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Innovative E-Learning Solutions and Environments for Small and Medium Sized Companies (SMEs)

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1. Introduction

Europe experienced one of the most difficult periods in the economic history. The economic recession seems to end in December 2009 but many European countries recover slowly and European companies particularly small and medium sized ones (SMEs) have difficulties in facing todays challenges. The requirements in working life increase: more knowledge is necessary as well as flexibility referring to a fast familiarization with new working environments.

In order to cope with such requirements and changes of the labor market, beside a good organized labor market policy, flexibility and fast improving measures in the education programs are necessary. The future of many companies depends on the ability of their staff to learn how to use knowledge for acquiring the competences to adapt to constantly changing environments (Hall, 2006).

"The only thing that gives competitive advantages to an organization is what it knows, how it uses that knowledge and how fast it can learn something new" (Rosenberg, 2000). That means organizations should develop a strategy of Life Long Learning (LLL) integrated in their work and business environments and giving support "just in time". The use of e-Learning within this strategy can be an answer to these needs of nowadays organizations with geographically distributed workforce, for acquiring knowledge which changes fast, for increasing performance without more costs and for "just in time" learning (Wild et al., 2002). The SMEs need such strategies based on e-Learning, and new IT media embedded into work processes, responding not only to requirements of work/career situations but also to employees interests and supporting collaboration, knowledge sharing and performance support. E-Learning through its flexibility and adaptability can bring advantages to the SMEs. It is an important tool that can support knowledge development empowering people with the skills and knowledge needed to turn change to an advantage. Learning by using e-Learning 2.0 (Hamburg, 2010), which is based on Web 2.0 (O'Reilly, 2005) focusing on community and social interactions, has the potential to support sharing, development and transfer of individual and organizational knowledge through interactive methods of online delivery of information, collaborative procedures, targeted training and through blending of e-Learning with other education methods (Engert et al., 2008).

Social media based on Web 2.0, i.e. media for social interaction offer the premises for a fast knowledge acquisition and support transforming learning in a continuous „lifelong process". Andreas Kaplan and Michael Haenlein (2009) define social media as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, which allows the creation and exchange of user-generated content."

Communities where individuals share a domain of interest and knowledge about which they communicate and learn to increase their knowledge via formal or informal methods in order to solve problems are proper environments for learning (Wenger, 1998, 2002: Hamburg, 2008, 2010).

But results of projects show that the use of e-Learning and of cooperation in European SMEs is very low. Some of them and also big organizations tried to implement e-Learning but many of these attempts failed in the last years (Atwell, 2003; Beer et al., 2008; European Comission, 2003; Robinson, 2008).

In this paper, results of projects, of expert interviews and case studies referring to readiness of SMEs for e-Learning and attempts to transfer existing best practice of e-Learning solutions and learning strategies to other SMEs are presented. Communities oriented to learning and examples of projects aimed also at building communities and learning strategies for SMEs by using social media and some conclusions are given.

2. Readiness of SMEs for e-learning: Results of projects, expert interviews, case studies

Results of studies and European projects (e.g. ARIEL www.ariel-eu.net, SIMPEL www.simpel-net.eu, ReadiSME www.readisme.com) show that one of the most critical but important aspect to be considered is an evaluation of e-Learning readiness. Many companies which have to make the decision whether to integrate e-Learning into their vocational strategy do not know if the company, the staff and infrastructure are "ready" for this or not.

A "possible" exact description of the situation at the time of introducing e-Learning in order to develop/adapt a training model can be realized through a methodical evaluation of e-Learning readiness.

The Economist Intelligence Unit cited by Psycharis (2005) published some models of e-Learning readiness.

Rosenberg (2000) identified the following four factors – the "Four C's for Success": Culture, Champions, Communications, and Change. He considers corporate-policy factors very important for the success of an e-Learning project: an open learning culture, the manager support of the project, the successful communication of the project and its advantages for the staff and a change process which integrates these factors of success into the further development of the organization and of the staff. These elements have to be clarified previously to a project in order to assure its success.

He developed 20 key-questions which were classified in the categories: entrepreneurial readiness, changing nature of learning and e-Learning, value of teaching and information design, management of change, re-invention of educational organization, industry of e-Learning and personal commitment.

Chapnick (2000) considers that the main readiness factors for the implementation of e-Learning are the pychological readiness, the sociological readiness, and the environmental readiness, the readiness of the human resources and the economic readiness.

Broadbent (2002) affirms that the successful implementation of e-Learning in an organization requires right people, right place and right resources.

The following factors are considered by Worknowledge (2004) important when implementing e-Learning: the readiness of the staff, the readiness of administration, the economic readiness, the environmental readiness, the technological readiness and the readiness of the culture.

Borotis and Poulymenakou (2004) suggest seven factors that should be checked before an e-Learning solution is adopted including entrepreneurial readiness, readiness of content, technological readiness, readiness of culture, of human resources and economic readiness.

We would like to add a further two models of e-Learning readiness. Habermann and Kraemer (2001) identify (similar to Rosenberg, but rather forming a methodical point of view) five typical problem fields previously to a project, which can influence the strategically and operative planning: problems of complexity, information, resources, decision and of coordination ones.

Stacey (2001) preferred professional-content aspects. His "Big 8 questions to Answer in Planning and Implementing e-Learning" contain questions of organizational and didactical processing as well as some to measuring success.

Psycharis tried to connect the factors of e-Learning readiness mentioned in the literature and to classify them into 3 major categories (Figure 1):
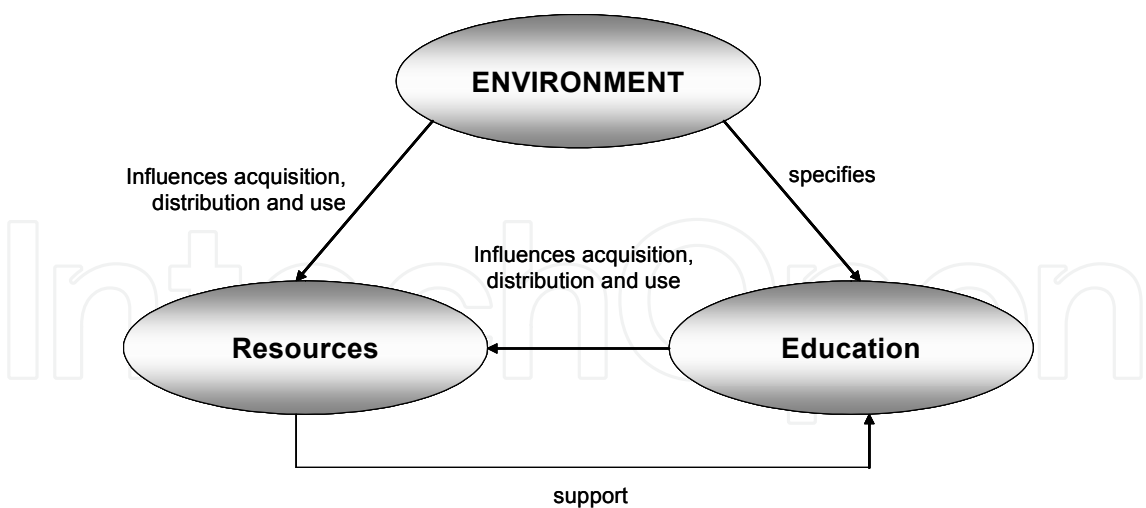

Fig. 1. Criteria of readiness and correlation between them (Source: Psycharis, 2005).

All these models try to group the content that belongs to specific areas, e.g., technological readiness, human resource readiness, etc. but the content of the categories of the different models are appreciatively the same. The authors regard e-Learning projects less on the basis of technical implementation processes but more of needed organization development and organizational integration.

The models add value in sorting the factors that need to be investigated before an e-Learning project starts. Some observations within these models particularly when applying them to SMEs are the following:

- before e-Learning readiness can be measured, a decision should be made if this is the best choice of training delivery or not,
- special pedagogical requirements and face to face contact are not to be neglected,
- organizational readiness is a difficult problem for SMEs particularly for small business,
- the models should be adapted to be applied not only before e-Learning started but also during and after the e-Learning event,
- not only managers should answer the questions of these models, but also trainers and specialists,
- some models are oversimplified and do not include all the fields that needs to be ready before starting e-Learning.

In the followings, factors considered in our model will be presented which influence the successful adoption of e-Learning and which can be used to build a readiness model that will assist the SMEs, consultants and providers in determining what should be done in order to prepare the staff, the trainer and the organization for the learning event. In our model, a list of questions for the evaluation of e-Learning readiness has been provided in a reference catalogue taking into consideration the main criteria Organization/Management, Technology/Services, Staff/Human Resources.

The following questions are to be used in form of a catalogue:

Organization/Management

Strategic and economic readiness

- Which are the strategically objectives and reasons for implementing/using of e-Learning?
- Economic readiness (financial resources available) for e-Learning

Entrepreneurial readiness

- Are the requirements necessary for a successful implementation of e-Learning fulfilled?

Readiness of culture

- Is the learning culture of the organization an innovation supporting one?

Management readiness

- Does the company management support the implementation of e-Learning?

Technology, Services

IT readiness

- How are the IT equipment and connection of the workplaces with the Internet?
- Are IT and Web used for learning and communication by staff?

Readiness of learning environments

- Which are the existing learning platforms in the organization?
- Do virtual learning communities exist in the organization?

Readiness of content

• Is the content to be learned suitable for e-Learning?

Staff/HR

Trainees' readiness

• How are the IT skills of the target groups for e-Learning?
• Are they motivated and ready to learn?

Trainers', tutors' readiness

• Are trainers, tutors educated for e-Learning?
• Which are the most used vocational training forms in the company (formal, informal, etc.)?

Readiness of vocational training plans and strategy

• Which are the plans and tools for the staff development in the company?
• Do long term training strategies based on e-Learning exist in the company?

We tried to keep the catalogue for e-Learning readiness as short as possible The staff does not respond if the questionnaires are too complex.
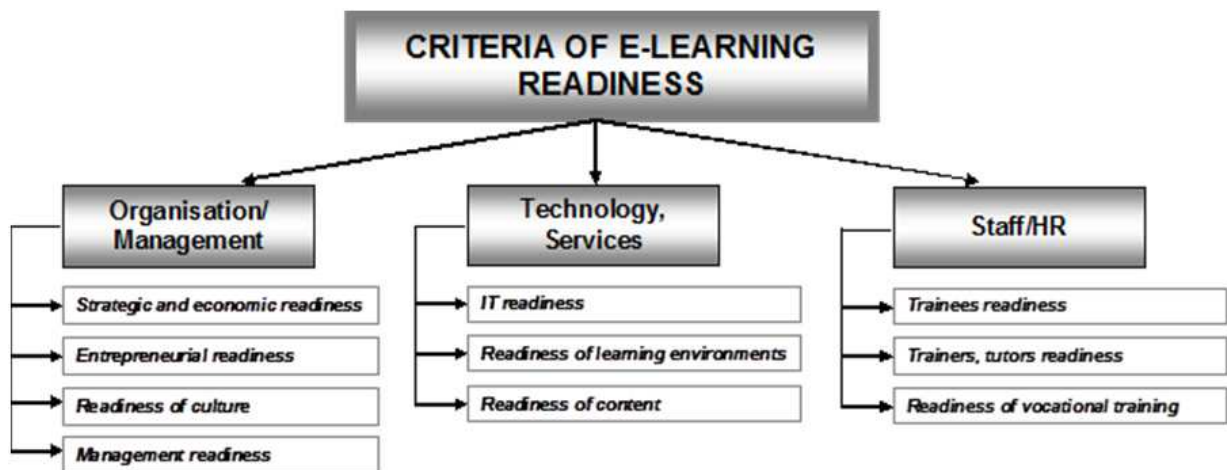

Fig. 2. Factors for e-Learning readiness – Project SIMPEL www.simpel-net.eu

In this context and with partners from universities and SMEs in Ireland (coordinators), Portugal, Romania and Hungary, the author works within the EU Leonardo project LLL Readiness in SMEs (ReadiSME –http://www.readisme.com/).

The project is mainly an innovation transfer project of best practice and results of successful e-Learning strategies and projects from recent years. It is focused on methods to establish degrees of LLL readiness based on e-Learning in SMEs and on impacting knowledge management. The project adopts a step-by-step approach to implement LLL according to different levels of readiness whilst simultaneously working towards higher levels of readiness.

The project uses the results of the SIMPEL project involving researchers, higher educators and other training providers, SMEs, e-Learning experts and providers (Beer, 2008).

Comparative analysis of the results of projects undertaken by the SIMPEL partners and results of national seminars within this project show aspects which have to be considered when implementing e-Learning as a part of the LLL strategy of the company if it is to be sustainable:

- identification of needed skills/competences which could be achieved by e-Learning,
- readiness for e-Learning,
- adequate tutor and technical support for education and integration with more traditional forms of learning, learning infrastructures,
- organizational perspective,
- transfer of knowledge,
- economical aspects,
- quality and (self) evaluation criteria.

Within ReadiSME, 20 German SMEs have been interviewed and 2 case studies have been carried out in order to evaluate e-Learning readiness of German SMEs taking into consideration the categories presented above. The results of interviews not only from Germany but also from project partner countries are summarized below.

The majority of companies responded that they are LLL ready but e-Learning is not sufficiently applied and they are still not up taking it as a competitive tool. The reasons for this are sometimes unknown. In previous studies, done in projects like Ariel and SIMPLE, regarding barriers to training issues in SMEs, some similar issues, like in the ReadiSME, have been found. However, there is a little more detail:

- A reactive approach to learning
- A lack of electronic content which can be found easily
- Lack of time to explore relevant training options to achieve the competitive strategy
- Lack of relevant ICT applications
- Lack of staff motivation
- Lack of understanding all the advantages of e-Learning particularly by managers and person responsible with further education in companies.

Because it appears that most SMEs seem to be LLL ready and there is still a low uptake, the ReadiSME partnership highlights that there may be more to these reasons than a lack of time and a lack of content. One must go into the psychology theories of change and encouraging individual change in one's lifestyle. These have be looked in further work within ReadiSME in the context of the levels of SME readiness for LLL. It can be said that there are different levels of company readiness with regard to the evaluation of the questionnaires used within ReadiSME. Several levels of readiness can be derived from the results of the questionnaires:

- Those with a high level of ICT, high level of organizational readiness and a high level of staff readiness.
- Those with a low level of ICT, high level of organizational readiness and a high level of staff readiness.
- Those with a high level of ICT, low level of organizational readiness and a high level of staff readiness.
- Those with a low level of ICT, high level of organizational readiness and a low level of staff readiness.

- Those with a high level of ICT, low level of organizational readiness and a low level of staff readiness.

At an individual level there are also different levels of readiness:

- Those with a high perceived ability to undertake LLL.
- Those with a low perceived ability to undertake LLL.

It is recommended that a questionnaire needs to be developed in order to assess the level of individual readiness bearing in mind motivational and psychological theories and that different techniques should be used to manage the process of increasing readiness and incorporating change.

3. Transfer of existing innovative e-learning solutions to other SMEs

The main content of this part is to present some innovative solutions for SMEs within the on-going innovation transfer Leonardo project Net Knowing 2.0: Web 2.0 Technologies and Net Collaborating Practices to support learning in European SMEs *(www.netknowing.com)*.

The aim of the project Net Knowing 2.0 is to help European SMEs to turn their daily work into a source of corporate learning for all their employees. Like this, the integration of the e-Learning in the daily work life will be facilitated, as well as the opportunity for companies to build their own formative resources. The project focuses on the development, testing and dissemination of a didactical package to enable managers and directive staff of SMEs to benefit from e-Learning particularly based on Web 2.0 technologies, Networking and e-Collaborating practices as an instrument for their own personal learning and for the support of corporate informal learning systems in their enterprises. Some special objectives are:

- To enable managers and directive staff of SMEs to improve their learning opportunities by the use of Web 2.0 technologies and networking practices.
- To enable and encourage them to participate in social professional and entrepreneurial networks and communities of practice in order to obtain the maximum benefits of sharing knowledge activities.
- To improve the knowledge sharing culture in SMEs supporting them to make better use of their organizational knowledge as a corporate learning resource.

One of the project tasks was to collect and structure results of the SIMPEL project and other ones which could be transferred within Net Knowing 2.0 for other SMEs. A catalogue of recommendations has been developed for the transfer process which used also results of discussions with representatives of German SMEs which have been interviewed in this context by the author. In the following, we describe the issues for transfer and some of the transferred products.

Some issues for transfer schemas were title of the product/result to be transferred, general description/aims for which it has been developed in the past or description of the context, how can be it re-used in Net Knowing 2.0, aims which could be addressed with the transfer of this product, needs of successful transfer, methods to be transferred, resources needed to attend a successful transfer.

Two products to be transferred from SIMPEL are:

1.   A draft for a sustainable training strategy for SMEs based on e-Learning.

The strategy has been developed in cooperation between SIMPEL partners and consultants for SMEs, discussed and improved so that it could be adapted to specific national requirements. Interesting discussions during seminars with SMEs contributed to the development of some e-Learning models within this strategy.

Within Net Knowing 2.0, the strategy and the models have to be discussed with SMEs in all partner countries in order to be improved taking into consideration the actual economic and financial situation, new profiles of working places, etc.

Some models (best practices) for training strategies for SMEs based on e-Learning could also be transferred from SIMPEL by being customized together with SME representatives from companies which would like to apply them.

Methods used for the strategy transfer and for strategy models are discussed in each partner country with SMEs. Discussions were also hold with e-Learning and Web 2.0 experts, presentation of them at special fairs, workshops and conferences, within networks where partners are members have been done.

Some objectives of this transfer process are:

- Improvement of difficulties of SMEs to survive/be competitive due to qualification.
- Helping SME to implement sustainable training strategies and innovative work places.
- Using e-Learning and Web 2.0 tools for improving their learning models.
- Learning from best practices SMEs from Germany already use.

2.   The SIMPEL Community of practice (CoP)

Within SIMPEL a Community of practice (CoP) with e-Learning experts and practitioners has been established in order to cooperate in improving the use of e-Learning in SMEs. More about CoPs is presented in part 4. The CoP is supported by the standard virtual learning environment (VLE) Moodle. The activities of the SIMPEL CoP to improve LLL in SMEs and other organizations by using e-Learning were successful.

The layout of the CoP has to be changed according to the objectives of Net Knowing 2.0.

The functionality of the SIMPEL CoP has been improved and used for building a CoP in Net Knowing by using TikiWiki CMS. Tiki is a powerful web-based application created by a large team of contributors. In the part 4 of this chapter the CoP developed within Net Knowing 2.0 will be described.

By using the CoP within SIMPEL, the SMEs staff and consultants, Web developers can cooperate also with experts from other countries to quickly find practical solutions to SME problems. The training modules developed within the project Net Knowing will be also available on the CoP platform and training sessions of these modules will be moderated by project partners during the project period.

4. Framework for improving e-learning readiness and building LLL strategies

The Framework uses the readiness results and suggests measures to improve LLL readiness and steps to develop LLL strategies. It uses a combination of the trans-theoretical model

which is a model for behavior change and recommendations from the ARIEL and SIMPEL projects. The Framework is based on a top-down and bottom-up approach targeting both the individual and the organization. It aims first to raise awareness of the potential benefit of LLL to the individual and the organization and to change the attitude and behavior of individuals and companies towards LLL. Last but not least, the frame should help companies to implement sustainable LLL strategies based on e-Learning.

Results of the projects SIMPEL and ARIEL show that first some organizational measures are required which will be presented within the following steps. These measures correspond to the planning, action and maintenance stages in the building of a LLL strategy by using the trans-theoretical model for organizational behavior change. At each stage we have added electronic tools, which may contribute to master the stage effectively.

Analysis of company situation and needs of qualification including:

- Analysis of business goals and the company's situation and of difficulties the company has to achieve these goals
- The determination of the qualifications needed by the staff to solve the difficulties
- Methods to achieve such qualifications (LLL strategy, e-Learning, short term qualification, etc.)
- Electronic Tool: for gathering documents in various versions and making them available throughout the company (or according to differentiated access rights): Wiki (either stand-alone or as part of a Learning Management system like Moodle), this may be accompanied by a forum for discussion, again either as stand-alone or as part of an LMS)

Concept

- Finding of suitable offers and services for the qualification needs required by the work tasks. Determination of learning contents, forms and media used for the LLL strategy.
- Determination of relevant knowledge and data flows.
- For internal communication and gathering information by wiki and/or forum may be continued to be used. Feedback sheets and/or databases such as provided in learning management systems (LMS) such as Moodle help gather the information even more precisely.
- To find suitable offers, researching the web and particularly social networks such as Xing, meanwhile also Facebook can be useful.

Planning

- LLL measures as well as the time, the actors, the technological and organizational infrastructure and the tools needed for an efficient realization of these measures.
- The preparation of a financial (business) part of the LLL model providing a framework for the economical dimension of the LLL strategy in the company, linking the planning with the process level of the implementation.
- An excellent planning instrument for SMEs is Mindmanager, linking mind maps with basic project management features. For the financial planning it is necessary to draw on the data of business or enterprise management software (depending on the size of the company this may range from simple spread sheets up to very specific enterprise planning resource planning packages, which vary greatly according to size, branch and needs of the companies concerned

(http://en.wikipedia.org/wiki/List_of_ERP_software_packages).

Implementation

- LLL solutions which correspond to the learning culture of the company will be produced (or purchased and adapted) and introduced.
- This may cover the whole range from buying standard learning software packages to subscribing to podcasts and other web-based offerings to running a CoP and using/running an LMS with self-developed learning contents. For SMEs it may be useful to band together or to make use of offerings by branch associations etc. in order to minimize costs.
- A further step may involve tests and certification. In all likelihood, SMEs will not go further than running online quizzes for testing knowledge. Certification will most likely be taken out of offerings by craft chambers and other officially recognized certification agencies (including universities).

Evaluation and improvement

- How effective and financial efficient the training was.
- A complete evaluation concerns human and financial resources, developed measures, participation, changed knowledge, behavior, competences and expectations of the participants to the LLL program, practical changes in the company.
- This raises the issues of quality control of e-Learning and return on investments (ROI). It is not possible here to point to one or two tools which do it all. Many different parameters may play into this. See for example: http://www.prescientdigital.com/articles/learning/measuring-the-success-of-e-Learning-initiatives/. It is important not to follow a narrow, purely economic frame in this evaluation.

Results of some tasks carried up within ReadiSME show that many SMEs have the technical infrastructure, organizational capability and personnel procedures in place to facilitate learning. However, these companies are still slow to undertake learning and an improving of your awareness is useful.

The trans-theoretical model is a method of changing behavior in individuals using interventions. It has been widely used to increase physical activity, raising health literacy and encouraging the cessation of smoking.

It aims to allow individuals to make conscious decisions in order to change their behavior about a specific topic. It deals with people at different levels of readiness on the behavior change spectrum. The spectrum ranges from people who have no intention to change, to those who have made a change and do not wish to regress. In the trans-theoretical model there are five stages of change:

1. Pre-contemplation – the individual is not intending to take any steps to make the change in behavior. They are usually unaware or uninformed about the benefits the change in behavior can bring.
2. Contemplation – people are intending to change in the next six months. However, if they do not recognize that the pros outweigh the cons they may remain in this stage for a very long time. For example, if a person decides that in September they are going to do a training course in Java programming.

3. Preparation – a person is taking steps to make the change in order to take action in the immediate future. For example, if a person starts looking for different java courses and buying java books in order to prepare or attends an open night in the local university.
4. Action – the person actually makes the behavior change. For example, enrolls in a course, starts attending a course.
5. Maintenance – Working to prevent relapse.

The Framework has been discussed with consultants and representatives of European SMEs particularly German ones and to improve it. Scenarios will also be used for explaining the Framework to managers and SME staff.

Scenarios create a sense of common understanding and indicate certain strengths and weaknesses of education and training systems in companies.

Scenarios are different from forecasts in that they provide a tool that helps SMEs to explore the many complex business environments in which they work and learn and the factors that drive changes and developments in those environments. Furthermore, scenarios include "narrative descriptions of assumptions, risks and environmental factors and how they may affect operations. Scenarios attempt to explore the effect of changing several variables at once with objective analysis and subjective interpretations" (Wikipedia, 2005).

Within a company, scenarios provide a common vocabulary and an effective basis for communicating conditions and options.

Scenarios can help SMEs to be innovative by:

- Identifying white spaces between old and new economies (e.g. e-commerce changing companies' business).
- Engaging and inspiring the SME`s stakeholders to make the changes for transformation and to articulate the future of a city, region, etc.
- Sparking innovation and new forms of value creation (new products and services replacing traditional ones).
- Creating alignment and energy around an organization's vision and purpose (what is the 21st century business idea).

There are a number of organizations who are working with scenario planning on a consulting basis as well as a method for internal strategic planning. One example is the GBN (Global Business Network – http://www.gbn.com) which has worked together with a large number of big and small companies to explore the future of their industries. GBN uses scenario thinking in a variety of contexts and in conjunction with other processes and tools that they have developed over the years particularly focused on illumination of the short- and long-term risks and on opportunities associated with specific decisions and investments.

Shell has been producing Global Scenarios for more than 30 years (http://www.shell.com/). At Shell, in order to create analytical clarity, the scenarios no longer tell particular "stories", they rather consider the interplay between essential forces and contrasted ways in which different groups can pursue their objectives. While providing more complex and sometimes technical analyses of business environments, Shell Scenarios are based on a map which provides a simple, unified context which is very powerful to better understand the various conditions under the company has to operate in different circumstances.

We give an example of a scenario- It can be developed after the analysis of the company situation.

A medium-sized retailer – active in Germany with about 20 locations – introduced the question of how it can position itself strategically new. In recent years, it became increasingly difficult to compete successfully in the highly competitive market. New distribution channels (discounters and internet) gained importance and fought for the same customers. Clients became more prices sensitive and the margins continuously lower. The question came up how the company could secure its long-term success. The decision about a strategy for the next year (or next years) should be in the light of a thorough assessment and a clean sounding of realistic options for the company. Using the technique of scenario thinking in options is encouraged. The aim is not to establish a precise position. Instead, future versions will be developed in the form of scenarios. The final decision is presented in the scenario below.

In the first phase, an analysis of the company's external and intern situation, of the business strategy, of the staff qualification needs has been done during a one day workshop. The conclusion was that the company has on the one hand, a strong business unit with a diverse range of products. On the other hand, the company's focus cannot be identified. The company offers products in many areas, but it is not really excellent or clearly perceptible in one of these areas. New media are not used for advertising the products. No customer focus can be seen. There exists no more knowledge about concurrent products. Most of the staff did not attend qualification courses in the last 4 years. The extern trainer-driven training is mostly used. Informal learning was not a recognized method in the company.

After the analysis it was decided not to concept a new active strategy with an review of the organization, business, etc. but to use the strategy of minimal changes: e.g. improvements of the business strategy and introduction of new media and LLL learning concepts like informal learning (not only for today needs and requirements) should involve only minimal changes in the existing structures and processes of the company.

In the planning phase taking part during another workshop, the changes have been discussed. It was decided to use entirely own strengths of the company. If the company goes into completely new areas of business and a complete new strategy in which they have little knowledge and little experience, the risk for the company is quite large. In addition, this would be associated with large investments. A repositioning of the current business model and introducing informal learning, e-Learning and new media like Web 2.0 for learning, cooperation and product advertising seems promising instead of a completely new business, organization and learning model that the company cannot control and where competitors are one step ahead.

5. Social media for the development of innovative communities for SMEs

Social media based on Web 2.0 services i.e. media for social interaction offer the premises for a fast knowledge acquisition and support transforming learning in a continuous „life long process" also within the communities.

Social media can take many different forms, including Internet forums, weblogs, social blogs, micro blogging, wikis, podcasts, photographs or pictures, video, rating and social

bookmarking. By applying a set of theories in the field of media research (social presence, media richness) and social processes (self-presentation, self-disclosure) Kaplan and Haenlein created a classification scheme for different social media types in their Business Horizons article published in 2010. According to Kaplan and Haenlein there are six different types of social media: collaborative projects, blogs and micro blogs, content communities, social networking sites, virtual game worlds, and virtual communities. Technologies include: blogs, picture-sharing, vlogs, wall-postings, email, instant messaging, music-sharing, crowd sourcing, and voice over IP, to name a few. Many of these social media services can be integrated via social network aggregation platforms.

The technical skills needed to use social media are rather low. Blog software, for example, can replace sophisticated and costly content management systems. It enables content providers from reporters, writers, educators to concentrate on their content without bothering too much about the underlying technicalities. It is even faster and less demanding to communicate and thus through social networks, such as Facebook, Twitter and others.

Another important characteristic of such applications and "spaces" is the decreasing differences such as the one between teachers and taught, between formal and informal learning processes, between education and knowledge acquisition/management. This gives rise to new integrated and world-wide forms of learning such as in "Communities of Practice" where a community based on shared interests learns in a community of equals by exchanging expertise and experience without building a hierarchy, because any of the participants is considered teacher and taught at the same time. This may be well combined with more formal learning processes, for example, the acquisition of language skills. A low-cost and easy access virtual room to accommodate formal and informal learning practices, group collaboration and the gathering and exchanging of learning materials might be realized in an e-Learning environment based on the Social media tool TikiWiki CMS Groupware.

TikiWiki CMS Groupware, originally and more commonly known as TikiWiki or simply Tiki, is a free and open source wiki-based, content management system written primarily in PHP and distributed under the GNU Lesser General Public License (LGPL) license. In addition to enabling websites and portals on the internet and on intranets and extranets, Tiki contains a number of collaboration features allowing it to operate as a Geospatial Content Management System (GeoCMS) or Groupware web application (2010). It has been actively developed since 2002, making it a very mature open source Wiki-CMS-Groupware solution. More than 200 people have contributed source code to the Tiki project; this makes Tiki one of the largest open source teams in the world.

Tiki includes all the basic features common to most CMSs such as the ability to register and maintain individual user accounts within a flexible and rich permission/privilege system, create and manage menus, RSS-feeds, customize page layout, perform logging, and administer the system. All administration tasks are accomplished through a browser-based user interface.

Tiki has four major categories of components: content creation and management tools, content organization tools and navigation aids, communication tools, and configuration and ad-ministration tools. These components enable administrators and users to create and manage content, as well as letting them communicate to others and configure sites (TikiWiki, 2010).

For example, some of the main features are:

- Wikis (like in Wikipedia)
- Forums (like in phpBB)
- Blogs (like in WordPress)
- Articles (like in Yahoo News)
- Image Gallery (like in Flickr)
- Map Server (like in Google Maps)
- Link Directory (like in DMOZ)
- Multilingual (like in Babel Fish)
- Bug Tracker (like in Bugzilla)
- RSS Feeds (like in Digg)
- Free Open Source software (LGPL)

In addition, Tiki allows each user to choose from various visual themes. These themes are implemented using CSS and the open source Smarty template engine. Additional themes can be created by a Tiki administrator for branding or customization as well.

Tiki is an international project, supporting many languages. The default interface language in Tiki is English.

Communities, where individuals share a domain of interest and knowledge about which they communicate and learn via formal or informal methods in order to solve problems are proper environments for learning.

One approach which we discuss and used are CoPs. CoPs are made up of voluntary members who share knowledge, ideas and interests and who act as mentors to each other. They offer new opportunities for knowledge management and learning processes by using new forms of interaction between team work and loose contact between the actors (Hamburg, 2006).

At present, most European SMEs act alone in facing their training problems. A successful and suitable solution would be for SMEs to build/join communities of practice in different forms in order to share knowledge, apply best practice in workplace design and to develop business-oriented models of training. In CoPs knowledge is created when people participate in common problem-solving and exchange the knowledge needed. Sharing knowledge makes more sense in the context of a CoP because its members have common learning interests. Therefore, experience exchange within their specific activity areas reciprocates trust. Trust is a key facilitator necessary for knowledge sharing and is also important for the creation of a common pool of knowledge which can be used for a new/innovative product or service. Therefore, CoPs play a critical role in the promotion of learning in an organization and can become a powerful tool in generating sustainable competitive advantages for SMEs. They are an alternative to building teams particularly in the context of an innovation. The tacit knowledge accumulated over years from the experiences of CoP members can be processed for new products or services which will add value to SMEs.

Internet technologies (Palloff, 1999) extend the interactions within communities of practice beyond geographical limitations and make possible the building of virtual CoPs (VCoP). These communities free their members from the constraints of time and space. In

comparison to technical solutions for knowledge management, VCoPs can mark a change from "managing knowledge" to "enabling knowledge." Web 2.0 has a vast potential to improve environments for emerging CoPs and is able to efficiently support activities within a community. It supports the collaboration of SME staff through interactive Web-based procedures. It also supports Siemens's (2005) concept of connectivism whereby information is said to be constantly changing, that learning which takes place in distributed networks of people is based on diversity of opinion and where content and services are adaptable and responsive to the specific needs and goals of SMEs.

The use of social media with Web 2.0 services and e-Learning 2.0 in learning communities improves the ability of members to socially interact with the technology used (communication with technology). Social media tools like Internet forums, weblogs, social blogs, micro blogging, wikis, podcasts, photographs or pictures, video, rating and social bookmarking are easy to use can help to create a more dynamic community and provide an on-going conversation benefiting the members.

By using social media tools in learning environments supporting the community the potential exists for the combination of synchronous and asynchronous communication, access to – and from geographically isolated communities (Hlapanis & Dimitracopoulou, 2007) and international information sharing.

Supporting learners' communication includes assisting students in coping with the technology, providing multiple means of access, helping students to achieve text based communication skills, setting personal goals and priorities and dealing with conflict and tension.

The use of e-Learning specifically based on Web 2.0 (e-Learning 2.0) in CoPs also impacts on formal learning settings where it is particularly useful for pedagogical approaches such as collaborative learning and problem and enquiry based learning.

Despite its great potential, there are barriers and limitations particularly of current technologies in relation to virtual communities of practice. The lack of face-to-face contact within a CoP can often be an advantage because it helps to suppress traditional group norm behavior. On the other hand, it remains open whether community of practice where face-to-face contact is entirely excluded, can be sustained over a long period. Face-to-face interaction and socialization processes consolidate relations between members and group membership. Trust is important for a VCoP and is developed primarily through face-to-face interactions.

Another aspect in relation to VCoPs is that because virtual community infrastructures can be set up across cultures via the Web, cultural and language differences can change interactions and hinder CoP activity flows. The use of technology to bridge geographical gaps can lead to a misinterpretation of messages whereby cues and feedback are often missing. Crossing virtual boundaries between institutions can involve legal issues wherein knowledge transfer such as data protection, becomes intellectual property.

A further important barrier to VCoPs refers to selectivity in the choice of ICT to support the CoPs. VCoPs need to use Internet standard technologies such as bulletin boards and Web boards and if possible, platforms already known to participants. Many authors (Hong, 2003) have stressed the difficulties of members' ICT access and ICT skills referring for example, to

the use of on-line forums and e-Learning training. In order to assure optimal interaction between users and the ICT platforms which support KM in VCoPs with SME participation, methodologies and processes should be used for the interfaces which acknowledge not only a CoP's functionality but also the ICT competences and learning abilities of staff members. Interfaces should have a basic real level of usability (Johnson, 2001).

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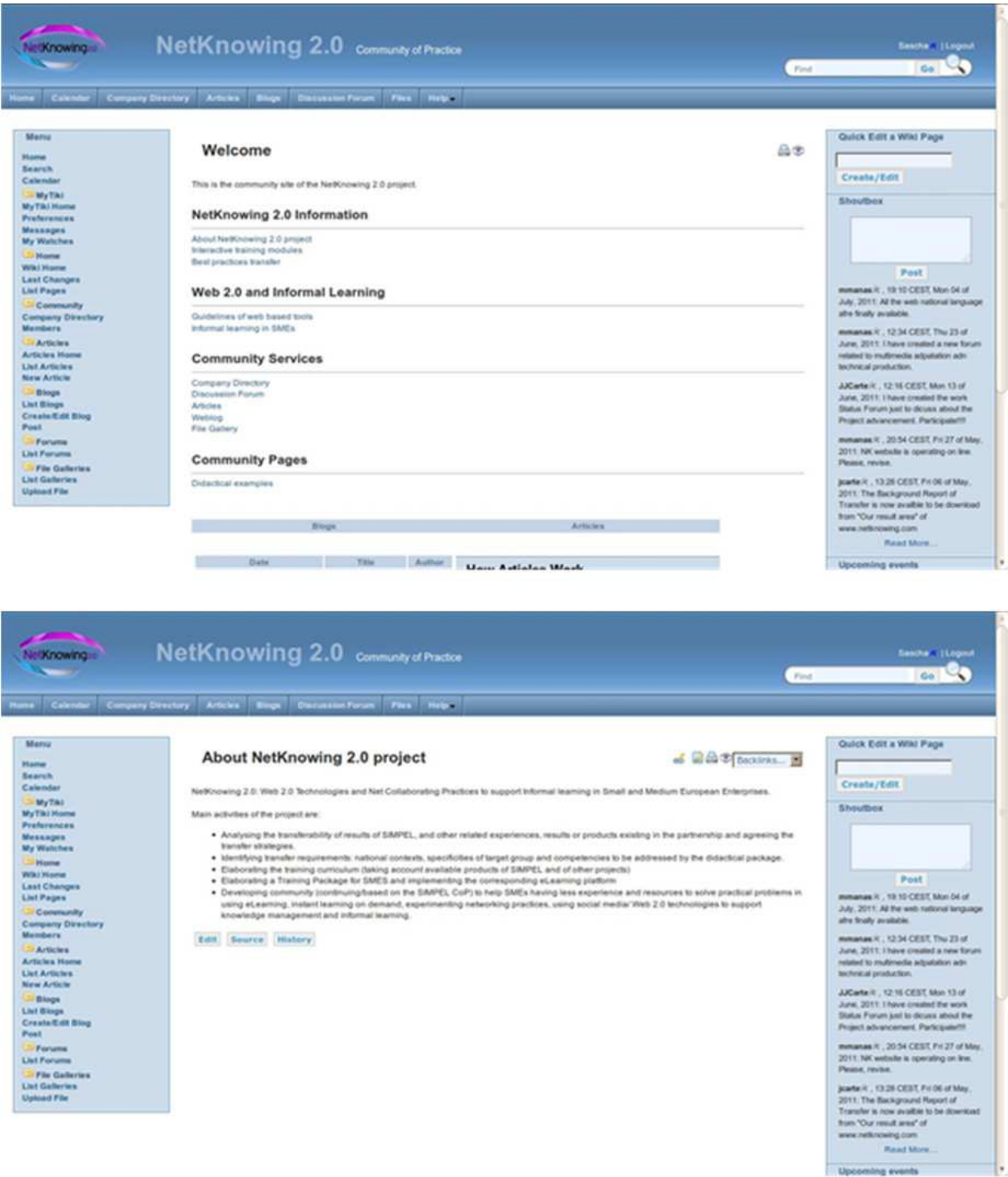
Fig. 3. CoP of the project NetKnowing 2.0.

But in designing learning projects or CoPs to manage change, there is a continuous need for the many specific constraints of SMEs to be taken into account. Learning, communication and many other activities are significantly more short-term oriented in SMEs than in big companies because of the small numbers of employees.

Some screenshoots of the CoP developed within the project Net Knowing 2.0, by using social media tool TikiWiki are given.

6. Conclusions

In this paper, it was argued that readiness for LLL by using e-Learning and CoPs signal two important approaches to improve the competitiveness of SMEs and the continuing professional development of individuals within them.

However, there are some remaining research questions to be answered, in particular, the identification of creative strategies in LLL which could contribute to the removal of barriers such as inertia to change and knowledge struggles and political issues and refinement of innovative methods, guidelines and good practices for companies and organizations for supporting not only competitiveness but also social integration, innovation, etc.

Determining the factors that affect LLL readiness and initiating knowledge sharing and transfer processes and the development of CoPs is a complex process. There are currently many tools and technologies for e-Learning 2.0, web 2.0 and social media which could be exploited or used in an innovative way to address the diversity occurring in virtually every organization worldwide. These need to be explored further in terms of their ability to address the strategic needs of SMEs.

It is important to help SMEs and individuals to have an open and adaptable attitude to such tools and methods by initiating corresponding cooperative projects.

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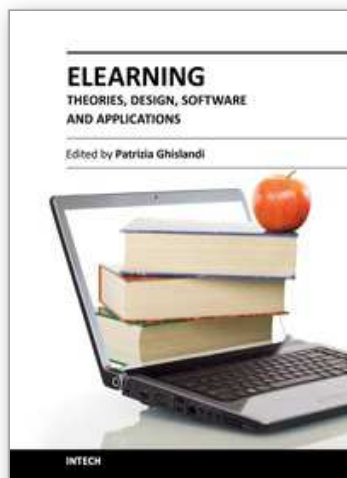
eLearning - Theories, Design, Software and Applications

Edited by Dr. Patrizia Ghislandi

The term was coined when electronics, with the personal computer, was very popular and internet was still at its dawn. It is a very successful term, by now firmly in schools, universities, and SMEs education and training. Just to give an example 3.5 millions of students were engaged in some online courses in higher education institutions in 2006 in the USA1.eLearning today refers to the use of the network technologies to design, deliver, select, manage and broaden learning and the possibilities made available by internet to offer to the users synchronous and asynchronous learning, so that they can access the courses content anytime and wherever there is an internet connection.

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