Developing the Personal Competence Manager Evaluation Work: ‘EPIQ Business Demonstrator’

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Abstract: The paper presents the design of a business demonstrator that will take place at EPIQ Electronic Assembly Business Unit EPIQ-2 (BU EPIQ-2), Botevgrad, Bulgaria. The process of a business model development to supply TENCompetence services (particularly Personal Competence Manager), within the BU EPIQ-2’s training process will be supported by the team of the Technical University – Sofia Research & Development Laboratory “E-Learning Technologies and Standards”. The aim of the business demonstrator is to develop a sustainable implementation of the TENCompetence concept and open source infrastructure at BU EPIQ-2 to support communities and individuals within the company to further develop their competences, by using distributed knowledge resources and learning units, routes/programmes, and activities, that are available online. The BU EPIQ-2 as a high technology business organisation needs to get more out of their engineers and specialists (more than 95) and in this time of increasing global competition it is now even more important to have motivated and talented employees to help meet the organization’s goals and objectives. The BU EPIQ-2’s business demonstrator will focus on 8 pre-defined key job positions: Project Engineer; Quality Support Engineer; Test Engineer; Process Engineer; Project Leader; Customer Service Representative; Procurement Specialist and Recruitment Specialist. The pilot will last from 01 Nov 2008 until 30 Jun 2009.

Keywords: Personal Competence Manager, professional community, competence profile, competence development plan, knowledge management.

1. Research Context

Worldwide competitive economy places new demands on individual workers and organisations: new activities, new technologies, new markets, changing jobs, etc. Individuals are permanently triggered to further develop their competences. We see a competence as the estimated ability of an actor to deal with some classes of critical events, problems or tasks that can occur in a certain situation/ecological niche. Competences are managed by people and organisations at many different levels in formal definitions, profiles, needs and development plans. The descriptions of these competences may be complex and extensive, and a person who wants to make sense of the overall picture at any given level of granularity is confronted with a demanding task. This task is even more complex if it involves more than one level. The concept of competence can bridge the world of education, training, knowledge management, human resource management and informal learning. The goal of the TENCompetence Personal Competence Manager (PCM) is to simplify such tasks, and so to make Life Long Learning more agile and effective, and more responsive to the needs of learners. The PCM (Fig.1) can be considered a new “product” or service type in the area of the individual learner’s competence development. TENCompetence will deliver several electronic products and services to the European market for use by European citizens who wish to manage their competences. The technology system consists of TENCompetence servers which manage the competence development information. A rich client has been developed which accesses the various TENCompetence servers, and other services. This adds a presentation layer, and provides tools that the user can use to edit data on the servers. Contextualised communities chat and forum services are provided for all functionality.
The main research questions are related to:

- Relevance of TENCompetence for the BU EPIQ-2 Demonstrator Pilot Context
- Identification of business benefits for the BU EPIQ-2 per core use cases
- How to build a business model for the PCM implementation in a real business environment in order to unify the processes of representing competences, planning competence development programmes, and coordinating competence development networks, as well as facilitating competence development activities?

2. The Target SME

The domain of BU EPIQ-2 has been chosen for the TENCompetence evaluation works “SME’s Business Demonstrator” because it provides rich opportunities for testing the TENCompetence system. EPIQ (http://www.epiq.com) emerged as a group in 1998 and went public on NASDAQ Europe, but listed since October 2003 on EURONEXT Brussels. EPIQ accounts for 10 entities in 6 countries. The Group has currently companies in Belgium, Germany, France, Czech Republic, Bulgaria and Mexico. EPIQ plants have been certified in complete conformance to the requirements of ISO-9001, ISO-9002, ISO-14001, VALEO-1000, QS-9000 and/or TS-16949 standards. EPIQ designs and produces high-added-value electronics and electromechanical systems and subsystems, which are the control and operating components for end products in the consumer market. EPIQ manufactures, finishes and tests printed circuit boards and supply complete systems and subsystems. EPIQ also supplies the required engineering, research and development (R&D), and logistic management, including JIT and SILS supply. The BU EPIQ-2's main activities are: Manual and automated assembly of electronic components on PCB, including SMD and automated insertion processing; Board testing: testing whether all components are present and whether the board shows the desired electrical behaviour; Module assembly: attaching the circuit board to other parts, such as plastic housing; Final functional test; Plastic injection molding; Chip on Board assembly; Development and manufacturing of plastic injection moulds; Development and manufacturing of factory automation equipment. BU EPIQ-2 is located at Botevgrad, 60 km away from Sofia, Bulgaria. Quality certificates: ISO/TS 16949, ISO 14001.

The BU EPIQ-2 domain is challenging in a number of ways, which provide rich opportunities for validating the TENCompetence concept and infrastructure in the Cycle 3 pilot “business demonstrators”: (1) BU EPIQ-2 has real and urgent need for competence management improvement; (2) A business demonstrator will involve the definition, development and management of an extensive and complex set of competences; (3) The competences required in the electronic industry are very complex and rapidly changing; (4) BU EPIQ-2 professionals require highly flexible training opportunities; (5) There is a constant flow of employees, that need to be trained.

The company faces the following problems:

1. There is a lack of competence profiles. Job descriptions are available, but not a detailed and well structured competence catalogue; (2) There is a lack of a competence development program; (3) The traditional topic-based onsite corporate training process is time-consuming and a better effectiveness is desired; (4) There is no centralized knowledge management system or a digital repository of learning resources available. Very detailed materials, instructions and training plans are available though.

BU EPIQ-2 as a high technology business unit needs to get more out of their employees, particularly of their engineers and specialists (more than 95), and in this time of increasing global competition it is now even more important to have motivated and talented
employees to help meet the organization’s goals and objectives.

The possible solutions include:
1. Creating a catalogue with clearly defined and measurable competence profiles within a community context, which allow mapping to competence development plans and training activities.
2. Development, use, monitoring and maintenance of competence frameworks for different professions.
3. Creation, sharing, discovery and use of knowledge resources, learning activities and learning paths by individuals and teams.
4. Assessment of competences.
5. Establishing the TENCompetence open infrastructure (hardware and software).
6. Support of users to navigate through all available learning resources to build specific competences.

The development of a business model to supply TENCompetence services within the BU EPIQ-2’s training process will be supported by the team of the Technical University – Sofia Research & Development Laboratory “E-Learning Technologies and Standards”.

3. Aim and Expectations

The aim of the business demonstrator is to develop a sustainable implementation of the TENCompetence concept and open source infrastructure at BU EPIQ-2 to support communities and individuals within the company to further develop their competences, by using distributed knowledge resources and learning units, routes/programmes, and activities that are available online. It will lead to a shift towards more integration between living, learning and working, lifelong learning, self-directed learning and self-organization, production of knowledge instead of consumption, learning activities instead of learning objects, knowledge sharing in communities, more attention for informal learning, assessment of prior learning and competence assessment and more attention on personal and social factors.

4. PCM Use Cases and Business Benefits Identification

Identification and where possible, quantification of business benefits is needed to determine the added value for an organisation when implementing the TENCompetence use cases. To determine which use cases (Figure 2) would most benefit BU EPIQ-2, the appropriate business benefits were linked to the use cases.

Assess competence is the process whereby the learners’ level of a competence is measured by an assessor, by assessing: the results of learning activities; the gap between the previously obtained and recognized competences and the desired competences; the competences to obtain, which are part of a competence development programme. Methods for assessment of competences can vary from several forms of performance assessment such as, peer assessment, self-assessment, portfolio assessment, 360 degree assessment etc., combined with the more traditional forms of assessments such as multiple choice questions, fill in the blanks, and multiple response questions. All preparations, evaluation and reporting of results are part of the assessing competence use case.

The possible business benefits per Use Case Assess competence are: Internal management, Process improvement, Personnel or HR management, Risk reduction, Flexibility, Economy and Strategic fit.

Build Competence Development programme presents the learner with the set of learning activities which he or she has to perform to attain the competences for a certain function/job/diploma. The competence development programme presents the learner with the whole list of learning activities to conduct in order to become e.g. a project manager, a master in psychology etc. A competence manager helps the learner to define the competences.

The possible business benefits per Use Case Build Competence Development programme are: Internal management, Process improvement,
Personnel or HR management, Economy and Strategic fit.

Plan route presents the learner with the best possible sequence of learning activities in order to obtain a certain learning objective. The learner receives a roadmap by which he or she can navigate efficiently through the various learning activities. A study advisor can help the learner define the sequence of learning activities. The possible business benefits per Use Case Plan route are: Internal management, Process improvement, Personnel or HR management, and Flexibility.

Conducting learning activities means the actual undertaking of courses, lessons, e-Learning, traineeships (by a learner) or any other activity to achieve a certain learning objective (competence, skills, knowledge, and attitudes). Usually a learner conducts several learning activities to obtain a learning objective.

The provision of support helps the learners to conduct the learning activities. This support can take many forms, such as coach, tutor, helpdesk, peer assistant, FAQ’s, support agents etc.

The possible business benefits per Use Case Provide support are: Internal management, Process improvement, Risk reduction, Flexibility, Economy and Strategic fit.

Develop Learning materials. These are all the materials needed by a learner to learn. These materials include books, articles, HTML pages and computer programmes among others. The development of learning materials is supported as is the need to find appropriate learning materials in knowledge management (learning objects) repositories. The learning materials are usually developed by content authors.

The possible business benefits per Use Case Develop Learning materials are: Internal management, Process improvement, Economy and Flexibility.

Manage PCM. The Personal Competence Manager (PCM) is the software package of the integrated TENCompetence system. All development work within TENCompetence adds to this, making it TENCompetence’s primary software package. ‘Manage PCM’ entails the management (installing, running and monitoring servers) and maintenance (installing software patches and updates) of the PCM software in order to provide a durable facility to end users. This work is usually done by an operator.

The possible business benefits per Use Case Manage PCM are: Process improvement and Flexibility.

In the most basic sense, a business model has been defined as the method of doing business by which a company can sustain itself - that is, generate revenue. The business model spells-out how a company makes money by specifying where it is positioned in the value chain (Rappa, 2006). The business benefits types are tangible and intangible and related to financial and non-financial objectives.

5. BU EPIQ-2’s Business Demonstrator Building Process

Competence management methodology offers a strategy and approach to work structurally on the development of employee competencies in order to increase the performance of the organization. It can help company to direct the changes in line with the organization’s vision, mission and strategic objectives - whether the organization wants to exclusively enhance its performance, or transform its way of doing business.

Competence management methodology is a strategy that consists of several steps to help ensure successful adoption of the new skills and competencies and the integration of the norms and values in the daily work activities of the employees.

Step 1: Develop competence management strategy. In general, most organizations develop a competence strategy to support the development of their professionals. BU EPIQ-2 will determine the available time for identification of the competencies and the required resources for the implementation of the competence management strategy.

Step 2: Define competence profiles. After extensive research, a competence profile for all positions within the organization will be made. The competence profile is an elaborate profile of a function, which consists of a set of competencies and a competence definition and the observable behaviours for each profile as well as the required competence proficiency and priority level. Also, BU EPIQ-2 will create a competence catalogue. In this catalogue all competencies with belonging definitions and observable behaviours will be outlined in categories. The process for doing the competence profile model requires some
planning that includes the identification of existing core competencies, required competencies and the “gap”. The competence dictionary (Figure 3), containing 30+ competencies from which the models will be developed, will be reviewed and modified.

*Step 3:* Validate competence profiles. The validation process is a feedback session in which *BU EPIQ-2* stakeholders and employees can indicate whether they agree with the competence profiles, definition and observable behaviours. Starting with the executive group is the ideal way to implement a competence system.

**Figure 3. Core competence dictionary structure**

Actually going through the modelling process brings about understanding, ownership and commitment. Executives then see the competence system as a way to ensure that the right competencies are in place to carry out the business plan, and not just as a human resource activity.

*Step 4:* Build competence profile models. Develop competence frameworks for different professional communities.

A six-step model building process for the creation of the Business Demonstrator has been discussed and adopted (Figure 4).

The job competence model, as a description of those competencies possessed by the top performers in a specific job or job family, will be used for each of the EPIQ-2 EA demonstrator 8 pre-defined key-positions: Project Engineer, Quality Support Engineer, Test Engineer, Process Engineer, Project Leader, Customer Service Representative, Procurement Specialist, and Recruitment Specialist.

**6. Conclusion**

The TENCompetence open infrastructure would be implemented at the *BU EPIQ-2* following the proposed process for the creation of the Business Demonstrator. TENCompetence concept and infrastructure are suitable to offer a variety of learning services, including knowledge capturing and sharing, self assessment tests, multi-level competence based learning offerings, etc. The company will re-define topic-driven training into competence based learning offerings. It will improve its human resources management through community networks, competence profile, competences, actions and resources.

Potential benefits for EPIQ-2 EA from the TENCompetence concept and infrastructure may include:
- Alignment of the EPIQ-2 EA strategic goals and objectives of the organization

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<tr>
<th>Step</th>
<th>Activity</th>
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<tr>
<td>1</td>
<td>Conceptualizing</td>
</tr>
<tr>
<td>2</td>
<td>Planning</td>
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<tr>
<td>3</td>
<td>Data collection</td>
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<tr>
<td>4</td>
<td>Data analysis and coding</td>
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<td>5</td>
<td>Building the competence models</td>
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<td>6</td>
<td>Develop applications</td>
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**Figure 4. Building process for the creation of the Business Demonstrator model**

- Focus on the main processes within the organization
- Development efforts, which are focused to the direct development needs of the employees
- Increase performance level of the employees
- Create a culture of learning and continuous development

### 7. References


