

Facilitating knowledge transfer to drive innovation in SMEs

Ileana Hamburg

Institute for Work and Technology – FH Gelsenkirchen, Germany
e-mail: hamburg@iat.eu

Mihnea Marin

University of Craiova, Romania
e-mail: mihmarin@yahoo.com

1. Introductory aspects

- **Competition in global markets, economic situation and the development of new technologies require change in the patterns of management and facilitation of knowledge.**
- **Companies need to be innovative in order to survive in or to integrate into the international market**
- **This depends on the deployment of their knowledge environments/bases, on the acquisition and creation of new knowledge, on learning abilities to manage and use internal and external knowledge flows.**
- **Communities of Practice (CoPs) are proper environments aiming to create and share knowledge for practice problems and to facilitate informal transfer of knowledge driving productivity and innovation.**
- **Innovation in industry will often draw on lessons from the past, particularly those that can be put together in combinations to achieve new results; knowledge should immediately be transferred and applied to innovation.**
- **Small and medium-sized enterprises (SMEs) are socially and economically important but many of them are not ready for significant international social and economic changes. Their priority is survival, leading to just-in-time activities.**
- **To be effective and acceptable to staff, knowledge management (KM) environments and approaches have to be directly related to competencies and activities of the staff on the job.**
- **eLearning, particularly eLearning 2.0 based on new information and communication technologies (ICT) such as Web 2.0 can support KM.**
- **eLearning 2.0 has the potential to support knowledge sharing, creation and transfer of individual and organisational knowledge through interactive methods of on-line delivery of information, collaborative procedures, targeted training and through blending of eLearning with other education methods.**

Content of the presentation:

- **An approach to prepare SMEs for eLearning strategies which support knowledge transfer starting with an evaluation of the readiness for eLearning**
- **The presentation of CoPs, particularly virtual ones (VCoPs) as suitable approaches to support transfer of knowledge facilitating innovation within SMEs**
- **Examples**

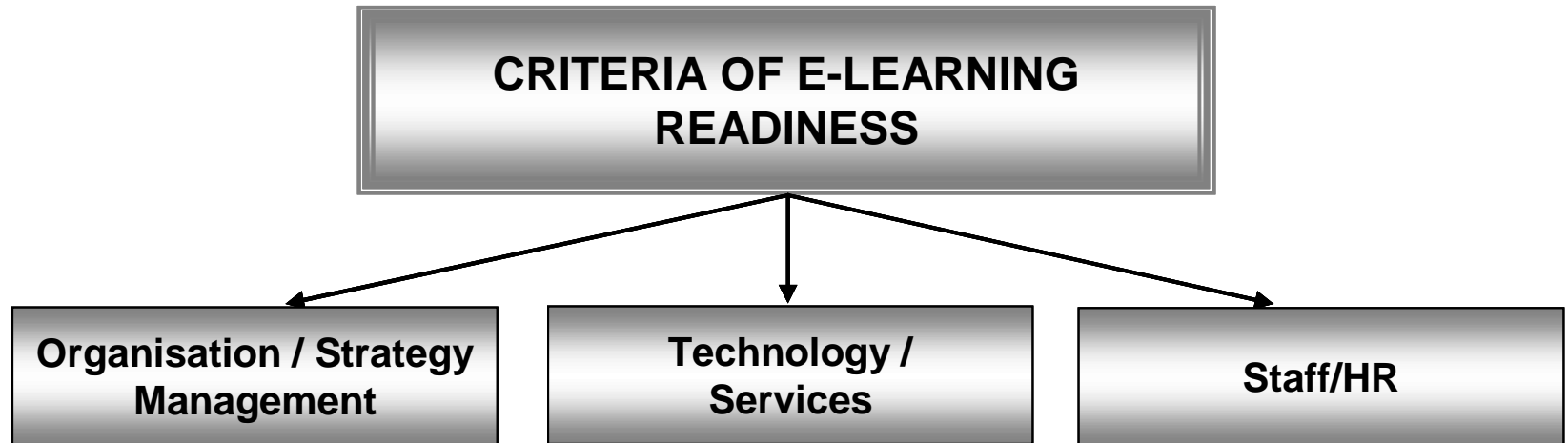
eLearning supporting knowledge transfer for SMEs

- **SMEs have specific organizational needs and characteristics, their vision is bounded by the skills, horizons and experience of the founder, by the pressure of day-to-day management and tight resources.**
- **eLearning methods with their flexibility of time and place have objectively many advantages for SMEs, can contribute to create a growing repository of knowledge that will continuously deliver to employees just what they need to know at a determined time and in a way that can be individualized to be more efficient.**
- **eLearning in SMEs often faces a series of problems determined also by knowledge gaps, inadequate infrastructures, inadequate training.**
- **One necessary aspect to improve this situation is an assessment of eLearning readiness because many companies lack an understanding of their knowledge needs and of what they could accomplish with an eLearning effort.**
- **The Economist Intelligence Unit cited by Psycharis has published some models of eLearning readiness.**

Our model:

- **A List of questions for the evaluation of eLearning readiness has been provided in a reference catalogue which takes into consideration the main criteria Organisation/Strategy/Management, Technology/Services, Staff/Human Resources (Figure 1).**
- **By using it a simple survey for managers and individual employees based on these questions to fill in should be done.**
- **The results should be evaluated by an eLearning consultant of the company and completed/detailed in direct discussion with the company staff and management.**
- **Based on the results an eLearning strategy to support knowledge transfer will be built.**

Figure 1: Criteria of eLearning readiness



Source: IAT

Examples of questions

Organisation / Strategy / Management

- Which are the strategic objectives and reasons for implementing/using eLearning? Are KM and innovations included?
- Is there an adequate understanding that learning to support KM means much more than implementing an ICT tool or solution?
- Is there a well structured knowledge base of the enterprise that can be used by the staff when they would like to use it?
- Has the company a vision of how KM can support company business?
- Is there knowledge to be transferred and used between different units available in understandable formats?
- Are financial resources available for eLearning?
- Is the learning culture of the organisation supportive of sharing knowledge?
- Does the company management support eLearning?
- Are staff interactions favourable towards knowledge sharing?

Technology / Services

- **Is the ICT equipment and workplace connections Internet compatible?**
- **When new ICT acquisitions are discussed, is the availability of technology suitable for knowledge sharing a main point?**
- **Does the existing ICT equipment support effective communication across boundary and even time zones?**
- **Are ICT and Web used for learning and communication by staff?**
- **Do virtual learning communities exist in the organisation?**
- **Is the content to be learned suitable for eLearning to support KM?**
- **Is there a strategy to protect key information and shared knowledge in the enterprise and/or is there a complete ICT security procedure for information?**

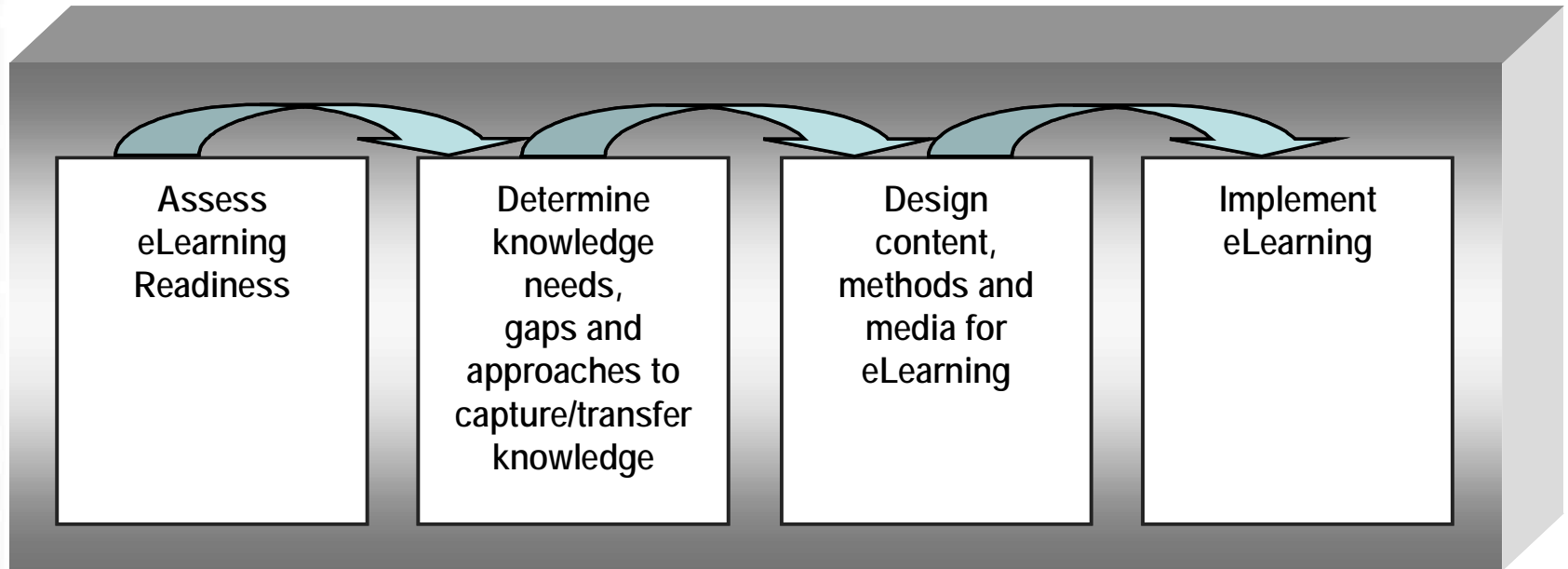
Staff / HR

- **Do the staff understand the term KM and how to use existing knowledge for their business and work?**
- **What are the ICT skills of the target groups for eLearning?**
- **Are the staff motivated and ready to learn?**
- **Are trainers and tutors educated for eLearning?**
- **Which are the most used vocational training forms in the company?**
- **Do training strategies based on eLearning exist in the company?**

Next steps:

- **The realization of a knowledge audit which refers to SME business goals or, in context with an innovation, which identifies gaps between existing knowledge and knowledge requirements.**
- **The analyze of audit results including knowledge flows by looking at how knowledge moves around the company, which ICT support the flows, who the actors are, who possess/need the knowledge for the innovation, how they share the knowledge they have and how knowledge should be transferred by eLearning.**
- **The determination of the nature of the gaps as a result of training deficiency or inefficient ICT tools for KM.**
- **An optimal approach to address the gap should be developed i.e. by using new interactive web-based tools and resources such as knowledge repositories or by providing additional opportunities for training by using eLearning.**

Figure 2: eLearning value chain supporting KM in SMEs



Source: IAT

Important aspects:

- **Formal methods to capture knowledge through the company and to transfer it during the learning processes should be defined.**
- **An innovation-oriented SME should recognize the value of informal, ad-hoc and undocumented knowledge and define approaches for its capturing.**
- **Appropriate eLearning content to be guided by the SME's knowledge requirements and innovation plans involving knowledge required by staff to perform better their tasks, to improve products and services offered to clients has to be developed.**
- **Knowledge concerning new markets, customers and suppliers that needs to be transferred to the staff by eLearning can also be part of the content of eLearning.**
- **SME staff's skills and knowledge has to be up to date. Training seminars with this objective should use a combination of conventional methods and eLearning to address knowledge needs in the most suitable way, i.e. declarative knowledge by using Web sites or other references, classrooms more for exploring issues interactively, for simulations and for role play.**
- **A wide range of media should be used to develop interactions with learning environments and to communicate messages.**
- **Mentors should be well-prepared and equipped to train small groups of individuals on specific topics for their tasks.**

Communities of Practice CoPs

- are seen als one of the most effective approaches for capturing, sharing and transferring knowledge,
- are groups of people working together at solving open-ended questions, learning in social and physical contexts of real-world problems and using collaboration and cognitive tools for KM and learning,
- have as main characteristics a shared domain of interest of its members, their commitment to this domain and a shared competence, common ideas, joint activities, common practice, members being practitioners with different expertise.

In CoPs:

- **knowledge is created when people participate in solving a common problem and exchange the needed knowledge for the problem.**
- **the members have common interests in learning and exchanging experience in their specific area of activity and this favours reciprocal trust.**
- **the tacit knowledge accumulated over years from experience can be processed to invent new products or services that add value to SMEs.**
- **internet technologies could extend the interactions within communities of practice beyond geographical limitations and make possible the building of VCoP which can mark a change from “managing knowledge” to “enabling knowledge.”**
- **the use of eLearning 2.0 also impacts on formal learning settings where it is particularly useful for pedagogical approaches such as collaborative learning and problem and enquiry based learning.**

Barriers and limitations:

- **A CoP where face-to-face contact is entirely excluded can not be sustained over a long period. Face-to-face interaction and socialization processes consolidate the relations between members and group membership. Trust is important for a VCoP and this develops primarily through face-to-face interactions.**
- **Virtual community infrastructure can be set up across cultures via the Web, cultural and language differences can change interactions and hinder the flow of CoP activities.**
- **Selectivity in the choice of ICT to support the CoPs and the use of Internet not standard technologies.**
- **Difficulties of members with the ICT access and ICT skills referring for example to the use of on-line forums and eLearning training.**
- **The development of a knowledge repository. One person should moderate the building of the repository and members have the option to submit and categorize content in the repository.**

Example

Within the EU project SIMPEL:

- **strategies to enable SMEs to take full advantage of the eLearning in their training have been developed.**
- **SMEs and eLearning experts have been involved in two communities of practice (one European and one German) to share learning and knowledge.**

In the European CoP:

- an “innovative and optimal vocational training model” for SMEs based on eLearning was developed.
- best practice models for capturing and sharing knowledge and for using eLearning have been collected and guidelines for using them written.
- the models and guidelines were first discussed, evaluated and improved in seminars with SME representatives and then disseminated within workshops.
- trainers, researchers, PhD students and some SME managers also from countries who were not project partners required SIMPEL models to use them or to learn.

Within the European CoP:

- a continuous knowledge transfer was realized between two universities and one research centre and SMEs which use the CoP as permanent or temporary members.
- on-line forums and cooperative, interactive eLearning 2.0 sequences and virtual sessions on the Moodle platform which support the CoP have been used.
- Wikis on different required subjects have been used for work at common resources.
- attractive eLearning based tutorials including Web usability guidelines for SMEs will be organized.
- workshops are planned to improve the innovation ability and KM acceptance within European SMEs particularly in the new member states (within the next few months in Romania).
- procedures for sharing knowledge between CoP members and a CoP knowledge repository are in th dvelopment.

The German CoP:

- **is in the development**
- **aims at analysis and testing how formal and informal learning can be used together efficiently in SMEs by working and acting in CoPs**
- **has as two future themes the design and use of new knowledge-intensive, innovative and efficient working environments and the development of an innovative work culture in SMEs .**



A new EU Leonardo project based on SIMPEL results for transferring innovation from Germany to other country particularly Ireland:

LLL Readiness in SMEs

Conclusions

- **eLearning and services of Web 2.0 can be used not only for improving competences of SME staff but also the processes of knowledge sharing and transfer within companies and across them.**
- **In order to be efficient, eLearning has to be embedded in intelligent and adequate “mixtures” of different learning methods and technologies and linked to KM processes.**
- **The subjects of knowledge sharing and transfer should receive more interest from SMEs because they need to survive and to be innovative.**
- **There are many aspects that make the process of knowledge sharing and transfer difficult i.e. the SME hostility to knowledge sharing, lack of trust, misunderstanding of the idea of tacit knowledge, internal conflicts, negative experiences with innovative products/processes, motivation issues, lack of sharing mechanisms and user-friendly methods and tools to facilitate the transfer are missing.**
- **The initiating of knowledge sharing and transfer processes for innovations and the development of CoPs is a complex process.**
- **It is important to help SMEs to have an open and adaptable attitude to such tools and methods by initiating corresponding cooperative projects.**
- **Research topics: Key enablers influencing knowledge transfer for innovation in CoPs: communication, collaboration, capability, continuity, credibility, culture, creativity, conflict (management).**





