

Chapter XVI

Supporting Innovation Through Knowledge Management in the Extended Enterprise

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ABSTRACT

Managing of knowledge for innovation in an extended enterprise (EE) environment is a key issue. This in turn requires effective utilization of information and communication technologies (ICT). This chapter addresses the application of ICT for knowledge management (KM) needed for innovation in industry. An ICT-based KM system to support innovation process in EE environment (i.e., to support mastering of the innovation process) is presented. The main objective of the new AIM system is to provide the means of stimulating the creation of innovative ideas in general, and specifically on potential product/process improvements and on problem solving. The AIM system supports collection of such ideas throughout EE from people involved with the products and processes, as well as a development of the collected ideas into innovations.

INTRODUCTION

In current global markets, **innovation** is generally one of the most critical factors for success in industrial firms. Former advantages based on

aspects such as costs reduction, natural resources, and geographical situation are no more valuable since globalization is flattening these issues and furthermore, needed natural resources are usually coming from outside. One must always be

meaningful of the need of fostering innovation fighting against usual themes as: “cut your costs,” “get focused.” Nowadays the motto should be “innovate or lose.” This new situation imposes changes in the way the companies work. One of these changes has to be accomplished in the field of new product development that is the basis of the success of manufacturing companies (Sawaguchi, 2001; Sorli, 1999).

New ways of working move ineluctably toward the **extended enterprise**. The extended enterprise (EE) concept in parallel with the concurrent enterprising looks for how to add value to the product by incorporating to it knowledge and expertise coming from all participants on the product value chain. Manufacturers need to benefit from “extended enterprise” techniques (Dyer, 2000) by involving all people from throughout the product life cycle (suppliers, customers, design, production, and servicing) to provide their product knowledge to enhance product development and support. This new paradigm implies a quite new scenario: knowledge capturing and sharing, new forms of interrelationship between companies and persons.

Innovation is important for all companies, and just as important is the need to get innovative products to the market place quickly. Therefore, it is important to talk about “Management of **product development time and process improvement/innovation time within EE**.” Under this new paradigm, companies able of “mastering” the development time can launch the product/service into the market or improve their processes (e.g., shop-floor process, maintenance processes etc.) just spending the planned time and resources and at the right moment, meaning at the exact date when the product achieves the higher and faster market penetration. This will give back to the company higher market share and better returns.

As it has been previously mentioned, knowledge useful to design engineers comes in many forms and it can come from many sources inside

and outside the company. A common need among companies is to be able to acquire and process this knowledge so that a greater, richer, centralized source of knowledge and information is available to produce better designs, faster, with greater innovation, and with less re-inventing the wheel. Therefore, ICT based systems to support management of knowledge related to product/process innovation is of key importance.

This chapter presents one ICT based solution of effective management of knowledge for product/process innovation.

BACKGROUND

On this framework industry in the XXI century has to face these challenges by using techniques to deal with aspects as:

- **Extended enterprise (EE) (Davis & Spekman, 2003):** Enterprises are surpassing physical boundaries and establishing durable links with other companies: engineering, sub-contractor, providers, but are mostly at a loss on how to deal with customers in both ends of the chain. The customer is clearly a very relevant actor at the conceptual phase of the product life where the designer has to understand customer’s needs and feelings as well as at the other end of it when the extended product has to live together with the user along its operating live.
- **Concurrent enterprising:** As the idea of EE refers to a longer time frame, concurrent enterprising focus more in the specific relationship among companies to set up new operations: new product development and launch, marketing activities covering a wider range than only the physical product by itself (extended product) and others.
- **Extended product:** Product is rapidly changing from physical tangible product to a plus of intangible assets related to fulfill-

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