

# Knowledge-Based E-Learning in Virtual Enterprises

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## INTRODUCTION

Virtual enterprises, like their traditional counterparts, face the challenge of surviving in an ever evolving market. Virtual enterprises are characterized by their distributed nature. Processes and resources are assigned over a network of specialized enterprises. Their survival is dependent on individual performances as well as the performance of the global network. Knowledge is the most valuable resource in adapting to technological change. Sainz (2002) clearly states it saying: *the human capital is not only a factor utilized for goods production but also the agent that generates and implements the technological change* in a company. So managing this “human capital” involves understanding their capabilities (knowledge) and fostering their technical skills (training) (Allee, 1997).

This paper develops the concept of knowledge-based e-learning. We will go over the basics of e-learning and will offer the reader some of the latest joint knowledge-management/e-learning strategies to ensure high performance by virtual enterprises.

## BACKGROUND

Experts define e-learning as *the delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g., a mobile phone) in some way to provide training, educational or learning material.* (Stockley, 2003) In the context of virtual enterprises, e-learning becomes the backbone on which flexible training can be performed.

E-learning and knowledge management (KM) have become key factors to lead an enterprise in the long term (Gold, 2003). In a virtual enterprise, managing knowledge and training jointly and globally is critical. At present, although e-learning is considered an option for managing training efficiently for distributed groups,

there is rarely a proper link between this training and the KM system. *“Although eLearning and knowledge management seem to fulfill the various requirements and much effort is being spent over years, the breakthrough is still missing in both fields. One reason for this is the fact that both fields are treated in an isolated manner.”* (Ausserhofer, 2002)

The goal of implementing knowledge management in an organization is to increase the amount of tacit knowledge that an individual has to apply to solving business problems. E-learning enhances the effectiveness of the phases of knowledge management (Woelk & Agarwal, 2002):

- **Socialization:** Transfer of knowledge from one person to another. Competency and skill measurements in e-learning systems help identify people with skills and knowledge in the organization.
- **Externalization:** Translate tacit knowledge into explicit knowledge in a repository. Knowledge is captured with the aim of teaching it to others.
- **Combination:** Combine different units of explicit knowledge to create new explicit knowledge. Knowledge about business products and processes is organized to make learning more effective. E-learning uses pedagogical techniques.
- **Internalization:** Explicit knowledge relevant to a person’s needs is extracted from the repository, used and translated into tacit knowledge.
- **Cognition:** Apply tacit knowledge to a business problem. E-learning allows people to have on-demand performance support by getting just the training they need at the time they need to complete a business task.
- **Feedback:** This phase is possible thanks to the coherence that e-learning gives to the other phases. Assessment provides feedback on how well people have applied what they have learnt to a business problem, thus, evaluating the complete system as well.

In virtual enterprises, e-learning becomes the solution to channel knowledge management and training not only within one of the companies but also throughout the complete network.

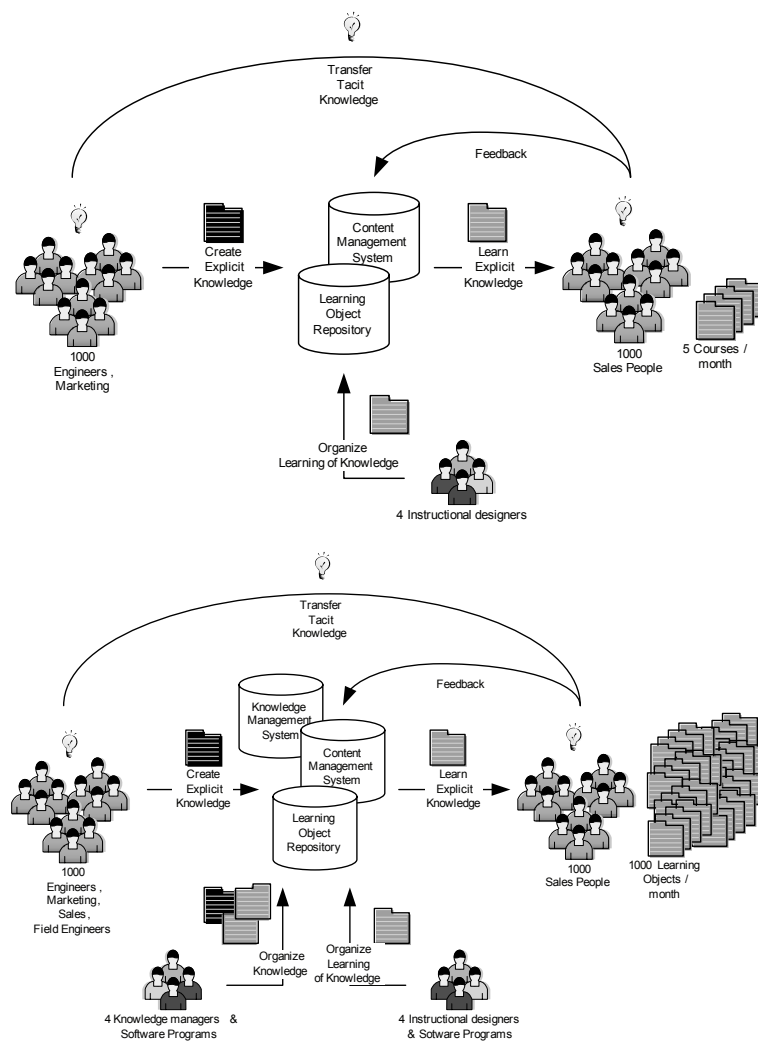
### KNOWLEDGE-BASED E-LEARNING

If a company wants to survive the economic frenzy of current global markets, it needs to provide continuous training to its employees. Virtual enterprises offer their employees different career models. They base the employee knowledge evolution on specific curricula, know-how about processes related to the company the employee works for, as well as on distributed curricula,

expertise on the processes related to the interaction and activities of the other companies in the virtual enterprise.

In order for training to be effective and profitable for a company, the career model and curricula offered have to encourage employees to stay in the company, or, at least, to remain in the same business network. Companies should not train for competitors. To motivate employees, virtual enterprises need to establish clear career paths and the possibility of evolving by changing to more challenging and attractive positions every three to four years (Heathfield, 2006; Jordan, 2005; Rosenberg McKay, 2006). This will increase employee productivity and their likeliness to stay.

Figure 1. Evolution of advanced e-learning systems towards an e-learning/KM model as seen by D. Woelk and S. Agarwall (2002). Top: e-learning based on enterprise content; bottom: e-learning based on enterprise content and knowledge.



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