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# eLEARNING - A CHANCE FOR SMALL AND MEDIUM SIZED ENTERPRISES

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**Abstract**

eLearning through its flexibility and facility of access is seen as a major enabler of lifelong learning (LLL), as a catalyst of change and a chance for small and medium-sized enterprises (SMEs) to improve their business and to integrate into European market. But so far the eLearning in the context of vocational educational training has been mainly adopted by large enterprises, while only little activity can be observed in SMEs. The question arises what the chances and challenges for SMEs are and what is the experience with its usage. In this paper after a presentation of key issues in eLearning chances and challenges of eLearning for SMEs are discussed and experiences are exemplified by three EU-funded eLearning projects. The focus lies on the ongoing project ARIEL - Analysing and Reporting the Implementation of Electronic Learning in Europe - coordinated by the Institut Arbeit und Technik (IAT).

**Keywords:** e-learning; multimedia; small sized enterprise; medium sized enterprise

## 1. Introduction: Changing perspectives of vocational training

Digital technologies foster changes in production and business processes as well as in staff working places. The required amount and update speed of knowledge has increased. In times of globalisation enterprises, independent from their size, are confronted with a market in which "knowledge" has become one of the main production factors, next to "capital" and "labour". Especially for small and medium-sized enterprises (SMEs) knowledge plays an important role as a factor for competition and quality advantage.

As one consequence the existing vocational training programmes need to be adapted and improved in most organizations. The critical role of digital technologies in shifting vocational training from "just-in-case" to "just-in-time" to fulfil training requirements is undisputed. In addition, today's learners, especially younger ones, expect to use computers which support learning technologies like 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."* (EU eLearning Action Plan - 2001). The EU Lisbon, Stockholm and Barcelona Councils called for sustained action to integrate Information and Communication Technologies (ICT) in education and training systems.

This aim is on the European level promoted by the European Commissions Barcelona declaration of march 2002, where it is underlined that: *"In order to raise the niveau of learning in Europe, the integration of ICT in the educational process is seen as an opportunity to advance the change process and to increase both quality and accessibility to learning processes"*.

eLearning through its flexibility and facility of access is seen as a major enabler of lifelong learning and as a catalyst of change. In this context, the eLearning initiative of the European Commission ( http://europa.eu.int/comm/education/elearning ) seeks to mobilise the educational and cultural communities, as well as the economic and social players in Europe, in order to speed up changes in the education and training systems for Europe's shift to a knowledge-based society.

Our paper focuses on the chances and perspectives - especially for small and medium-sized enterprises - which are developed in the context of the European eLearning initiatives. Therefore, firstly the key issues of eLearning are discussed in the following chapter. The chances related to the usage of eLearning for the vocational training in SMEs and the real situation are discussed in chapter 3. The experiences made so far with eLearning in SMEs are exemplified by some eLearning projects financed within the eLearning initiative of the European Commission including the ongoing project ARIEL (chapter 4).

In the following "Classroom learning" is the term used to refer to traditional learning carried out with groups in a physical classroom, while the term eLearning is used for learning events having two characteristics: Technology-enabled learning without the classroom and enabled by the internet other parts of the learning process, such as learning management, assessment and so on.

## 2. Key issues in eLearning

Many learning providers, particularly North American ones, took into account that vocational education and career training has evolved into a product that is developed, applied and disseminated using information and communication technology. eLearning has a lot of advantages compared to regular training: eLearning products can be utilised at any time or location and thus in principle are available to trainees all over the world. Therefore it was expected that eLearning would increase its share in companies training activities. But performance and reputation of eLearning have not lived up to the lofty expectations set by the early realisation of the enormous potential benefits of the "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.

It seems in the last years that the quality standards of the eLearning products are likely to decline and the use of eLearning decreases. One problem could be the (non-)human factor. Initially, eLearning was seen mostly from the administrator's perspective rather than from the student's points of view and interests with the result that not the learner but the technology used to be the centrepiece of eLearning. eLearning solutions tend to be seen as an opportunity to reduce costs by automating the learning process, cutting out teachers and staff by going directly to the learner, reducing inventories of books and libraries, and reducing classroom and building requirements.

Also the attitude of individual managers who want to save money and buy ICT-based training systems that do not suit the staff of the organisation is an aspect that needs to be taken into account. Learning infrastructures are not just about computers and networks. They include the ability to assess training needs and to respond to those needs, to develop training plans and strategies for staff development.

Another aspect related to eLearning is that rather than using the dynamic and distributed nature of the technology to re-engineer the learning process, the most common strategy employed by educational institutions to date has been to replicate existing classroom 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. A recent trend within many organisations is to adopt sophisticated platforms developed by private eLearning specialists. But technological advance has not been accompanied by improvements in the pedagogies the eLearning platform facilitates. The focus is not on the need of the learners. The user got left with multiple systems, each with their own passwords, interfaces, and navigation, increasing their frustration ((6) E-LEARNING FRAMEWORK, 2003). It is important that learning environments support the emergent standards for eLearning materials in order to allow interoperability and facilitate localization.

Furthermore, access to learning materials and their content is another major issue in the development and implementation of eLearning in organisations. The European Commission notes in a recent document:

*"...the development of the 'digital economy' and the wider use of the Internet and computer and networking equipment has raised accessibility to multimedia to unprecedented levels, thus enhancing opportunities for producers and consumers. However, this rapid evolution does not seem to have been matched in the new educational content sector. There is a general consensus that there is a lack of European educational multimedia content coming from institutional, professional and industrial sources in education, publishing and educational software. After an initial phase of enthusiasm, often described as 'hype', there are growing doubts about the real demand for educational e-content, and about its relevance for improving learning"* ((5) EUROPEAN COMMISSION, 2003).

Results of examination of catalogues of eLearning available in different European countries show that most materials deal with the use of standard software packages and networking technologies. Next on the list are learning materials for managers and for management activities followed by eLearning materials for language learning. Beyond this the provision is very limited ((1) ATWELL et al., 2003).

Another problem concerning learning materials is the debate on the issue of globalisation and localisation in software and learning materials. The task of translating materials into different languages is not only a technical problem but involves important cultural issues.

Some new research results indicate a shift in directions concerning the EU-funded eLearning projects. For example the results of a monitoring of projects funded by the Leonardo da Vinci program shows a changing orientation of the eLearning projects (s. Table 1).

*"During the first years of using the internet and ICT, most of the eLearning projects, even those aiming to design learning processes, were focused on technical innovation to create technology based learning environments. There would appear to have been a change in thinking on eLearning in the past three to four years, with a new focus in the discussions on eLearning. Rather than the emphasis on technology, the new focus of thinking on eLearning is increasingly on the learner him/herself and on methodologies and didactics. This is seen as more important in developing the quality of eLearning provision and ensuring the success of ICT supported learning processes"* ((3) BIBB, 2003).

| *Year* | *Type* | *Concept of Technology* |
|---|---|---|
| 1960s | Computer based training | Automation |
| 1970s | Intelligent tutoring systems | Automation |
| 1980s | Micro worlds tools for production | Toy, construction media |
| 1990s | Computer supported Collaborative learning | Asynchronous tools communication and collaboration |
| 2002 | Virtual learning environments/ Blended learning | Multi modal infrastructure synchronous and synchronous tools |

Table 1 - eLearning generations (Source: (3) BIBB, 2003)

Even taking into account all the new possibilities of ICT to help and motivate the learner and to involve learners in the learning process, learning is still hard work. In her keynote speech "Dropping the e and keeping on learning" presented at the Leonardo da Vinci Conference in Dipoli, ANNE NEVGI made clear that in spite of the rapid advance of technology many traditional problems have to be solved. One problem is the integration of ICT in such a way that is supports development work tasks, rather than merely electronically cataloguing and regulating routine tasks.

In order to be successful traditional learning delivery has to be blended more intelligently with eLearning solutions into a learning strategy taking into account the individual and social working and learning situation of the learner ((3) BIBB, 2003).

Blended learning could be a solution also for vocational training in SMEs because results of research ((18) ZINKE, 2003) show that such companies use eLearning less than the big companies. To date, the greatest use of eLearning has been in the IT skills area, first to close the skills gap - not enough workers for the open IT jobs globally - and then re-skilling as employees thought to make them more attractive in the job market and to improve their retention factor.

## 3. eLearning - Opportunities & Challenges for SMEs

Many SMEs use digital media including CD-ROMs, 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 ((4) CEDEFOP, 2003).

It can be observed that eLearning mainly takes place within big companies and that outside of the IT sector there is little activity going on in SMEs which is related to eLearning ((11) HAMBURG et al., 2005; (12) MILL et al., 2004) so far. Many of the perceived problems are, however, based on misconception 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. The other 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, and very often will not be funded to undertake further training ((4) CEDEFOP, 2003).

Also SMEs do not seem to be very interested in eLearning because of the available eLearning products which are mostly standard products. In general 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 eLearning 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 "destroy" produced eLearning units and to rebuild them into modules. Another important aspect for high quality and affordable products is a "Content-Sharing-Platform" (see for example, the results of LERNET at www.lernet.info ).

Another obstacle in radically changing the way training is delivered lies in the organisational culture, especially the learning culture ((17) WADE, 2003). In short, the problem is not with the technology or the delivery of eLearning but with the learning culture. Every company has established a learning culture. It is the way in which the organisation has taught 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 makes up an organization's 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" learning culture easier is to blend traditional learning delivery with eLearning solutions ((7) HAMBURG et al., 2003). Blended learning is defined as a learning solution, which implies a mix of the following (HAMBURG / LINDECKE, (8) 2004; (9) 2004a):

- 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.

Combining different delivery modes has the potential to balance out and optimise the cost and time for developing and deploying the learning program. There could be different approaches to 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 and,
- to blend different delivery media and to organize learning events with mentoring to develop workplace competence.

Although blended learning seems to be *the* solution for implementing eLearning there still are some critical aspects which should be taken into consideration for successfully changing the methods of vocational training ((13) MOSHER, 2003). Learners have always been an interesting breed. They are very slow and resistant to change, particularly when it comes to changing the environment in which they learn. For most organisations, this is the most critical stage of a successful blended learning strategy. Such a strategy should begin with a thorough and clear analysis of the learner's situation and of the training targets for which blended learning can be applied. The three important phases are:

- analysis,
- implementation in a timely and cost effective manner and,
- testing how maximum learning can be obtained through effective integration of different media and methods.

Many SMEs forget the analysis stage and start with the implementation. Therefore, it is not surprising that blended learning concepts often do not suit the learner's needs and the company's learning culture. Another important factor is scalability: because many SMEs go global, there is a need to create training that can be administrated to a large dispersed audience. The ability to scale should be determined for every learning concept at the beginning of the blended learning programme. Blended learning is still an innovative approach which is used by only a minority of projects. The monitoring of nearly 150 Leonardo eLearning projects states: *"A number of other interesting results come out of this survey. Whilst not more than 12% of the projects are definitely described as blended learning concepts, most of the projects regard eLearning not as an isolated consumer product but as a more or less integrated part of a complex learning process."* ((3) BIBB, 2003).

## 4. Experiences with eLearning and Blended Learning in SMEs

In the following three examples concerning eLearning and/or blended learning in SMEs are described: Lernet, VIP and ARIEL as an upcoming monitoring project. While the first two examples are only described in brief, our own project ARIEL and its results are shown in more detail.

### 4.1 LERNET

LERNET is part of the German action program "Innovation and Jobs in the Information Society of the 21st Century", and stands for the development of web-based learning solutions for small to medium-sized enterprises and public administrations. The project, initiated by the Federal Ministry of Economics and Labour (henceforth BMWA), aims at the development of new forms of continuing education for small and medium-sized enterprises as well as for public administrations, based on current ICT. Good practice examples covering more than 150 different subjects from about 20 different sectors have been developed in 11 projects. LERNET has proved that eLearning facilitates a high-quality, cost-effective, time-oriented and demand-oriented knowledge transfer. The achievements have encouraged the setting of new milestones within the framework of LERNET.

LERNET is characterised by the combination of basic knowledge and technologies of different disciplines - from computer science to communication science up to education science - to form innovative, target group-oriented net-based learning solutions. Furthermore, the users involved are closely in the development, from the beginning.

The interdisciplinary composed project groups, which began implementing their projects in May 2001, co-operate cross-project, comparing their ideas intensively. Thus in the LERNET-network synergetic effects are used in an optimal way. The main results of LERNET can be so far summarised as follows:

1. The success of learners strongly depends on communication: communication between the learners and communication to the trainers. Communication is very important for motivation and success. The chance to discuss with other learners, e.g. in a learning-community, becomes a driver for learning.
2. Especially in the context of "Blended Learning" the trainer plays an important role for the learning process and its success. A lot of motivation and success depends on the personality and the social competence of the teacher.

## 4.2 Visually Interaction eLearning Platform (VIP)

Another example is the project "*V*isually *I*nteracting eLearning *P*latform" (VIP) which goal is to offer managerial training to SME managers. VIP aims at needs and interests of the SME managers. Therefore, the first step was to send questionnaires to SME managers in order to carry out a full analysis of the European context related to vocational training of SME managers. Some main results for the following developments are:

- Insufficient vocational training offers to provide necessary re-qualification of personnel in a cost effective way;
- Particular interest for open and distance learning thanks to its flexibility and adaptability (30% of SME investigated);
- High interest in participating in the experimentation phase (80%);
- Particular interest in the production of a course in "Communication" produced and delivered in e-learning modalities (85%);
- High interest in participating in ad hoc organised workshops (75%);
- Deep interest in new technologies applied to ODL for vocational training purposes (85%).
- Good level usage of the Internet and new technologies applied to communication.

Blended learning will become a main focus for VIP because of the constant changes due to the introduction of mixed approaches in training solution. The VIP projects technological didactic platform intends to start from the above mentioned results by giving the possibility to reach the highest number of managers without limits of time and space. Particular importance will be in fact given to the interactivity. Collaborative learning facilities will be provided: sharing documents tools, forum, e-mail, chat rooms and videoconferencing. SME managers will have the possibility to be constantly trained in a really flexible way (VIP).

## 4.3 ARIEL

ARIEL - Analyzing and Reporting the Implementation of Electronic Learning in Europe - is an international joint project funded by the European Commission in the framework of its eLearning Initiative. The project investigates eLearning supply for small and medium-sized enterprises concerning didactic approaches, benefits and fields of application. Another of its themes is the evaluation of the impact of past EU programmes in the field of electronic learning. On this basis ARIEL will build scenarios of the future development of e-learning in Europe. An important part of the project activities is the dissemination of the results to SMEs, providers of further education, regional economic development agencies and political actors in the countries involved. ARIEL is coordinated by the IAT and has cooperation partners from Ireland, Italy, Hungary and Romania. ARIEL's tasks include systematic gathering of relevant information concerning ongoing eLearning activities in Europe, in-depth analysis of these activities and dissemination of information to targeted audiences. ARIEL hereby focuses on eLearning solutions and concepts for SMEs which aim at improving their work and supporting their integration into the European market. In

addition to the monitoring of the general eLearning trends there will be special reports on certain sociological, pedagogical, technical or economical key issues like eLearning and blended learning applications in SMEs.

ARIEL started in January 2004; the following activities have been carried out since then: During the kick-off phase (01/04 - 03/04) the overall project co-ordination has been installed including the setup of an BSCW Server for information exchange between the project partners and the development of the project website ( www.ariel-eu.net ).The website functions as dissemination instrument and is available in five languages.


*Figure 1 - ARIEL - Website*

Currently the website contains information about the project objectives, proceedings, organisation and results, about the participating partners and project meetings. In addition, various documents and articles regarding the topic 'eLearning in SMEs' are available for download. The content is frequently updated. In spring 2005 further information for SMEs interested in eLearning will be made available. In order to give the visitors an idea of what countries are being analysed and which partner is responsible the so-called 'ARIEL kingdoms' have been defined (see Figure 2).

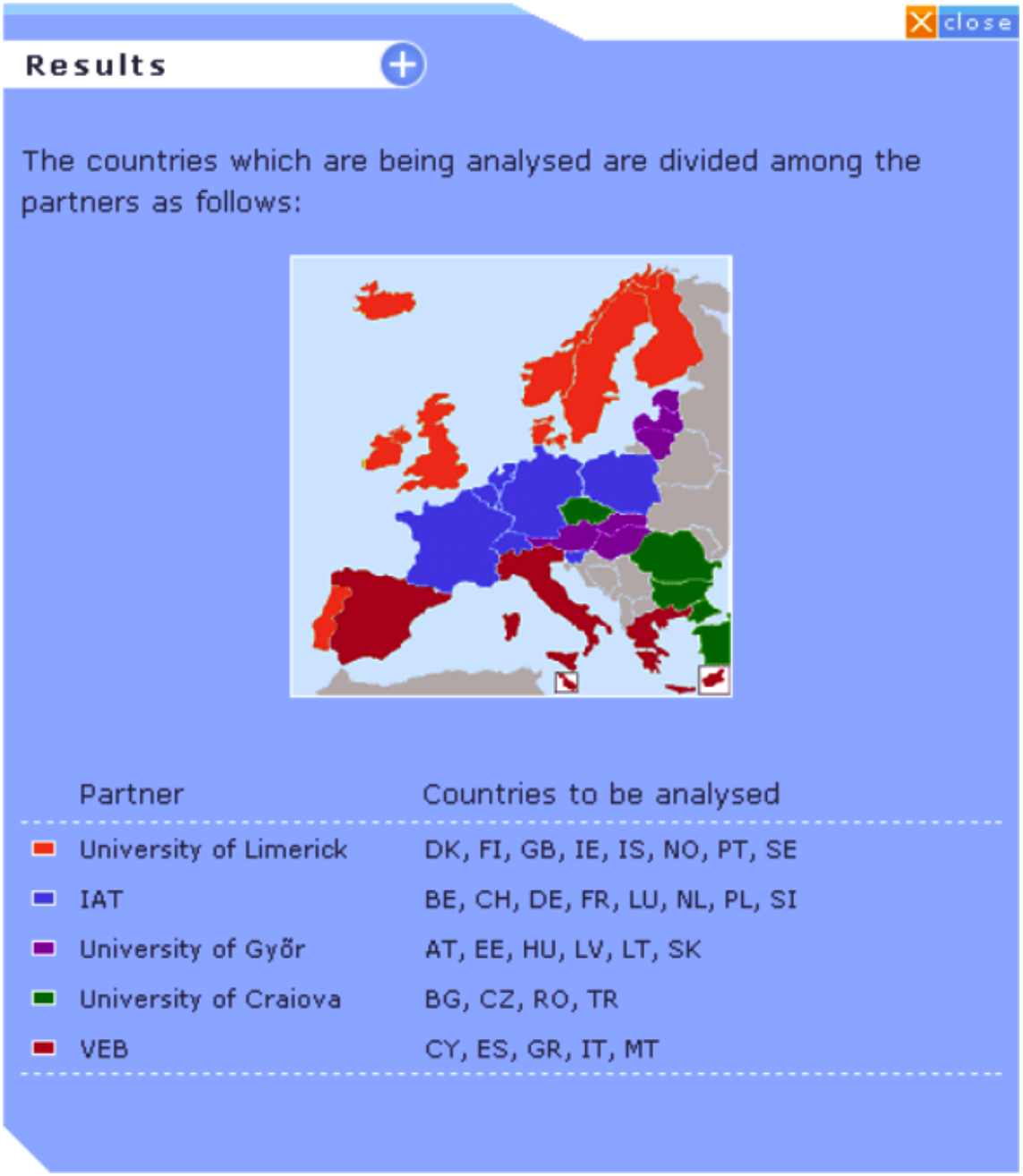


*Figure 2 - ARIEL - Kingdoms*

During the second phase of the project (04/04 - 09/04) an evaluation schema has been developed, eLearning related material collected and eLearning projects monitored. In this context the first step taken was the sifting of 842 projects which are documented in the database 'elearningeuropa', of which 411 projects (48.8 %) aim at the target group SMEs. Here it was shown, that the descriptions of the projects deviated clearly from each other regarding the content and the information depth. Therefore the need for additional in-depth research arose. Next to an email questionnaire the website has been used for the acquisition of comparable information about eLearning projects in Europe. For this purpose an online questionnaire had been developed, available in five languages.

The questionnaire asked for the following project-related information:

- contact information: project name, contact person, phone number, email, internet address
- project aims
- target groups
- topics debated by the projects (e.g. technology, economics, multimedia, language skills)
- project results (e.g. eLearning concept, network, curriculum, vocational training, software)

The response rate to the online questionnaire was filled in by 114 project leaders. The results can be summarised as follows:

1. The project *aims* vary from the development of eLearning Applications (51 entries) over the support of eLearning processes (42 entries) to the implementation of eLearning (46 entries). 27 projects stated other than the above named targets. Blended Learning is on the fourth place with 26 entries - this could be an indicator for the increasing relevance of these concepts.

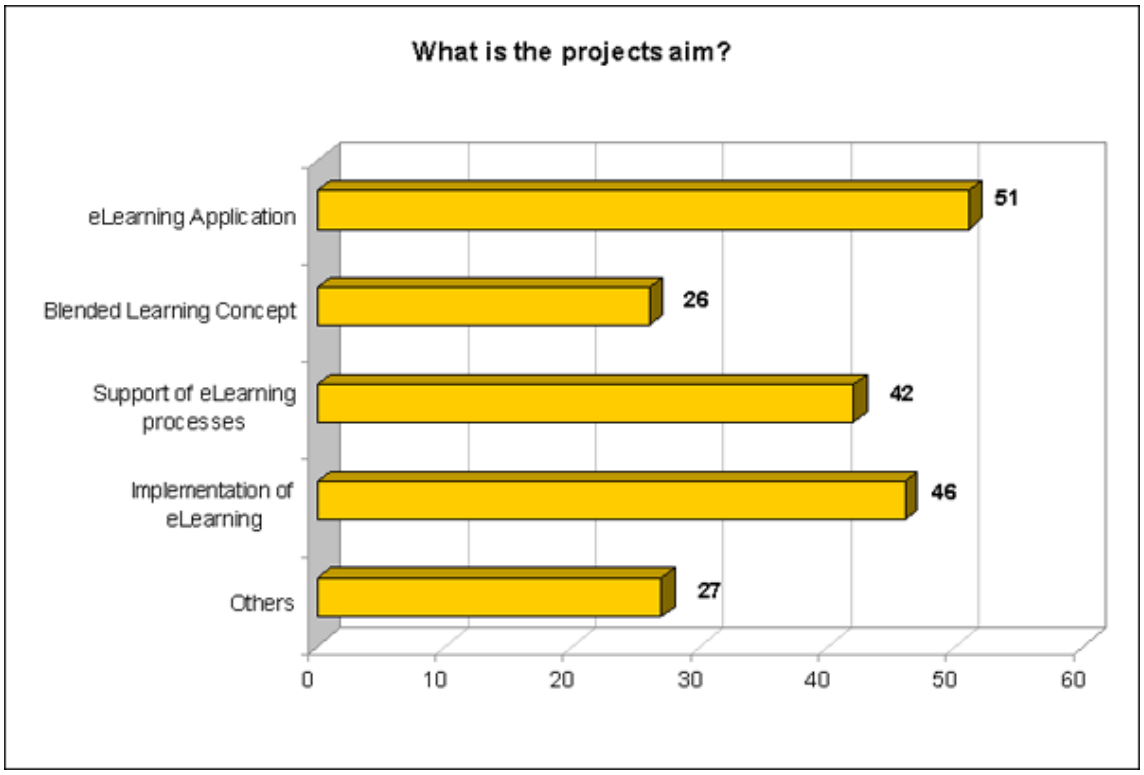


*Figure 3 - ARIEL - Analysis Results I*

1. 81 projects (23.48 %) defined SMEs as major *target group*.

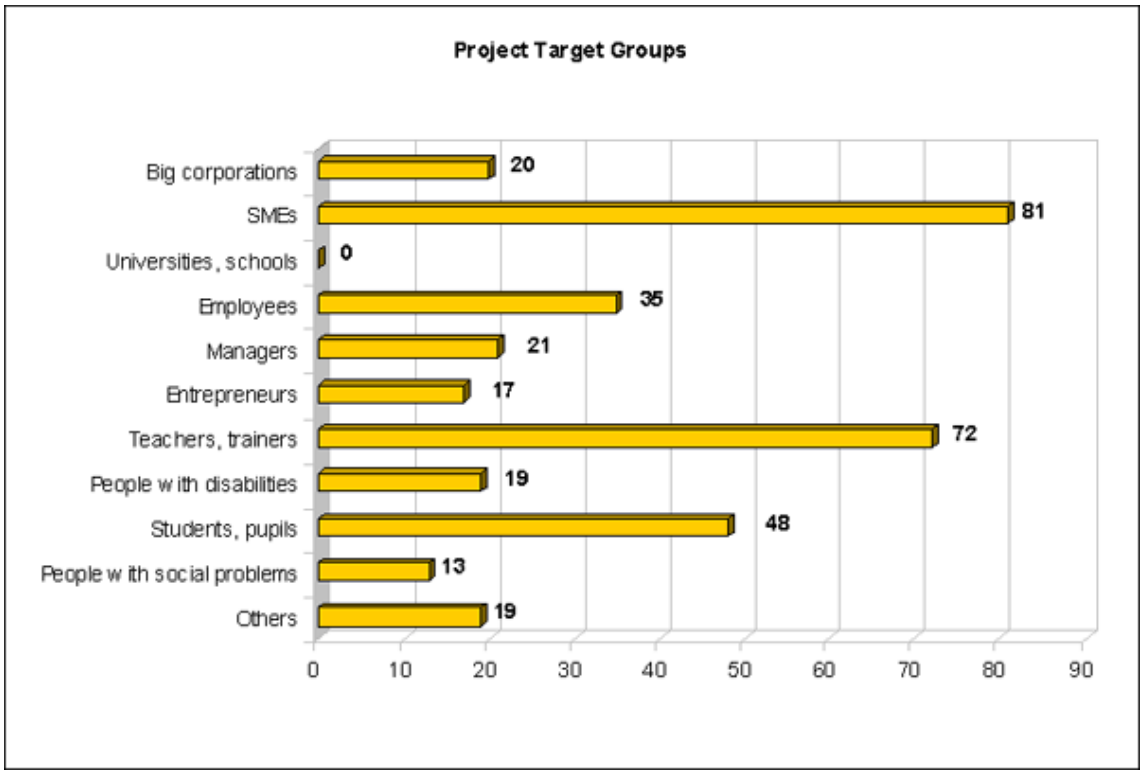


*Figure 4 - ARIEL - Analysis Results II*

1. Asked for the *topic* debated by the project most participants named either 'Professional Skills' (51), 'Collaboration' (47) and/or 'Technology' (47) as subject. Another 35 projects focused on 'Intercultural learning' and only 25 projects on 'Language Skills'.
2. Concerning the project results 'eLearning Concepts' were with 49 entries in the first place followed by 'Vocational training' in second (43 entries) and 'Network' in third place (41 entries).

In order to validate the results and to get more detailed information on single projects - especially those targeting SMEs - *expert interviews* have been conducted. The country-specific key findings can be summarized as follows:

1. **State of the Art 'ARIEL-kingdom' Germany**

   297 EU-funded projects in Belgium, France, Luxembourg, the Netherlands, Poland, Slovene, Switzerland and Germany have been asked to fill in a questionnaire via e-mail. 52 or 17.5% responded. 40 projects answered that SMEs or small and medium-sized organizations (SMOs) belonged to their target group or were part of their target groups. Out of those 40 projects 20 have been interviewed via telephone.
   - 7 out of those 20 claimed in the telephone interview: SMEs do not belong to our target group(s)!
   - 11 out of the remaining 13 projects were aimed at SMEs, 4 were aimed at SMOs too and 3 projects treated the difference of SMEs and SMOs as relevant.

- 8 projects were aimed at one specific industry, for instance at the textile industry, the retail trade (2 projects), software development, motor cycle maintenance; 3 projects aimed at more than one industry, 2 of these had public and private target groups, the public target groups came from institutions in vocational training.
- Between 1 and 20 SMEs or SMOs have been involved in the projects, but several projects could not provide us with those numbers, because they only counted the number of participants in the e-learning-courses.
- With the help of e-learning the projects wanted to enhance the use of capital (1), of cultural capital (1), of human resources (7) and especially raise the skills of the work force (6) of SMEs. Just 2 of the 13 projects were addressing management styles - both with a participative approach. 4 projects were dealing with the topic of EU-enlargement, mostly by building up partnerships with partners from new membership countries or candidates.
- Most projects focused on developing e-learning content (10), e-learning-training (9) and on developing e-learning software (5).
- 8 projects stressed the need for a special approach to e-learning in SMEs and 7 projects advocated such a special approach through their project. 9 projects experienced obstacles in implementing an e-learning-system for SMEs. The administrative burden of an EU-Project was mentioned frequently and the sometimes volatile involvement of SMEs in the project. But in 8 projects pleasant surprises came up when working with SMEs/SMOs. Their open spirit and their flexibility were noticed by the interviewees.

2. **State of the Art 'ARIEL-kingdom' Ireland**

The Irish allocation of expert interviews consisted of twenty-four projects from the areas of Scandinavia, UK, Denmark and Portugal. From this thirteen responses were received.

- 46 % (6 out of 13 projects) were solely aimed at SMEs or SMOs and three involved the participation of SMEs/SMOs
- Those projects specifically aimed towards SMEs/SMOs had the following breakdown: Two aimed solely at SMEs, one aimed solely at SMOs, three aimed at both SMEs and SMOs
- Of those six projects aimed solely at SME/SMO three had target groups relating to one specific industry, namely education, construction as well as print and media industries. The remaining three projects had target groups in several types of industries. One project in particular aimed at sales departments in SMEs in several industries. Another project targeted education and agriculture industries. The remaining project aimed at sole traders and micro enterprises.
- Most projects addressed a combination of *capital, quality, organisation and hierarchy of power* attributes.
- Conclusion: Of the thirteen projects interviewed nine involved targeting SMEs/ SMOs in some form and the majority of those involved the use of e-learning within these companies.

3. **State of the Art 'ARIEL-kingdom' Italy**

   The Italian allocation of expert interviews consisted of twenty-two projects from the areas of Italy, Spain, Greece, Malta and Cyprus. From this 10 responses were received.

   - Of the 8 projects that responded, 6 were solely aimed at SMEs or SMOs and 2 involved the participation of SMEs/SMOs.
   - Those projects specifically aimed towards SMEs/SMOs had the following breakdown: One aimed solely at SMEs, one aimed solely at SMOs, four aimed at both SMEs and SMOs.
   - Of those three projects aimed solely at SME/SMO two had target groups relating to one specific industry, namely cultural and bodywork repair shops. The one remaining project had target groups in several types of industries. In particular it aimed at every industry that uses a system of quality control.
   - Most projects addressed a combination of *capital, cultural, quality, organisation and hierarchy of power* attributes.
   - The main obstacles within the projects were to collaborate in partnership, meaning cross cultural understanding.

4. **State of the Art 'ARIEL-kingdom' Romania**

   The Romanian allocation of expert interviews consisted of thirty-four projects from the areas of Bulgaria, Romania, the Czech Republic and Turkey. From this only 6 responses were received.

   - All projects were solely aimed at SMEs or SMOs.
   - These projects may be classified as follows: One aimed solely at SMEs, three aimed solely at SMOs, two aimed at both SMEs and SMOs.
   - Of these projects aimed solely at SME/SMO three had target groups relating to one specific industry, namely education and construction industries. The remaining three projects had target groups in several types of industries. One project in particular aimed at start ups in any kind of industry. Another project targeted education as well as financial training. The remaining project was aimed at people with disabilities.
   - Most projects addressed a combination of *capital, quality, and organisation* attributes.
   - As obstacles the contact persons included raising interest in the project, lack of technology, lack of language knowledge, poor internet access.

5. **State of the Art 'ARIEL-kingdom' Hungary**

   The Hungarian allocation of expert interviews consisted of sixty-four projects from the areas of Austria, Estonia, Hungary, Lithuania, Slovakia and Slovenia. From this only 6 e-mail responses were received. 15 telephone interviews have been conducted. The results are not available at this point.

The next step to be taken within the project was the identification of success factors for different target groups. For this purpose various workshops have been carried out: Firstly, a discussion with users on the topic 'eLearning for vocational training' organised by the Institute for Work and Technology in January 2005. Second a workshop with experts in Florence, where the question of eLearning in SMEs has been discussed. On basis of the workshops results and the scenarios for the prognosis of the future development of eLearning in Europe are in the development ((15) RINGLAND, 1998; (16) SCHOEMAKER, 1991). They will be evaluated and within workshops with eLearning experts. The basic question for the ARIEL scenarios is *"Should eLearning support European SME´s to be successful and to integrate into the European market?"*

With the year 2010 as ARIEL's time horizon, the project is in concordance with the time horizon 2010 of the Lisbon strategy. ARIEL identified as factors of influence the organisation of learning, technology, costs, reasons, users, certification and themes of eLearning. Issues referring to these factors have been grouped by members of the ARIEL consortium into five clusters:

- Vocational system
- Cost-incentive structure
- Technology
- Content
- Business

The ARIEL consortium decided to develop a small set of basic scenarios for Europe which will be evaluated in each ARIEL partner country by a group of experts. In the development we followed OGILVY and SCHWARTZ who recommend building the scenario skeleton with the help of a scenario matrix. The first step for building a scenario matrix was to select two or more descriptors which are of the greatest importance for solving our problem and represent the greatest uncertainty for the future of eLearning in Europe's SMEs by combining the descriptors.

The ARIEL team at the IAT in Germany proposes to single out the descriptors "vocational training system" - VET and "business" as being most important for the context of the project. The factor *VET* is presented here as a complex vector which scores either high or low in two respects: financial investment and trust. The business vector, though presented as a simple parameter, represents multi-layered developments (s. Figure 5 and 6).

For each scenario we made an evaluation of the current situation in 2005. It is supposed that till 2010 the sub descriptors of the scenarios will develop in different ways - positive (increasing), negative (decreasing) or remaining with stationary contributions (stagnation) - to get a satisfactory answer to our question. We used questionnaires ( www.ariel-eu.net/questionnaire_descriptors.php , www.ariel-eu.net/questionnaire_scenarios.php ).in order to analyze the answers of experts in relation to the contributions of different factors in our scenarios in different countries (regions).

*Figure 5 - ARIEL - Szenario Matrix*
*(c) IAT 2005*

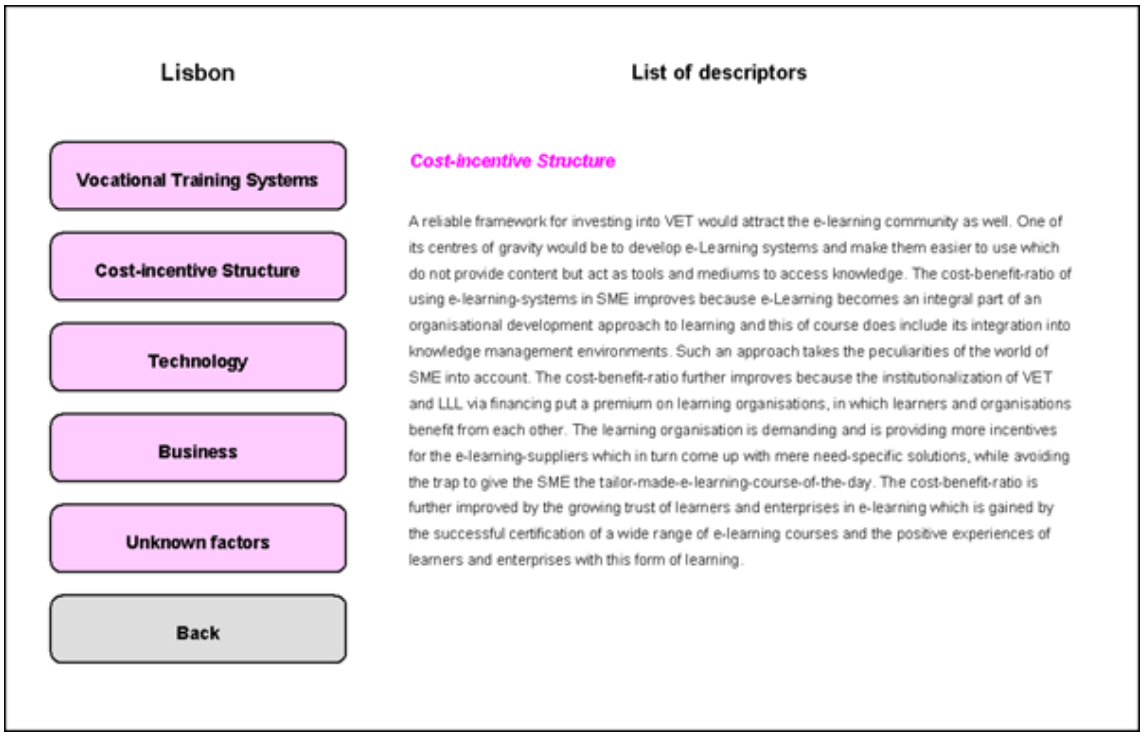


*Figure 6 - ARIEL - Example: Descriptors of Lisbon Szenario*
*(c) IAT 2005*

## 5. Recommendations

Many SMEs carried out work in various settings which plays an important role in peoples´ live. Therefore in order to make a contribution to business improvement of SMEs and to their integration in the European market by using eLearning in their vocational training learning, this has to be embedded in their work organisation 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, being a very complex problem. Blended learning and eLearning require a higher degree of self-managed learning than traditional classroom-based situations and in many SMEs a learning culture that can foster independent and on-line approaches was not created.

At policy level European and national programmes have paid more attention to the importance of the internet and of digital technologies for e-commerce and B2B in SMEs and very limited attention to the use of ICT for learning, particularly of e-Learning. So despite of the recognition of the need for policy to support and develop e-Learning in some European states a considerable number of outstanding policy issues remain. Also questions like "How labour market policies can recognize, support and reward lifelong learning by using eLearning" should be answered because in many European countries policies in these two areas are separated.

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