

Stimulating competence development of individuals and organisations in Europe

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Introduction

The emerging knowledge society places new demands on both individual workers, groups, and organisations. Central to these demands is the need to continuously develop and manage the competencies which provide a competitive advantage to individuals, groups and organisations.

To achieve lifelong competence development there is a need for better integration of learning and knowledge dissemination facilities offered by the different knowledge support organisations in society, e.g. educational institutes, training departments, HRM support organisations, government, libraries, research institutes and others.

The requirements placed on the models and technologies to support such integrated facilities differ considerably from those traditionally placed on technologies to support particular fragments of a learning lifetime, or to serve the knowledge dissemination and knowledge management needs of a company. The time scales involved in the individual's lifelong competence development, together with its multi-institutional and episodic nature are not reflected in today's mainstream learning and knowledge technologies and their associated architectures. Nor do present knowledge management and human resource management (HRM) systems architectures succeed in integrating, aggregating, and supporting individual knowledge and competence development, even though these are the most significant resources in today's competitive knowledge society.

Europe needs to develop a unified, integrated, standards-based, open-source infrastructure that can be used by any citizen, team, company, school, university and library to develop new competencies in a specific discipline or profession. This infrastructure must be: easy accessible throughout Europe, very user-friendly, multi-lingual and powerful when it comes to the offering of formal and informal learning and knowledge sharing opportunities, including competence assessment.

To build this technical and organisational infrastructure, the EU is funding a new 4 year integrated project called TENCompetence¹ (IST-TEL/FP6). There are 13 partners in this project from 9 European countries. In this keynote I will introduce this new project that formally started during this conference (1st of december 2005).

The TENCompetence infrastructure

The aim of TENCompetence is to meet the needs of individuals, groups and organisations in Europe for lifelong competence development by establishing the best infrastructure which is possible today, using open-source, standards-based, sustainable and extensible technology.

This aim addresses the need to stimulate the European knowledge economy by providing ubiquitous and lifelong adapted access to facilities that support the creation, storage, use and exchange of

1 The European Network for Lifelong **Competence** Development

formal and informal knowledge and learning resources.

This aim also corresponds to the European agenda to stimulate lifelong learning as expressed in national and international policy documents. In the Commission's memorandum on Lifelong Learning (2000) it is stated that: "Lifelong Learning is no longer just one aspect of education and training; it must become the guiding principle for provision and participation across the full continuum of learning contexts". Lifelong learning refers to the activities people perform throughout their life to improve their knowledge, skills and competence in a particular field, given some personal, societal or employment related motives (Aspin and Chapman, 2000; Field, 2001; Griffin, 1999).

At the moment there are several key problems holding back lifelong competence development in Europe. For each problem we identify the solution that TENCompetence will provide:

1. **The pedagogical models that are applied in training, schools and universities do not meet the demands and possibilities of lifelong competence development and the new learning technologies that are available.** New models should integrate individual learning, collaborative learning, organisational learning and knowledge management. Most pedagogical approaches for e-learning simply mimic the face-to-face approaches (e.g. virtual classrooms). Most of these approaches are also too directive to be usable for informal, self-directed learning in companies or at home. Furthermore most of these approaches do not take into account that it is not only humans who can store and apply knowledge, but that technological artefacts (e.g., intelligent agents, ambient technologies) can also support humans in their tasks.

Solution: TENCompetence will provide new, promising, innovative pedagogical approaches for lifelong competence development, supported by the TENCompetence infrastructure.

2. For individuals, groups and organisations in Europe it is still **hard to get an overview of all the possible formal and informal knowledge resources, units of learning, programmes and learning networks that are available, and to identify the most appropriate for their needs.** Existing repositories with learning and knowledge resources are not well-connected, for a multitude of reasons (technological, organisational, practical, language, IPR, business model, no-added value, etc.). Furthermore, the repositories which are connected (e.g. GLOBE) do not provide sufficient support for users in finding the best solution to their learning needs, given their prior knowledge, preferences and situational circumstances.

Solution: TENCompetence will provide tools to support individuals, groups and organisations in Europe to find the best solution for their formal or informal learning problem.

3. **The pro-active sharing of knowledge and learning resources is a major problem:** for a variety of reasons people are not able to (or do not want to) share their knowledge and other resources. Social exchange theory has studied this phenomenon for years in the field of economics, but it has not been effectively applied to the sharing of knowledge objects & learning objects. The principles of this theory will be applied to develop policies and tools in conjunction with the development of new business models that suit the needs of the different service providers within the field.

Solution: TENCompetence will provide policies and software agents that support the pro-active sharing of knowledge and learning resources.

4. For an organisation in Europe **it is still hard to assess the competencies of applicants, employees and learners who have studied and worked in a variety of settings.** This is due to the lack of an interoperable mechanism to express and exchange the competencies of

learners, especially for informal required knowledge and competencies. The methods and technologies required are: interoperable person and group portfolio's and personal development plans, interoperable competence definitions.

Solution: TENCompetence will provide models and software tools to assess the competencies of individuals, groups and organisations in an exchangeable way.

5. The availability of support is crucial for effective task performance. **Current e-learning and knowledge management environments provide too little effective support to the users in their various tasks.** Not all users need support, but when learning or applying a new skill or complex knowledge, adequate support is often a key factor for success. There is, however, a lack of experts, trainers and teachers to meet all the needs of learners when lifelong competence development in Europe is scaled up. Furthermore, individual experts and teachers have a restricted bandwidth with which to support novices and learners. Consequently software support should be provided not only for learners and knowledge users, but also for the people who provide learning support services in order to increase their bandwidth.

Solution: TENCompetence will deliver software for the effective and efficient support of users who create, store, use and exchange knowledge resources, learning activities, units of learning, competence development programmes and networks for lifelong competence development.

6. **Centralized models for the management of a network do not work in Europe** because: a) the market is not homogenous, being strongly competitive, and culturally diverse; b) individuals and organisations who collaborate in lifelong learning infrastructure want to maintain their autonomy and control as much as possible. The principles of self-organisation and social exchange provide an alternative decentralized, self-organized and empowered management model in the network for lifelong competence development.

Solution: TENCompetence will provide models and software solutions to establish a decentralized, self-organized and empowered management model when using the TENCompetence infrastructure.

7. Although the three areas of Knowledge Management, Human Resource Management and e-Learning share many common themes (e.g. the need for a holistic view of individuals' formally and informally developed competencies, the benefits to be gained from social approaches to competence development), **there has been little unifying work which integrates models and tools for competence development during learning and working and across a lifetime.** Also, users and customers see the tools that are currently available in these fields as being too static, too narrow in terms of pedagogies they support, unable to incorporate the more innovative aspects of the web, often proprietary, not standards compliant, and not plug-and-play .

Solution: TENCompetence will integrate isolated tools that are available in the field.

The solution of these seven problems is the core requirement for the development of the TENCompetence infrastructure. The technical infrastructure will be based on a Service Oriented Architecture and will integrate many existing open source software components. All software will be provided as open-source and will strictly use open standards. However, the infrastructure is build in such a way that the components can be replaced by commercial components. These commercial components must then add value for the users (eg, better usability, better constomized to the local needs, better performance, etc.).

Conclusion

The operation of TENCompetence is a critical one for Europe and will only succeed when we are able to build a usable platform that attracts enough critical mass. To stimulate this, we have introduced an associated partnership: every party who wants to use or to test the TENCompetence infrastructure is invited to contact us to become an associated partner. Also companies who wants to offer free or commercial services (content, training programmes, software services, etc.) using the infrastructure is invited to become an associated partner. More information will be provided later when we have our website up and running. The URL is: www.tencompetence.org