instructors, pupils, places – and most important: time for learning and understanding. E-Learning which offers many benefits within the process of lifelong learning especially in the small and medium companies must be firmly embedded with the idea of lifelong learning.

(Lifelong Learning, e-Learning and Business Development in Small and Medium Enterprises, pg. 1)

A community of practice (CoP) may provide a useful perspective on learning and knowledge creation and management for SMEs. In a CoP a group of people come together, who share a concern, a set of problems, expertise and/or a passion for a topic. “Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour.”

CoPs trace their roots to constructivism involving open-ended questions, learning in social and physical contexts of real-world problems, using collaboration and cognitive tools. Information and communication technologies (ICT) like the Internet support virtual communities of practice (VCoPs). These can be improved by the facilities of Web 2.0 and the principle of connectivism.

Researchers and practitioners in many fields find CoPs useful and a growing number of people and organisations in various sectors are now focussing on them as a key to improve their performance.

(Improving e-Learning 2.0-based Training Strategies of SMEs through Communities of Practice, pg. 1)

Many European SMEs use digital media including CDROMs, the Internet and Intranets for accessing technical manuals or for web searches. But learning takes place only, if information is applied in such a way as to develop new mental models and schemas, explicit or tacit, which have to be made explicit and shared. CD-ROMs, the web, etc. are useful and convenient ways of storing and retrieving information but if this information is not transformed and applied to specific contexts it cannot be seen either as learning or knowledge development. (Ibid, pg. 2)

In looking for a suitable platform to foster the building of our community of practice and to facilitate the processes of scenario- and model-building, the SIMPEL consortium decided on Moodle. The reason for this decision is that Moodle has been developed with the explicit intention to support a social constructionist framework of education. Pedagogical and didactic considerations led the technological development and not – as in the case of the majority of learning platforms – the other way round. Consistent with this approach, the system includes a multitude of collaborative tools, such as forums, chat rooms, polls, wikis, workshops with peer-to-peer assessments, collaborative books and many more.

(Participation and Collaboration in Business-oriented e-Learning for SMEs, pg. 4)

Moodle encourages collaborative work also by providing a differentiated group mode and the ability to network course leaders/trainers. In addition, the platform is extremely flexible and easy to use for beginners. At the same time, it is “scaleable” to accommodate complex learning and teaching scenarios. The market is paying its tribute to these advantages: Moodle is presently the fastest growing openSource LMS worldwide and it even has found entry in the world of SME’s (Busse, et al., 2007; Scherkl, 2005).

(Ibid, pg. 4)
Achieving the most effective portal and interactive environment for ongoing awareness, updating, deepest understanding and above all rewarding use by the targeted groups will however require careful planning by instructional designers, information scientists, web and content developers. Again, I would emphasise the essential need for sufficient preliminary discussions to take place with the targeted range of SMEs. Ultimately, tackling these issues proactively as key planks in the provision offered by educational institutions – as crucial elements in a continuing and wide-ranging lifelong learning and business development strategy – would seem to be the most productive way forward. (e-Learning for Smaller Rurally Based Businesses: A Demand-Led Challenge for Scottish Educational Institutions, pg. 6)

“Action learning is a method for individual and organisational development. Working in small groups, people tackle important issues or problems and learn from their attempts to change things” (Pedler, Brook and Burgoyne, 2003).

There are four elements:
1. Each person joins in and takes part voluntarily.
2. Each participant must own a managerial or organisational problem on which they want to act.
3. Sets or groups of action learners meet to help each other think through the issues and create options.
4. They take action and learn from the effects of that action (Pedler et al., 2003).

There are a number of requirements for action learning: the set, the project, the set adviser, set meetings, and workshops. (Virtual Action Learning: Experiences from a study of an SME e-Learning Programme, pg. 5)

Although action learning addresses many of the requirements of learning programmes for SMEs, it may be that a combination of e-learning and action learning may be even better. Some of the advantages of e-learning directly address the needs of SMEs: flexibility, cost benefits, location is not a barrier, freedom to work at own pace, less disruption to work schedules. However, there are some disadvantages, such as selfdiscipline, loneliness, and dealing with large quantities of electronic materials. When adapting an action learning programme to e-learning, Bray (2002) warns that the pedagogic baggage that both tutors and associates carry is clearly a barrier that needs to be overcome, as is developing different interpersonal tools of communication and style. Ingram et al. (2000) also warn that care must be taken with both hard (hardware, software, administration, financial support) and soft (human relationships, communication, goodwill) critical success factors. This has implications for the set members, set meetings and workshops, resources, and the set adviser. (Op.cit, pg. 5)

- Formal methods of teaching and learning are not necessarily the most appropriate way of engaging, motivating and transferring knowledge to today’s workforce (Williams, 2003). Formal training is not the best way of learning for SMEs (Atwell, 2003).

- The SME leader’s own negative attitude to change and learning (Observatory of European SME’s 2003, No.1 ‘Competence Development in SME’s’). Time devoted to learning is considered by many as lost time (Unisys, 2005)

- SMEs are driven primarily by profit (Hilton & Smith, 2001) SMEs expect impact on bottom line (Unisys 2005, LSDA, 2002)

- Learning is a cost, and the SME owner does not always consider it as an investment for the future (Unisys, 2005).

- SMEs use a short term approach, they only set up a training action plan when they face real problems (Unisys, 2005) Just-in-time (JIT) learning fulfils SME short term information needs (Unisys, 2005)

- eLearning is beginning to have an impact on learners, and particularly those demanding flexibility, accessibility and connectivity (Bisoux, 2002) Growing pressure in many industrial
societies to identify the most constructive and cost effective ways of using ICT as a resource for learning (Guile, 1998).

- **Much of the knowledge developed, often by the owner/manager, remains tacit and unshared.** The new kinds of knowledge are ‘tacit’ and ‘developmental’, and are practical as opposed to being theoretical as they are derived from action and experience. (Williams, 2003)

- **Learning has increasingly become seen as dependent on the activity of the learner** (Knowles, 1984, Williams, 2003). SMEs are generally action orientated and **learn by doing** (Kirby, 1999)

- **Isolation of the enterprise owner is a barrier to learning.** Learning is a social activity (Esnault & Ponti, 2004) *(Op.cit, pg. 4)*

- **Involvement in competence development activities** has a positive effect on the individual SME’s competitiveness and performance (Observatory of European SME’s 2003, No.1 ‘Competence Development in SME’s’).

- **Non-formal (informal) learning constitutes the most important way of acquiring and developing the skills and competencies required at work** (Eraut, 2000)

- **Training has to be focused on the specific needs of the enterprise** (Unisys, 2005). Active learning focuses on solving real problems and the learner’s experience ‘accounts for as much as the teacher’s knowledge’ (Knowles, 1984)

- **When individuals are involved in the learning process dealing with issues of relevance to their careers they become motivated learners** (Bray, 2002). To get effective motivation the learner should be put in the centre of learning, ‘the starting point must be a question from the learner’. (Unisys, 2005)

- **Promotion – no matter how good the training and support material, It has to be carefully promoted and delivered to be effective.** It must go to considerable lengths to highlight the commercial benefits of business improvement (non – commercial benefits can be promoted as secondary benefits once the main commercial message has got thought). The aim is to make SMEs actually want to take part in the initiative and to make them see management development as integral to good business practice (Hilton & Smith, 2001).

- **The programme should have a measurable impact within the organisation and should be affordable and value for money** (Bolden, 2001).

- **Approaches to learning, training and development in small firms needs to take account of the shorter planning time frames** they use by relating learning opportunities and benefits to these shorter time frames.(Stanworth et al, 1992).

- **SMEs like courses to be flexible and modular so that they can dip in and out, taking ‘bite-sized’ pieces (a few hours at a times) as they see fit and as their workload permits** (Unisys, 2005). Due to time pressures close locality of programmes is also important (LSDA, 2002; Kirby, 1990)

- **Some of the advantages of e-learning directly address the needs of SME’s: flexibility, cost benefits, location is not a barrier, freedom to work at own pace, less disruption to work schedules.** (Unisys, 2005)

- **Communities of practice** could support inter-firm collaboration (Van Winklen, 2003). Learning can be better supported in settings of collaboration, where they interact with each other and learn from each other (Esnault & Ponti, 2004)
• The **Action learning method** requires that the problems to be solved are real ones. They are not manufactured for the learning situation. Action learning is a method for individual and organisational development... people tackle important issues or problems and learn from their attempts to change things (Pedler, Brook & Burgoyne, 2003).

• An **informal environment** should be built to **aid networking**. The network should provide a forum for exploring ideas with peers, and give support to individuals (Birchall et al, 2004). Network learning broadens access and participation of SMEs in real-life learning environments (Ponti, 2004) **Network technology** offers the opportunity to **facilitate, strengthen and connect SMEs** in order to build and enhance networks of business at the regional, national, or international level (Esnault & Ponti, 2004)

**Op.cit, pg. 4**

Those that are in the high structure quadrants could be allocated into action learning sets containing similar participants and the set facilitator should pay particular attention to ensure that there are people in the set with specific knowledge and expertise to encourage rich **action learning experiences** in the group. Once the group appreciate the action learning process, this group would then be **able to move to virtual action learning**. This implies that it would take longer and more face-to-face meetings would be needed before this group could move onto virtual action learning. Those that are **in the formal structure and low digital literacy quadrant** would also need to spend additional time on a training programme to help develop their technical skills. Therefore this group would be the least appropriate group to engage on a virtual action learning programme. **(Ibid, pg. 12)**

One critical problem is that European and national programmes **showed the importance of digital technologies** and of the Internet, especially for Small and Medium Sized Enterprises (SMEs), **without providing a consolidated set of empirical evidence and documentation of the corresponding changes in production and knowledge processes** that are taking place, implying the emergence of new sets of “e-Skills” to be systematically grouped and developed. (**E-skills in Small and Medium Sized Enterprises and the Contribution of E-Learning, pg. 1**)

**Computer-based Training (CBT)** is used in companies for training of their staff but many training courses are only **text-based or PowerPoint presentations**. It was recognised early on that e-learning means "...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.” (EU eLearning Action Plan–2001) and that it can improve the existing training and offers many benefits for the process of lifelong learning. Further it was assumed, this would benefit particularly SMEs with their high degree of dependence on the skills and abilities of their human resources and their permanent development, in order to survive in conditions of global and acute competition. (**Competency-based Training in SMEs: The Role of E-Learning and E-Competence, pg. 1**)

According to results of another study 50% to 80% from those who do sign up the course, never finish the course. The main reasons for this low level of motivation are that
• learners can not relate the on-line courses offered to their work tasks
• learners are not allowed to take time out on the job for e-learning
• there is insufficient support, when users are having difficulties with e-learning platforms and other required technologies. **(Op.cit, pg. 2)**

The landscape is littered with **poor products** and a lot of **disillusioned learners**... There are also big lessons for the software providers, who gave technology-obsessed course developers free rein to create glitzy, highly interactive, very expensive multimedia courseware that too often **dazzled the eye without ever informing the mind**. On the opposite end of the courseware spectrum, we find a plethora of brain numbing online page-turners that are little more than PowerPoint presentations slapped up on the Web. They may have been cheap and easy for the vendors to produce in mass-market, but they cost the buyer far more than they were worth in employee time wasted using them. At either end of the spectrum, most of
the products that failed to live up to their promise did so because they were not based on sound educational principles – they simply didn't account for how people actually learn. To add insult to injury, many of them also wrote on software platforms that did not perform well for users.

(Op.cit, pg. 2)

Critical factors, which can be grouped as follows:
• Initial Design Issues,
• Focus on technology and not on instructional design,
• Lack of understanding, that specific e-learning tasks have to correspond to the existing competencies as well as the present and future work tasks of learners,
• Issues of user-friendliness and interactivity,
• Problems with production, distribution, long term management and evaluation of e-learning courses.

(Op.cit, pg. 2)

As mentioned previously, SMEs need approaches to training, providing content and methods, corresponding to existing and needed staff competencies and to the learning culture of the company. Required is, therefore, a very “holistic” approach. In the following section we describe the characteristics of one approach which seems to be pertinent, i.e. e-learning in a framework of Competency-based Training (CbT).

According to Task Trainers Inc., 2005, CbT is characterized by the following principles and methods:
• The CbT should not only identify what employees must know and do to successfully perform on the job, but also assist them in acquiring these skills.
• It is success-oriented, based on the idea that almost anyone can master almost any task, given quality instruction and sufficient time.
• Each module of a CbT should contain specific objectives and standards for successful performance.
• Learning materials used in a CbT should make clear the competencies (tasks) the learner is to learn and perform, the criteria by which the learner will be evaluated and the conditions under which evaluation will occur.
• Training activities should be learner-oriented and self-paced whenever possible, because of different individual learning rates.
• The new competencies should be gained in small steps and the learners should be provided with enough, reasonable time to master one task before moving on to the next.
• The learners should be accountable for learning and the acquisition of knowledge, for applying the knowledge learned in the work setting and for demonstrating the ability to perform a specific task on a required level.

(Ibid, pg. 4)

Training needs identified by SMEs are varied and depend upon each company’s area of endeavour. They can be divided into two main groups: interpersonal skills and technical skills. The following training needs were mentioned: team work and respect of others, coaching skills, facilitation of meetings, leadership, effective communication, interpersonal skills, problem solving, stress management, anger management, valued-added activities, regulatory training (pollution, environment, and health), management, computers and technologies, time management, job orientation, health and safety at work, continuous improvement, higher technical skills, performance and quality management. Some SMEs encounter difficulties when they want to fulfill their training needs and some are sometimes unable to do so even when they know how. One of the benefits of e-Learning use in SMEs is precisely the possibility of having access to training products and services that would be otherwise unavailable. (Meeting the Training Needs of SMEs: is e-Learning a Solution?, pg. 5)

The first such pre-requisite mentioned is the need to develop an e-Learning culture within the organisation, where managers and employees are truly motivated and committed to use e-Learning because they believe it is essential to their individual development and their organisation’s development. This implies greater awareness and promotion of e-Learning’s value through the dissemination of knowledge among SMEs as to the nature, possibilities and advantages of e-Learning for workplace training, and as to the supply and appropriateness of e-Learning services and products available.
A second pre-requisite mentioned by the respondents is the necessity to lower the present barriers to the efficient and effective use of e-Learning by SMEs. This implies that employees possess the computer knowledge and skills required to use e-Learning effectively, and that they be provided with e-Learning software that is user-friendly and appropriate to the task at hand. This also implies better management and technical support of employees with regard to e-Learning, support which was found lacking in a number of SMEs. *(Ibid, pg. 6)*

The companies lack knowledge of suppliers or customers providing e-learning on a level appropriate to the businesses. The businesses have specific skills issues that are particular to their organisation. Solutions need to be customised and specific to their needs. Generic content is unlikely to answer the particular problems that they encounter. A quick solution to a problem is required; companies don’t want to work through irrelevant materials. *(E-learning, A report on e-Learning for the EQUAL K4I DP, pg. 20)*

Any employer engagement strategy needs to take into account some of the challenges identified for providers working with employers, and with SMEs in particular. These include a need to:

- **build effective relationships with employers to understand their needs.** Changes within businesses influence the skills needed by the workforce and are thus key drivers for training needs.
- **interest and engage both employers and employees.** This includes helping to overcome barriers such as time availability, ensuring the learning meets specific needs and is not necessarily qualification led, and demonstrating the return on investment to employers.
- **develop provider staff so that they are able to relate to and work with businesses.** *(Research into the use of ICT and e-learning in the skills sector, pg. 5)*

### Generations of e-learning

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<th>1.3</th>
<th>2.0</th>
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<tbody>
<tr>
<td><strong>Main Components</strong></td>
<td>Courseware, LMSs, Authoring tools</td>
<td>Reference hybrids, LCMSs, Rapid authoring tools</td>
<td>Wikis, Social networking and bookmarking tools, Blogs, Add-ins, Mash-ups</td>
</tr>
<tr>
<td><strong>Ownership</strong></td>
<td>Top-down, one-way</td>
<td>Top-down, collaborative</td>
<td>Bottom-up, learner driven, peer learning</td>
</tr>
<tr>
<td><strong>Development Time</strong></td>
<td>Long</td>
<td>Rapid</td>
<td>None</td>
</tr>
<tr>
<td><strong>Content Size</strong></td>
<td>60 minutes</td>
<td>15 minutes</td>
<td>1 minute</td>
</tr>
<tr>
<td><strong>Access Time</strong></td>
<td>Prior to work</td>
<td>In between work</td>
<td>During work</td>
</tr>
<tr>
<td><strong>Virtual Meetings</strong></td>
<td>Class, Intro, office hours</td>
<td>Peers, Experts</td>
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<tr>
<td><strong>Delivery</strong></td>
<td>At one time</td>
<td>In many pieces</td>
<td>When you need it</td>
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<td><strong>Content access</strong></td>
<td>LMS</td>
<td>Email, Intranet</td>
<td>Search, RSS feed</td>
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<tr>
<td><strong>Driver</strong></td>
<td>ID</td>
<td>Learner</td>
<td>Worker</td>
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<td><strong>Content creator</strong></td>
<td>ID</td>
<td>SME</td>
<td>User</td>
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*(Introducing e-Learning 2.0 in SME, pg. 2)*
3. Policy Issues: Programmes & Initiatives

Valid evaluation methods and clear quality criteria indicators are crucial elements. Approaches in this category can be divided into three subgroups:

**Accreditation and certification** mainly of institutions for instance the Distance Education and Training Council in the US (DETC) with its accreditation system. Another example is the British Quality Assurance Agency for Higher Education (QAA) with the general Code of Practice for Higher Education and the Guidelines on Quality Assurance of Distance Learning (QAA 1999).

Accreditation and certification of management-oriented education, for instance The European Foundation for Management Development (EFMD): The European Quality Improvement System (EQUIS), which is claimed to be the leading international accreditation system for business schools. EFMD has also developed a specific scheme for e-learning accreditation, EFMD CEL – eLearning.

Accreditation and certification of e-learning products and services, for instance eQCheck by the private EQCHECK Company with its branch in Europe (UK) offering accreditation of e-learning products based on the Canadian Recommended eLearning Guidelines (Future Ed. 2002).

(State of the Art Report: E-learning Quality in European SMEs – an Analysis of E-learning Experiences in European Small and Medium-sized Enterprises, pg. 13)

There is an obvious need to ensure that all SMEs have access to broadband networks and modern technologies. A second policy issue is about the way to support the development of e-learning materials and the relationship between the private and public sector developers and providers. A similar policy issue is whether e-learning providers should be regulated and, if so, by whom and whether the state and region should subsidise the costs of e-learning for SMEs? An important related question is the level of state and institutional support and prescription around the development and adherence to open source software and open standards.

(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 57)

**Networks and structures**
The development of an e-learning infrastructure requires frameworks and support structures to promote e-learning in SMEs. This raises the policy issue of who should provide support for SMEs and how they should be trained and funded? What organisations and agencies should be involved in supporting SMEs and what degree of regulation is necessary? Should these structures be sector based, based on national agencies or should they be focused on regional infrastructures? What degree of state and regional support is needed to bring together the different networks, institutions and interest groups involved in supporting e-learning in SMEs? What statutory rights do different actors have in the development, promotion and regulation of e-learning? What policy measures are required to support the development of learning regions?

**Lifelong learning**
Despite the recognition of the need for policies to support and develop lifelong learning in every European Member State, there remains a considerable number of outstanding policy issues.

The issue of how a culture of lifelong learning is developed and supported in SMEs remains open. Secondly, it is unclear whether present policy promotes access to continuing and lifelong learning a public right or a private good and what should be the balance and relationship between the public and private sectors for e-learning. This raises critical issues of funding for continuing learning and for e-learning.

(Ibid, pg. 57)

Although many debates about eLearning and SMEs are ongoing there are not many facts and information concerning success and failure of eLearning projects. The European Union (EU) is interested inroadening eLearning and in making it available for SMEs. Therefore the EU established programs like the 'eLearning
Partnerships between companies (also called consortia) make it possible to employ and pay for eLearning initiatives together. Rosenberg (2001) indicates that promising consortia can be established between small enterprises and academic institutions. Academic institutions not only have the knowledge and experience with using and implementing ICT and its infrastructure, they also want (or need) to establish collaborations with business organisations. (ICT support for workplace learning: eLearning in Small and Medium Enterprises (SMEs), pg. 6)

Attention needs to be paid in informal learning processes and the establishment of relationships or networks between workers and companies. Integrating work and learning increases the chance that employees will devote more of the working time on training and development, that the learning results will endure, and that managers and directors are inclined to include more time for learning and disengage their employees from daily work-stress. Its should be avoided that learning becomes ad hoc and unstructured. A good way to facilitate workplace learning in SMEs seems to be organising communities of practice or horizontal learning types, where workers learn together around issues or work related problem that they find important. To be able to finance such communities or networks it would be a consideration to create partnerships between various companies and organisations. At the same time, these partnerships will enrich the learning environment. Creating these partnerships is not easy, however. It requires knowledge on how to build and guide them, how ICT can make a meaningful contribution and how several economic and competitive barriers can be overcome. (Ibid, pg. 8)

Smectra.net can be seen to run parallel to the ESEN (European SME E-learning Network) project with the objective of developing “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.; it will also seek to facilitate the exploration of several key areas of interest to managers, including issues specific to their own businesses, and assist in the implementation of a business plan” [5]. Thus, while ESEN concentrates on using e-learning to build SMEs’ professional skills, smectra.net proposes to support SMEs’ professional skills through the equally professional use of e-learning in the wider training scheme. It is not sufficient to give SMEs the technology and content (which have usually been developed for or in large corporations), but that SMEs can implement e-learning more successfully if they have the necessary tools and competencies. (SMECTRA – an European network for online counselling on the application of new media in enterprise training, pg. 1)

The eEurope 2002 Action Plan was endorsed by EU Member States at the Feira European Council in June 2000. The Action Plan’s objective three “Stimulate the use of the Internet” includes an action to encourage SMEs to ‘go digital’. (Helping SMEs to “Go Digital”, pg. 2)
4. Achievements, Best Practice

Three main organisations that drive the development of quality management approaches, namely the European Foundation for Quality Management (EFQM), International Organisation for Standardisation (ISO) and Deutsche Institute für Normung e. V. (DIN). These organisations have reacted to controversies concerning transferring quality management models to the educational sector, and developed approaches that focus on education and elearning. These systems are used to secure quality in e-learning materials and e-learning learning processes and to provide confidence of the customer that the products match agreed standards.

(State of the Art Report: E-learning Quality in European SMEs – an Analysis of E-learning Experiences in European Small and Medium-sized Enterprises, pg. 13)

In some countries, like Sweden, the existing legal framework in the employment area may become an incentive for enterprises to engage in CVT activities, staff training is one of the major parameters by which Swedish enterprise adapt themselves to changes in their economic environment;

(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 21)

Good practice case, Ireland:

Ireland is clearly one of the pioneers in Europe concerning e-learning and SMEs. A report of the Chambers of Commerce in Ireland (CCI) from December 2002 states that one in eight Irish SMEs already use e-learning, despite cost and IT barriers, and calls for government action to increase access. In association with Skillnets, the Irish training networks programme, the CCI conducted a survey of over 800 companies. The results of this survey were published in a report “e-learning: Awareness and Usage in the Irish SME sector” and indicate an increasing take up of e-learning opportunities and high levels of satisfaction with e-learning products among SME users. However, lack of awareness (21%) about e-learning products and services is a barrier to increased use of this new technology.

Some of the key results:

► One in eight SMEs surveyed stated that they had used e-learning and a further 12% of companies stated that they would use e-learning in 2002;
► e-learning is used primarily for IT skills (55%). However, other skills areas met by e-learning in the SME sector include Business Planning (27%), Sales and Marketing (25%), Health and Safety (14%) and Team Building (14%);
► Over half the companies surveyed use CD-Rom based products. One in five companies use the internet to deliver training and 27% of companies use their office network to deliver courses;
► Current e-learning users buy primarily from professional institutes (24%) and retailers (18%);
► Over 80% of e-learning users are satisfied with the experience. Respondents cited e-learning’s flexibility and effective delivery of information as key benefits;
► An interesting outcome of the survey was that 76% of e-learning products were purchased following word of mouth recommendations from staff or contacts in other companies.

The recommendations include:

► Irish workers should be issued with Individual IT Learning Accounts to improve their ICT skills. Both classroom-based training and e-learning courses should be covered by the programme. In this way, the Government could ensure that all Irish workers have an adequate level of ICT skills;
► CCI proposes that state agencies utilise their buying power to reduce the cost of e-learning for Irish SMEs through brokerage. In addition, Enterprise Ireland and FAS should actively encourage Ireland’s cohort of e-learning companies to join the registers of approved trainers held by both organisations and inform clients that grants are available to pay for e-learning products and services;
CCI recommends that Government initiates a follow up information campaign on the benefits of e-learning by establishing an e-learning road show to visit regional centres and promote the benefits of e-learning to SMEs;

The newly-established National Training Advisory Committee, which will oversee the National Training Fund, must take a lead role in the development of an e-learning Action Plan for Irish SMEs. Funding for development partnerships between the SME sector, e-learning companies and third level institutions should be made available and successful pilot projects should be rolled out nationally;

Ireland is the ideal location for the establishment of an independent e-learning Standards Association, charged with determining and measuring academic standards for e-learning companies. Locating such a body in Dublin, in the Digital Media District would improve Ireland’s visibility overseas in this sector, add value to smaller Irish e-learning companies and further encourage Irish SMEs to invest in e-learning. *(Ibid, pg. 64)*

A "blended" approach to workforce development may well provide a cost-effective answer here – one that provides online availability, technically supported access and mentoring through their workplace or a network of local learning centers as well as periodic face-to-face meetings. (Incidentally, such learning centers are already starting to emerge across the land under the government-backed Scottish University for Industry scheme). *(e-Learning for Smaller Rurally Based Businesses: A Demand-Led Challenge for Scottish Educational Institutions, pg. 6)*

The strategy is now being implemented with the support of £2.97 million. This includes the establishment of local e-learning consortia in each region, which will help Welsh SMEs to engage with e-learning by harnessing the experience and resources of FE and higher education (HE) institutions. These consortia are networks targeted at SMEs, which will share research and innovation on e-learning, and are supported by the Knowledge Innovation Fund. *(Research into the use of ICT and e-learning in the skills sector, pg. 12)*

This approach is being led by learndirect’s specialised network of Premier Business Centres (across England, Wales and Northern Ireland), in which SMEs can access a business-focused online portfolio, business advice and diagnostic support. *(Ibid, pg. 16)*
5. Problems, Obstacles

There are clearly critical links between labour market and educational policies. At present, in many countries, policy formation in these two areas is separated. One question is how labour market policies can recognise, support and reward lifelong learning?

The most decisive factor for SMEs to engage in ICT for learning is the attitude of individual managers. Managers tend to be very pragmatic in their wishes with regard to training (no scientifically based needs analysis) and are looking for very flexible training (‘absolutely-last-minute’ “to the point” training, not institutionally based);

• Managers have little support for introducing e-learning, there appears to be no natural point that they can turn to for help;
• SMEs want to save money and see e-learning unjustly as a cheap solution;
• There is a lack of multimedia contents. The learning materials that are available at the moment are restricted to technologies, training for managers or for language learning, targeted mainly at white-collar workers. Localisation of software and learning materials should also be looked upon further;
• There is no need for the increasingly technically sophisticated platforms developed by private sector e-learning enterprises that do not meet the needs of SMEs;
• Interoperability between learning systems should be enhanced, standards should be adopted in order to have a more efficient knowledge transfer and to enable the learner to create his own learning materials;
• More work is needed to define and analyse the training and learning needs of SMEs.

(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 58)

The real challenge is to stop thinking within existing paradigms of learning and e-learning. The new paradigms were identified as such:

• Informal knowledge vs. formal knowledge: within SMEs tacit knowledge is the most powerful; e-learning has so far concentrated on formal learning;
• Individual learning vs. social learning: the social dimension is an important driver for learners;
• The sharing of existing knowledge and the creation of new knowledge are important for the development of SMEs, if e-resources are to be the medium for doing this, we need to develop new processes and solutions;
• Is e-learning, at this moment, of benefit to SMEs?
• How to persuade the employees themselves to use ICT for learning.

Possible solutions to these issues were also proposed:

• To promote a culture of learning;
• To mobilise SME managers;
• To focus on organisational development, including more support for SMEs;
• To support networks as a new developmental paradigm;
• To develop a differentiated approach (for different sectors, regions, etc);
• To recognise triggers for change (and when they are recognised to take immediate short term actions);
• Policies: a change in present funding policies to promote focused projects (work-based learning, informal learning, SMEs as providers of knowledge).

(Op.cit, pg. 58)

Today, there is a profusion of courses but little support to find its way in the course offer. As for the ECDL (European Computer Driving Licence), the accreditation of VCT offers should have an international dimension.

(Op.cit, pg. 106)
Tertiary education should be made responsible for transferring its knowledge to the SMEs, and Member States should measure their universities, polytechnics and colleges on it. Universities are acting as training brokers in several European countries. To do so effectively, they must develop the right skills to understand both the needs of the SMEs and the interests of the providers. As content and (e-)learning specialists, universities could also play a role in the accreditation of the e-learning courses. (Ibid, pg. 106)

Roots of the problems in use of e-learning SME’s have to deal with:

- Learning needs were mostly identified through practical experience. Only a few companies uses own programmes and questionnaires to identify skills and information shortfalls.

- Companies use all sorts of locations, e.g. ‘on the job’, on the shop floor, away from the job, depending on their needs and possibilities. Predominantly e-learning takes place at work-place and in specially equipped rooms in the enterprise.

- Companies do not always have the choice to select ICT-based learning materials and programs themselves. Many SME’s depend on larger enterprises which also provide the learning materials, e.g. simulators or technical information. Out of the number of SME’s that have the choice to select their learning materials themselves most of them don’t analyse the market before selecting the program but spontaneously choose a product that seems to fit to their needs. In most cases they do not develop e-learning materials themselves. These are usually provided by suppliers or external manufacturers.

- Enterprises have very different approaches in selecting their students for training programmes. One method often used is to select them according to the skills and the interest employees have in e-learning. Another method is to select a group of employees (e.g. back office) to join the e-learning programme. In a third approach new employees or those who change their work environment have to go through an ICT-based learning course The background of students is therefore varying very much. Learning itself takes place as well inside as outside of the enterprise, during and after working time or in special areas/buildings.

- The main focus of the enterprises is on “learning by doing”. Partly employees have to learn autodidactic via e-learning, combined with face to face meetings.

- When trainers are involved in the ICT supported learning they play the roles of tutors and coaches. Typically no specific additional qualifications are required for this role. The skills of trainers are mainly characterised by their experience in traditional training.

- SME’s do rarely evaluate their ICT-based learning provisions. If they do they mostly use one of three methods (in order of usage): evaluate learning through practical application (this aspect is also used as an evaluation criterion – employees should know their trade), by the department that is in charge of elearning or instruct an external evaluator.

- In general companies are satisfied with the outcomes of ICT-based learning but most enterprises have no plans to expand their e-learning provisions and encounter several problems. Out of the enterprises that make no use of e-learning only a few want to introduce ICT-based learning in the future. (E-Learning challenges in Austrian SMEs, pg. 3)

Although the market of ICT-based training is growing very fast there is a lack of adequate learning material for small enterprises. This is due to the following facts: Problems with training amongst SME’s often relate to an inability for them to articulate and scope their learning needs. There are common difficulties in assessing the merit and value of offerings available, which are often perceived as failing to meet firm-specific needs. Finding appropriate training is also made more difficult by culture clashes with external training providers, especially in the public sector, who are seen as unable to understand business processes. Particularly micro-SME’s have problems with cost of training programmes (and associated travel and subsistence) and problems in releasing staff (Pye et al., 2002). (Op.cit, pg. 7)

SME’s lack time and financial resources to make an in depth research about training programs that really fit to their needs as transparency in the market for learning materials and course providers are hardly given. (Op.cit, pg. 7)
Many firms are highly specialised. That makes the development of learning materials expensive and hence commercially uninteresting. One company of the study experienced the problem that although learning material was provided by the supplier it did not really cover the needs of this company in a certain geographical and economical context (Op.cit, pg. 7).

If enterprises find suitable learning materials they are didactically and methodically of poor quality in many cases. Most critics concentrate on the complexity and lack of user friendliness of products but also costs and time consumption are rated as unsatisfying. Quality certification of products would probably foster development of good materials. (Op.cit, pg. 7).

In many cases technology is less the problem than the human resources (users and trainers) applying it. They lack know-how and are not used to ICT-based training which makes e-learning problematic. The use of technology to enhance or broaden the general learning experiences for most adults and to assist teachers to deliver more effective learning is less advanced, and has until now been looked at in too narrow a way. What is needed are ‘good models of learning’ which are enhanced by technology.

While reviews of research show that there are some excellent pilots, they lack critical mass, secure funding and therefore the likelihood of transferability. Nevertheless there is still a demand for development of simple and cheap solutions that facilitate learning on the job. Laptops, Tablet PCs, handhelds etc. encourage flexible, mobile learning but often lack linkage to other information and knowledge resources. Although Wireless networks can already be found in several Austrian SME’s most enterprises still have fixed computers and equipment that do not allow a flexible use as it would be necessary for learning on the job. (Op.cit, pg. 8).

At the moment most Austrian SME’s act as “individuals” and try to find isolated solutions which does not facilitate introduction of e-learning or improves quality. In future developments it is necessary to strengthen cooperation of SME’s with other SME’s, larger enterprises or public institutions (e.g. Chamber of Commerce). Development in this field has to aim at two goals:

- SME’s cannot afford infrastructure to run learning environments or the production of tailored learning materials. If SME’s pool their resources they can afford high quality products. Cooperation in that sense could help SME’s to reduce costs and pool know-how.
- SME’s often need specific know-how or information that they can easily get with information and communication technologies. In many cases there is even no need for worked out learning materials if video-conferencing or other tools for communication are available. Cooperation could as well be established in the sharing of information and know-how and lead to collaborative forms of learning. (Op.cit, pg. 9).

Often Austrian SME’s cooperate with other enterprises in e-learning if they act as suppliers of these enterprises and get learning materials and concepts from them. As some SME managers stated they profited a lot from this constellation. On the other side the learning material provided by larger enterprises is often very standardized in order to facilitate delivering as many other companies as possible, which does not take into account local needs. Furthermore the supplier tries to pack as much information as possible into the learning materials which makes it very difficult for a small enterprise to filter the really necessary information (Scheuermann & Reich, 2002). (Op.cit, pg. 9).

New approaches are needed in terms of understanding the broad context of learning. Pedagogical approaches in Austrian SME’s are often inadequate and do not meet the needs of E-learning as traditional concepts are adapted to E-learning. There is also a lack of organisation of flexible learning solutions in SME’s and cooperation among actors is hardly given. Furthermore there is still much to be discovered about how people learn using different technologies, particularly in relation to interactivity, and how materials can be developed and structured to enable all learners to make effective use of them. (Ibid, pg. 13).
Especially for small and medium-sized enterprises (SMEs) knowledge plays an important role as a factor for competition and quality advantage. As a consequence existing vocational training programmes need to be adapted and improved in most organizations. One solution to meet new staff qualification requirements, is the increasing use of eLearning that means ‘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 – eLearning’ (EU eLearning Action Plan – 2001). But performance and reputation of eLearning have not lived up to the lofty expectations set by the early realization of the enormous potential benefits of this marriage of learning and technology. For example, in 2000 the American Society for Training and Development (ASTD) prognosticated optimistically that the world of vocational training would change within 1000 days making the transition to the eLearning age. But the reality in companies shows another picture: In the last years it seems that the quality standards of the eLearning products are likely to decline and the use of eLearning decreases. Only a few companies – mostly the big ones – established eLearning for their vocational trainings. *(Analysing Interaction with Computer of SME Staff in eLearning Processes, pg. 1)*

Moreover SMEs do not seem to be very interested in e-Learning because of the e-Learning products which are mostly standard products. Standard products are not adapted to the specific needs and demands of SMEs. For big enterprises it is possible to use standard products for some tasks and goals while getting tailored products for specific needs, mostly in cooperation with an e-Learning manufacturer. For SMEs this strategy is too expensive. One approach to solve these problems is the so-called "Mass Customisation". This concept is based on modules of the teaching units. Sometimes it is even necessary to "destruct" produced e-Learning units and to rebuild them into modules. Another important aspect for high quality and “payable” products is a "Content-Sharing-Platform". *(Lifelong Learning, e-Learning and Business Development in Small and Medium Enterprises, pg. 3)*

Naturally enough, the attitude of the owner/manager within a SME towards workforce development is a highly critical factor in decision-making about training *(Hawke, 1998; Dale and Bell, 1999; Critical Research, 2001; Parker and Byrom, 2001)*. They will often take their cue from interests and individuals that reflect the business experience of the sector in which they operate rather the views of those outside it [i.e. universities, colleges and other training advisers/providers] *(Bolden and Terry, 2000; SFEDI, 2000)*. Within many of these circles, there has been a good deal of negativity towards publicly inspired training initiatives and any associated provision. Such programmes have often been seen as confusing, expensive, inappropriately designed and supply-driven – guided more by non-business/political agendas *(Lester, 1999; Pye, 2000)*. *(e-Learning for Smaller Rurally Based Businesses: A Demand-Led Challenge for Scottish Educational Institutions, pg. 2)*

Certain generic training opportunities offered by external providers are still however of interest to SMEs (see figure 1 below) – but only these courses are designed, delivered and supported in ways that address their real and immediate needs, preferably close at hand, and delivered in a cost-effective fashion *(Gray, 2000; SFEDI, 2000; Marchmont Observatory, 2000; Goolnik, 2001)*. *(Ibid, pg. 2)*

• many users and managers in SMEs either see a lack of quality in the e-learning products available to them or they find it generally very hard to assess the quality of e-learning products.
• the e-learning market with its range of options is not transparent to them.
• SME managers find it impossible to gauge the cost-effect ratio of e-learning
• the corporate learning culture in SMEs is problematic: learning is often not seen as an important part of the professional life and mainly accepted when employees participate in seminars outside of their working environment.
• the owners of SMEs especially are afraid that increased knowledge will lead to increased salary demands and staff turnover.
• only a minority of SMEs includes training in their formal budgets. When they do, the difference between training costs (seminar or trainer fees etc.) and affected overheads (absence from work, travel etc.) is rarely taken into account.
• many learners are overcharged when they are required to organise their long-term training themselves. They are especially wary of e-learning when there are no support structures in place
• a further step in e-learning would require **investment in technology** that supports synchronous as well as asynchronous communication at the workplace. This is too expensive for most SMEs if they have to finance, organise and implement it on their own.

**SMECTRA – an European network for online counselling on the application of new media in enterprise training, pg. 2**

SMEs usually **do not assess and plan their future qualification and personnel demands systematically or strategically** – not because they do not want to, but because they **often do not have the required skills, methods and tools**. Training counsellors can, firstly, raise the awareness of this important issue and they can assess the mid-term needs hidden quality deficiencies or resource problems. On this basis, counsellors can support systematic planning and they can offer methods, tools and materials in order to improve the competencies of human resource managers when it comes to planning the best form of qualification of their employees. (**Ibid, pg. 2**)

The agreement and adoption of **common standards** would mean that **learning materials and systems** would be interoperable – and therefore more sustainable. Standards would enable and facilitate the development of learning materials within an individual enterprise or cluster of enterprises.

Learning materials could be created by learners themselves as a result of their engagement in business activities. The primary role of the computer-based learning platform would not be in the delivery of the materials but in facilitating the transformation and communication of ideas as knowledge. The computer or ICT-based learning environment would be primarily a process tool to support the creation and transformation of knowledge. The overwhelming advantage of this approach is that it allows learning materials to reflect and support the different contexts in which learning takes place in SMEs.

Although early learning platforms tended to be produced and maintained locally, more recently the trend has been towards the adoption of **increasingly technically sophisticated platforms developed by private sector e-learning enterprises**. These do not, in general, meet the needs of SMEs.

To be effective and accessible for SMEs, learning technologies and systems should form part of wider **knowledge sharing and development networks**. It is important that they support the emergent standards for e-learning materials in order to allow interoperability and the sharing of development efforts, and to facilitate localisation. (**E-Learning and Small and Medium Enterprises, pg. 2**)

One new paradigm to be addressed is the **nature of informal (or tacit) knowledge as opposed to formal knowledge**. e-Learning has so far concentrated on formal learning and the reproduction of traditional courses through digital media. Yet most studies suggest that, **at least for skilled work, it is tacit knowledge that is most powerful within SMEs**. The question is how e-learning systems and architectures can be used to support the development and sharing of tacit or informal knowledge. (**Op.cit, pg. 3**)

If the **sharing of existing knowledge and the generation of new knowledge** are important future developments for SMEs and if e-learning or, better stated, e-resources are to be a medium for doing this, we need to look at the **nature of the interactions in e-learning** and to develop **new processes and solutions**. This requires moving towards a new paradigm of continuous learning based on the application of new working principles. (**Ibid, pg. 3**)

When providers identify **factors that will enable SMEs to take up e-learning**, these factors tend to be idealised and assume that – all other issues being equal – SMEs will be prepared to adopt technology-based learning. The actual picture is much more dependent on **SMEs’ perceptions** of such things as adequate return on investment for any type of training, to which e-learning itself can present an insurmountable barrier to small firms already reluctant to train in any sphere. In recent years, however, the sheer pervasiveness of computerised technology even in the smallest business requires at least one member of staff to possess a minimum level of ICT skills. At the same time, the **spread of e-commerce and e-government in the UK has also combined with European Union (EU) legislation to provide more requirements for the workplace to come to grips with computerisation**. We may, therefore,
expect the pressures on firms to upgrade and refresh their ICT skills to continue to grow and create a more favourable environment generally for e-learning to become embedded in UK businesses. *(Research into the use of ICT and e-learning in the skills sector, pg. 23)*

The following factors were seen as key challenges for local learning providers in engaging the SME market:

- understanding, analysing and meeting SME needs
- interesting and engaging SMEs and their employees
- making the most of management information
- developing and maintaining an effective relationship with SMEs
- developing provider staff to meet the challenge of the SME market
- identifying SME training needs and sourcing appropriate provision
- responding to time constraints within SMEs
- positioning learning as a business solution
- avoiding ‘qualification led’ provision
- developing a suitable curriculum for SMEs
- making learning a practical possibility
- demonstrating the return on investment.

*(Ibid, pg. 32)*
6. Recommendations

For the promotion of learning and e-learning, the following recommendations are further detailed in the report:

- Learning should be integrated in knowledge management, knowledge sharing and change management, and e-learning introduced as part of a larger blend that includes the informal as well as the formal learning;
- The content of e-learning, if translated, is not strongly “national” (except in administrative or fiscal matters) but is “single market” sized. Therefore a ‘one stop shop’ or single window, presented as an SME dedicated portal would be the most appropriate vehicle to disseminate both awareness and content to all internet connected SMEs;
- Regarding the content, the “free knowledge sharing” and the “proprietary formal e-learning” are not contradictory options, because (at the contrary or their equivalent “free V/S proprietary” software) they do not address the same needs: immediate on one side, formal certification at the other side. Therefore a single portal could both attract SMEs on search for shared knowledge and lead them to formal certifications when needed;
- The role of governments is not to provide course content, but to facilitate the access to infrastructure and to inform, to highlight best practices: broadband Internet, single window portal provision, awareness raising, incentives and investment that generate a virtuous circle regarding knowledge contribution, by supporting the portal operation and awarding the most significant of these contributions;

(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 9)

Regarding the European Commission in particular, other supporting measures could be:

- The development of a common e-Learning taxonomy;
- A support to e-learning communities;
- The creation of a specific accreditation or “Label”;
- A redefinition of the role of universities;
- Support to e-learning research.

The proximity role of national, regional and local organisations is important also:

- Optimising the role of policies in achieving objectives, raising awareness as close as possible to the SMEs (Evangelist role);
- Supporting a lifelong learning culture, sharing the mission between SME owners, schools or universities, the individual learner, and last but not least training the teachers for e-learning;
- Encouraging partnerships and brokerage by grouping content, awarding communities and contributions, developing a sharing culture between SMEs, associations and universities.

(Op.cit, pg. 10)

The “professionals” – e-learning providers should provide innovative solutions that meet the specific needs of SMEs. They should be willing to customise their products to these (content, format, available infrastructure, learner support and evaluation) at a reasonable cost, with an effective return on investment, and accept that their learning offer is part of a larger mix, including blended learning;

Large companies could be encouraged to “coach” SMEs, as in many sectors (e.g. aeronautics, defence) they need a bundle of SMEs to provide them flexible resources in their environment;

Still missing is a single place where SMEs could find their way in the e-learning route (and from there be guided to the various e-learning proposals, including shared knowledge), and the various
incentive and coordination of policies to harmonise efforts from local organisations, from universities and e-trainers in order to provide more structure, more consistency and more SME focus to their training proposals.

(Op.cit, pg. 10)

When asked what could help SMEs adopt e-learning solutions, the providers made the following recommendations:

- Increase the awareness of the availability, the cost and learning effectiveness of the e-learning tools; (3)
- Advertise on good practices and benchmarking information; (3)
- Provide funds targeted at specific sectors that have been identified for development; (2)
- Give access to good quality, relevant, practical courses; (2)
- Induce a shift in culture in the SMEs to recognise the importance of an “educated workforce” on business performance;
- Give access to resources to plan, implement, and launch a solution successfully;
- Increase the integration of formal and informal learning, implying new methods and systems for competence recognition;
- Teach trainers and students how to e-learn;
- Encourage big companies to resell their e-learning courses to the SMEs;
- Bring a quick return on investment;
- Provide high speed connectivity;
- Cut the costs of e-learning.

(Op.cit, pg. 32)

E-learning providers that meet some success will usually provide services to identify the needs at the level of the company and of the individual and explore with them the different learning options that are available on the market. This first step in the learning process usually takes place in a 2-hours face-to-face meeting: the proximity of the service provider and his good understanding of the local language are a must to support the definition of the needs.

(Op.cit, pg. 37)

Provide the physical and tutorial access for e-learning in SMEs, governments – especially local branches or municipalities – could stimulate awareness and organise or finance the implementation through the provision of “e-learning points”. The principle would be similar to the functioning of business centres, where individuals could find a common infrastructure including ready to use trainings and online tests and certifications.

(Op.cit, pg. 99)

The European Commission is the appropriate level for a “one stop shop” e-learning portal that could become the “preferred point of entry” when looking for e-learning, but that would also link to national, regional or even private initiatives. For a minimal investment, such a portal could include an “Open Space” where enterprises share knowledge in accordance with the Wikipedian spirit.

(Op.cit, pg. 99)

The EC should (further) stimulate the development of a common learning language and culture, actively promoted through its policies, informational and educational systems.

(Op.cit, pg. 105)

Policies should encourage and support the Open Knowledge Communities, e.g. by supporting the usage of a common infrastructure, the development of common content but also of common interests and strategies. The Commission should be the ‘gardener’, providing an environment in which networks could grow and flourish, developing adequate copyright and intellectual property policies, in accordance with an open knowledge model.
E-learning courses should get a 'label' that guarantees their quality and that would allow for equal acceptance of skills acquired via distance and e-learning on the job market.

(Op.cit, pg. 106)

Effective dissemination of best practices is crucial. A possible stimulus for this dissemination, apart from the provision of dissemination portals such as elearningeuropa.info (EC) and European Training Village (CEDEFOP), is the demand to funded projects that dissemination of the practice is continued beyond the funding period of the project. Like in some EC programmes, also other funding entity should create special (small) grants for such dissemination activities.

(Op.cit, pg. 107)

Due to the size of SMEs and their limited training budgets, versus the need for providers to make business, many providers are hesitant or even reluctant to make a quality offer. Possibilities can nevertheless be found in an active participation of providers in parenthoods between SMEs and large companies or/and regional bodies that approach SMEs in a more comprehensive way, in which learning needs are linked to business needs, familiarity with the training market and subvention possibilities, etc. E-learning providers can also be part of a larger franchised network.

(Op.cit, pg. 110)

The SMEs themselves should not act only reactively, but must proactively anticipate the developments. They can do so by

► Introducing e-learning adapted to the readiness of the learner. Awareness raising is therefore needed within the enterprise;
► Creating a learning culture within the enterprise, that is based on a systematic learning needs analysis;
► Change the enterprise into a learning organisation (parenthood with larger companies that may guide them can be helpful for the purpose);
► Train their trainers in e-competences and coaching skills and attitudes;
► Start networking with other companies, providers and catalysts of training (e.g. sectoral organisations, Chambers of Commerce). This way, the e-learning offered to their employees would take into account the specificities of their enterprise (its e-resources, its time constraints, its specific needs), they would enable the building of learning communities, create a learner group that surpasses the critical mass, make e-learning cost-effectiveness more attractive for providers as well as users;
► Empower their employees to become mature learners and take responsibility for their own learning, in co-decision with management, trainers and coaches. Such empowerment can be a very powerful motivation for the learner and helps the employee to act as a co-instructor towards his/her peers;
► Stimulate to use the work environment and its e-tools/resources as a source for informal learning, by recognising its importance during job evaluation and eventual resulting promotion;
► Customise the e-resources and associated services to make them more fit for formal and informal training as well as knowledge sharing and management;
► Systematically evaluate the learning that takes place in the enterprise.

(Op.cit, pg. 111)

Some recommendations for the take-up of e-learning in SMEs have been proposed in this chapter and throughout the report: though they are varied and can sometimes look contradictory, they focus on the same challenges:

► Help SME owners and the organisations that work with them understand how learning can help their organisations and where e-learning is the most appropriate solution;
► Provide access to practical management information on e-learning, the required investments and the expected return;
► Provide an easy access to e-learning content by installing a one-stop shop for learning and setting up networks and communities to reduce its cost;
► Work closely with SMEs, in their own culture and language, offer them coaching services for the definition of their needs and the solutions that are available to them.

(Op.cit, pg. 112)
If better E-learning solutions are to be found specific groups of SME’s according to quantitative and qualitative criteria have to be identified that can be treated in similar ways. This is necessary as it is too expensive to develop single solutions for specific SME’s at the moment. E-learning solutions in modular systems could then be easily adopted to different needs of SME’s and could be upgraded or downsized according to the immediate learning needs of the enterprise. *(E-Learning challenges in Austrian SMEs, pg. 12).*

More emphasis should consequently be placed on the establishment of **staff exchange plans for coaching/tutoring work forces**, transnational curriculum development and pan-European thematic networks based on international eLearning and eUniversity models providing proof of concepts and best practice guidelines. Content and curricula localisation efforts should also be fostered together with the international migration and certification of online learning credits (eCredits). *(2010i: Fostering European eLearning Content to Make Lisbon a Reality, pg. 9)*

Recommendation to Governments: **In order to boost eLearning practices among SMEs and less ICT-skilled citizens there is no need to reinvent the wheel: training people on using ICT in their learning or professional activities** has long been proven as the **best driver for eLearning usage**. This also applies to teacher training with some specificities: teachers generally belong to ICT-skilled categories and are regular users of ICT at home, for personal and basic professional purpose. Considering their personal equipment, Internet access and usage patterns, only a minority require basic ICT skills. However the vast majority of teachers need specific ICT-skills with a strong focus on pedagogical implications to be able to use ICT in teaching situations, which provides a good example of professional and tailored ICT training as a key driver of change in usage patterns.

We encourage the EU and its Member States to invest more in educating and training all citizens to use ICT (ICT literacy or basic skills for life plus specific/professional ICT training). Training actions could be backed up by the Life Long Learning Programme and its implementation into Life Long Learning Strategies by the Member States. The eLIG therefore fully supports a similar recommendation contained in the i2010 document. *(Ibid, pg. 12)*

A public sphere or **forum in Europe discussing the problems of SME- and SMO-development** would be advantageous. An idyllic public platform would comprise the relevant stakeholders of SME and SMO in Europe and would serve as a collection for successful solutions as well as the many cul-de-sac of IT-development, -application and -implementation for the world of SME or SMO. *(Analysing and Reporting on the Implementation of Electronic Learning in Europe, pg. 5)*

**Two general strategies for introducing e-Learning** to be followed by the companies discussed on the German workshop within SIMPEL are the following (Kerres, 2001; Hamburg, 2007):

a) **The strategy of minimal change** e.g. introducing of new media and training concepts should involve only minimal changes in the structures and processes of the company. Through a latent implementation the acceptance of the new media by trainers will be assured and the staff is automatically introduced to the new tools and learning methods.

b) In contrast to the minimal change strategy **active change includes a review of the organisation**, its infrastructure, learning culture and business strategy as appropriate to the new learning objectives, concepts and methods.

For more efficiency, strategy b) should be followed. For reasons of acceptance often the starting point is, however, strategy a). Actors concerned with the introduction of e-Learning ought to be conscious of the fact that the minimal change approach may be suitable as long as e-Learning is seen as a first experiment. As soon as a serious commitment is made to e-Learning any conception has to rest on active change. *(Introducing e-Learning 2.0 in SME, pg. 3)*
7. Miscellaneous

Results showed that SMEs have particular demands and that e-learning may provide a better option in terms of skills improvements, through the use of real learning scenarios, self-learning contexts and more competitive business results, reducing costs and promoting higher levels of interaction and collaboration among workers. *(State of the Art Report: E-learning Quality in European SMEs – an Analysis of E-learning Experiences in European Small and Medium-sized Enterprises, pg. 7)*

Training providers and large enterprises have a very important role in advising, mentoring and guiding SMEs to the advantages of e-learning. In fact, business associations and cooperative partners may be powerful content providers and when align with the proper technological partners may create some costs savings to SMEs and return on e-learning investment. *(Op.cit, pg. 7)*

E-learning includes both solutions where the learner works individually on a computer with an interactive learning programme often based on theory and traditions from programmed instruction and/or computer based (or supported) teaching (CBT) and solutions involving tutor support and learner services organised by an educational organisation.

The second type of e-learning solutions has developed from distance teaching and is often described as online education. Online learning can be organised in different ways, from programmes that emphasise individual flexibility on one side of a continuum to programmes that emphasise group work and collaborative learning. *(Op.cit, pg. 11)*

For an SME, quality would mean that the educational product fits the purpose of the company, i.e. competence development of its employees, and that the employees as learners experience the learning process as motivating, and that it leads to the expected learning results. Further, learning outcomes must be regarded as cost-efficient relative to other types of training and also as giving sufficient return on investment, i.e. that the company and the employee are better off after the learning, taking financial costs and time invested into consideration. *(Op.cit, pg. 12)*

The competitive ranking is supposed to effect the development of high quality services and products. These approaches are intended to stimulate top achievements rather than evaluate against minimum criteria, as is normally the case with certification and accreditation approaches. A number of IT, computer and e-learning organisations award prizes for outstanding e-learning solutions, for instance the European eLearning Award and many others award prizes nationally and internationally. *(Op.cit, pg. 14)*

**Tutor support:** Includes two-way communication and interaction between the learner and the tutor, the degree of active moderation of the learning process by the tutor, the tutor’s relative emphasis on learner-oriented or content-related communication, the degree of individualized interaction related to the individual learner’s support needs and interests, and the degree of attention to the individual learner’s personal development or to the stated course goals. Learners also differ in their preference for traditional communication media (telephone, fax, mail), synchronous communication media (video/audio conferencing, chat) or asynchronous media (e-mail, discussion forums).

**Technology:** The e-learning platform may have the possibility of adapting to the users’ settings and provide the possibility of starting where the user finished his last learning period. The platform may have the possibility of synchronous communication and the content may be available in different formats and the learner may be able to save course materials on his/her own computer.
Costs – expectations – value: The cost and effort the learner has to invest in the course relative to benefits and outcomes are important. Expectations towards online learning may be that it is flexible in time and individualized in course structure regarding content and support. Non-economic costs relate to the effort it takes to learn and to concentrate on the course within an individualized learning scenario. Financial costs of taking the course might be seen as the most important quality criterion. The user might be interested in the course primarily because of the technology, online learning and the use of the Internet.

Information transparency: Counselling and advice before entering the course can be an important dimension of quality. It may also be of importance to learners to be able to access information about the course, the tutors and the institution that provides the course. Another important dimension for learners is access to detailed information about the course.

Course structure: This field contains the learner’s requirements concerning the structure of an e-learning course. Some learners see presence (face-to-face) periods (blended learning) as important, while other learners prefer pure online learning. The field includes the possibility of presence introduction to the course and the possibility of taking exams and tests during presence phases.

Didactics: This field contains dimensions such as preference for access to background materials related to the e-learning course content, and also the use of multi media and several types of enrichment media. Other quality dimensions are whether the course is structured in a goal-oriented way, whether it includes support in gaining learning literacy (learning to learn) and life-long learning skills, whether tests and exams are integrated in the learning materials and whether the learning tasks are designed to fit the individual learner’s needs.

(Op.cit, pg. 15)

<table>
<thead>
<tr>
<th>Support element</th>
<th>Relative importance for e-learning quality</th>
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</thead>
<tbody>
<tr>
<td>Feedback on assignments submitted</td>
<td>1</td>
</tr>
<tr>
<td>Tutor access</td>
<td>2</td>
</tr>
<tr>
<td>Possibility to contact tutors via e-mail telephone etc.</td>
<td>3</td>
</tr>
<tr>
<td>Information regarding course or module content</td>
<td>4</td>
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<tr>
<td>Information regarding course availability</td>
<td>5</td>
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<tr>
<td>Information regarding the programme to which the course belongs</td>
<td>6</td>
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<tr>
<td>Possibility to contact the institution by phone, e-mail etc.</td>
<td>6</td>
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<tr>
<td>Online tutorials</td>
<td>8</td>
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<tr>
<td>Information regarding pricing</td>
<td>9</td>
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<tr>
<td>Access to real-time technical support services</td>
<td>10</td>
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<tr>
<td>Information regarding online learning techniques</td>
<td>11</td>
</tr>
<tr>
<td>Support regarding registration issues</td>
<td>12</td>
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<tr>
<td>Advice on accreditation, certification and further study</td>
<td>13</td>
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<tr>
<td>Information on the web on registration, access etc.</td>
<td>14</td>
</tr>
<tr>
<td>Discussion forums/bulletin boards</td>
<td>15</td>
</tr>
<tr>
<td>Information relating to course costs, grants etc.</td>
<td>16</td>
</tr>
<tr>
<td>Possibility to contact other students via e-mail, telephone etc.</td>
<td>17</td>
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</tbody>
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Table 1. E-learning students’ rating of the importance of support elements in the e-learning course.

According to the research of Ehlers referred to above, e-learners can be grouped into four different target groups that differ in their demands for communication and tutor support as well as in interest in group activities and social contacts in the e-learning course. These groups are:
• **The individualist**: Prefers individualistic learning scenarios and self-directed learning, is content focused and not interested in presence courses, communication and interaction.
• **The pragmatic**: Oriented towards personal needs, information and advice and tutor support on factual matters, non-financial costs important.
• **The result-oriented**: Learning integrated with work, oriented towards instrumental purposes, learning and media/technology literacy, not interested in presence courses.
• **The avant-gardeist**: Interaction-oriented/communication, learner oriented tutor support, virtual learning groups, media and technology vanguard and interested in rich didactic solutions. *(Op.cit, pg. 16)*

Important criteria for judging the quality of e-learning programmes are:
1. **Credibility of the institution offering e-learning**: Is the institution’s reputation acceptable; is the institution, the e-learning programme and/or the course accredited according to national standards?
2. **Quality assurance or quality management systems**: Does the institution have acceptable formal systems for quality management and for quality control of the e-learning courses?
3. **Pre-enrolment information and guidance**: Is the information about the e-learning courses sufficient for deciding whether the course is suited to the needs of the company and needs of the learner?
4. **Course costs**: Is the cost of the course, including price and non-economic costs in accordance with expected results and benefits for the learner and the company?
5. **Support for the e-learner**: Does the course include subject related, social and/or technical learner support? Is the support provided sufficient for satisfying learners needs and for reaching the course objectives?

For small enterprises it is important that e-learning is flexible with regard to time and location since there are few colleagues to take over the work for those who are absent. To be successful, e-learning must be motivating as well as relevant and useful to the daily work and the tasks in the company. Motivation may be improved by use of multimedia, occasional face-to-face meetings, certificates and external financing. *(Op.cit, pg. 25)*

SMEs could use elearning successfully based on three different types of courses:
1. **Generic courses offered on the open market**. This model should be suitable for all SMEs because it does not incur any internal costs related to course development or investments in e-learning systems. One pitfall however is that employees who study generic courses could use the course qualifications to apply for a job in another company. Addressing this challenge, BIG employees have the obligation to work for the company for 12 months after finishing the course.

2. **Sector courses developed by associations or cooperating partners**. This model should be suitable for all SMEs because the developmental and operational costs could be divided among a number of SMEs. The model may also result in improved relations between the enterprises in associations, branches or value chains.

3. **Internal courses developed by the SME with some help from external providers of e-learning services**. This model is primarily suitable for large SMEs that have the necessary competence and resources internally. The employees are usually the content experts since the course topics often focus on expert knowledge related to the companies’ core products and services. The e-learning platform is not a part of the companies core business, so the companies often buy these services from external hosts. *(Op.cit, pg. 151)*

The following factors are central to successful elearning in SMEs:
1. **Flexibility in time and place.** For small enterprises it is important that e-learning is flexible with regard to time and place since there are few colleagues to take over the work for those who are absent. Also larger companies argue that e-learning is flexible in time and place and that it is efficient regarding travel cost and time. E-learning may be especially interesting for enterprises with individual or small groups of employees scattered over a large geographical area since they may have considerable costs travelling to a training center.

2. **Cost reduction.** The analysis indicates that e-learning can reach and connect geographically dispersed groups and hence reduce costs related to travel and accommodation that is common in face-to-face training. Furthermore, the flexibility of time makes it possible to reduce costs related to absence from work.

3. **Logistical advantages.** E-learning also has logistical advantages. It is swifter and easier to distribute digital course material than printed material. The Golff case argues that the spread of Golff entrepreneurs throughout the country and the logistical challenges almost self-evidently lead to the use of the Internet.

4. **Reduced time to market.** E-learning may increase the competitive strength because of accelerated time to market. E-learning could be accessed by a large number of employees as soon as it is available online. For example, the Rabobank case study describes how the introduction of a new life insurance policy was accelerated by e-learning.

5. **Increased sales.** York and Interpolis experienced that e-learning content can have great importance in sales negotiations. E-learning could be perceived as a value added service that customers appreciate. Interpolis, for example, regards training as a specific tool to increase the added value of its products.

6. **Improved ties between enterprises.** E-learning may result in improved relations between the enterprises in a value chain. For example, Interpolis developed courses for their intermediaries. At Roche, e-learning has made it possible to confine cooperation between clients and the contractor.

7. **Management support.** Support from managers and internal e-learning competency are also mentioned as success factors. Important indicators of support from managers may include opportunities to study during work hours and clear indications that e-learning courses will result in promotions or better payment.

8. **Completion rates.** The NKI case argues that completion rates vary between three different categories of courses. The course Tutor in distance education seems to have the highest completion rate since it is a prerequisite to becoming an online tutor at NKI. The courses that the students enrolled in at their own initiative also have a rather high completion rate. The courses initiated by the management seem on the average to have a lower completion rate. Differences in completion rates relate mainly to differences in motivation levels among participants.

9. **Motivation.** Motivated employees are crucial for successful e-learning. The employees’ motivation increases when courses are relevant to their daily work or personal interests. To be successful, e-learning must be motivating as well as relevant and useful to the daily work and tasks in the company. Motivation may be improved by use of multimedia, occasional face-to-face meetings, certificates and external financing.  
*(Op.cit, pg. 152)*

10. **Certification.** Certification may be a very useful motivational element, and many SMEs are dependent on some sort of legal competence requirements. Both Interpolis and Rabobank emphasise the importance of obtaining a validation from an external certifying body. Golff maintains that it is an advantage to offer electronically printed certificates via HTML.

11. **Compulsory courses.** Several of the courses in these case studies are to some extent compulsory. The KPMG courses are nearly compulsory since the knowledge of the course content is essential for the employees, and they are required to spend a certain number of hours on training to maintain their licence. Interpolis benefit from the fact that all SMEs must have a protection officer who has completed a course.
for protection officers. The Roche case also maintains that e-learning must be obligatory to become a success.

12. **Positive organizational effects.** At York, e-learning has resulted in better internal communication and broader understanding of York offerings. It has also had a positive effect by giving employees a common experience to build on. A better understanding of the organization is also the intention of the three courses developed for Golff: Introduction to working at Golff, Golff Rules and Golff Marketing.

13. **Content and course design.** The cases imply that successful e-learning should build on practical, in-depth and up-to-date knowledge of the subject area as well as suitable models and technology. This may include initial training to get familiar with the e-learning platform and the people involved with the course. At York, multimedia content is successful because it efficiently supports a more visual learning style. Roche recommended that the introduction of e-learning should be well-planned.

14. **Blended learning.** About half of the institutions in this book used blended learning. Meeting face-to-face seems to have positive effects, but it reduces flexibility and adds costs. This is illustrated in the A-punkt case that stated: “Sometimes it was not so easy to take part in the in-person venues as the fixed dates were not freely changeable. But nevertheless the face-to-face days were also a motivation to continue the further training”. Therefore it could be wise to do as KPMG does, focusing on the necessity to find the right balance between e-learning and other training activities. *(Ibid, pg. 153)*

Pan-European studies have shown that SME employees and employers are becoming increasingly aware of the importance of continuous training. It is not only seen as a tool for complementing the experiences gained during compulsory education, but more importantly for keeping up with new technological developments, stronger competitive environments and organisational changes affecting the enterprise’s competitiveness; *(E-learning in Continuing Vocational Training, particularly at the workplace, with emphasis on Small and Medium Enterprises, pg. 21)*

When buying IT products or services, SMEs will stick to the following behaviour:
- Seeking productivity gains is the top priority across all market segments;
- SMEs are very cost conscious: price, timeliness and technical capabilities are the major buying criteria;
- SMEs are conservative adopters of technology, which often means that they will lag behind for the adoption of new technologies;
- SMEs focus on increasing their networking and telecommunications capabilities;
- Major IT spending is focused on keeping things running;
- SMES want customised solutions, as they perceive their business as unique in many ways;
- The smaller the business, the greater the importance of developing a personal relationship with the providers;
- Providers will preferably be regional or local;
- For the selection of a product or service, word of mouth referrals and recommendations is an important influencer. *(Op.cit, pg. 27)*

The literature recognises that language is an issue in the current e-learning offer: above 70% of the contents provided are available in English. The e-learning solution providers are aware of that need, and their solution will usually support several languages, yet, there is a lack of courses available in some languages, as Dutch or Swedish. Most computer documentation and trainings are available in English, where it does not seem to be an issue.

But, as one of our case studies stated with later approval of the experts in the workshop, **the problem is not translation, the problem is localisation:** it is not enough to translate the contents of the course, the examples and exercises need to be adapted to the culture and environment of the worker.
Therefore, some solution providers provide the authoring tools that allow an easy customisation of the course contents to specific needs. *(Op.cit, pg. 30)*

The elements that SMEs do appreciate in a **classroom-based course are the social aspects**: you can create a network, and this network has a positive impact on the cost of your trainings. They are also satisfied with the training offer and can find their way easily in that offer. They have the feeling that the offer covers the required levels of expertise. *(Op.cit, pg. 33)*

The most important subject is the core business of the enterprise, “everyday business”. The current training offer is often evaluated as “too horizontal”, bringing the overall management and administration guidelines but not conveying the expertise workers need to do their job. SMEs do not have the critical mass to develop e-learning courses or have them developed for their sole use. **They clearly need to be part of a larger learning community they can trust.** Yet, SMEs are afraid to share knowledge and give away their business secrets: in some cultures, they will not share industry specific information.

Besides the core business, the **skills** that need to be developed in SMEs are the ones that will bring them the ability **to survive in the market**. Therefore, the learning offer should also cover general skills, as management skills, accounting, office tools, language skills, etc. *(Ibid, pg. 39)*
C  - Key Sources used and Select Bibliography

(1) Key Sources Quoted in the Compendium


“Research into the use of ICT and e-learning for work-based learning in the skills sector”, Literature Review, British Educational Communications and Technology Agency (Becta) and funded by the Learning and Skills Council (LSC), Coventry, United Kingdom, 2005, 55 pp.


Bielli, P., Klobas, E. J. “E-Learning and SMEs: Do demand and supply speak the same language?”, 9 pp.


(2) Select Bibliography

EU Documents


Studies & Articles


“Research into the use of ICT and e-learning for work-based learning in the skills sector”, Literature Review, British Educational Communications and Technology Agency (Becta) and funded by the Learning and Skills Council (LSC), Coventry, United Kingdom, 2005, 55 pp.


"Europe company: Making the most of e-Learning", Economist Intelligist Unit, 2004.


Lawless, N., Allan, J., O'Dwyer, M. "Face-to-face or distance training: Two different approaches to motivate SMEs to learn", Education & Training, Volume 42, Number 4/5, 2000, 8 pp.


Rekkedal, T., “Distance Learning and E-learning Quality for SMEs - State of the Art”, E-Learning Quality for SME’s: Guidance and Counselling, NKI Distance Education, 8 pp.


Bielli, P., Klobas, E, J. “E-Learning and SMEs: Do demand and supply speak the same language?”, 9 pp.


Chambers of Commerce of Ireland, in association with Skillnets, “One in eight Irish SMEs use eLearning, despite cost and IT barriers”

Graham Attwell, Mike Malloch, “Prospects for the development of software that truly support collaboration and learning in SMEs”

Graham Attwell, “Report on Stirling Seminar: Exploring models and partnerships for eLearning in SMEs”

Graham Attwell on behalf of CEDEFOP, “The challenge of e learning in small enterprises: issues for policy and practice in Europe”

David Guile, “Epistemic Activity, Organisations and Learning. Towards a framework for analysing the use of e-resources in Small and Medium Enterprises”

Jonathan Sage, Fanuel Dewever (IBM), Rod Shelton (UCE), Peter Stanbridge (Korora Ltd), “Accelerated eLearning and Innovation Network for European SMEs - Deliverable D12 of the eLIVE project” + D13 + D15

Presentation