Chapter V

Competence Management for Business Integration

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ABSTRACT

Business integration requires that each partner can guarantee not only the quality of its products, but also the qualification and competence of its workforce. Usual models, like those included in the Human Resource Management modules of Enterprise Resource Planning (ERP) systems, are not sufficient in highly constrained domains like aeronautics. We show in this chapter how a generic competence management model has had to be modified and enlarged to satisfy such constraints. On the base of this model, software has been developed that is currently being implemented in three sites belonging to two companies. We shall show how such software may allow, on one hand, to guarantee that only competent people have been involved in the various steps of the manufacturing process, but also to improve the way operational competences are managed in the company.

INTRODUCTION

To increase their competitiveness, companies have progressively focused their activity on their “core business,” with the consequence that manufacturing a complex product now requires the definition of a network of enterprises, often called supply chain or virtual enterprise, depending on the degree of integration of the partners.

One of the important differences between such network-based activity and classical subcontracting is that a partner may produce complex sub-systems of the final product, which can be difficult to control for the company performing
the final assembly. *Quality insurance*, promoted for instance by the International Organization of Standards (ISO) 9000 standards, aims at avoiding the necessity of such controls by giving the guarantee that each partner performs its activity according to clear and consistent procedures. Together with its new *process orientation*, one of the interesting novelties of the 2000 version of the ISO 9000 standards has been to ask companies to show how they could justify the *competence* of the people involved in the business processes, which is a new step for quality insurance. Indeed, in highly technological sectors like aeronautics, many activities are performed manually, like in assemblies. In such areas, each actor has to receive specific training before being allowed to perform a given operation on a product. Building an information system that includes this “qualification” requires companies to define first a framework describing what is a competence, and how it can be related to the daily work in the workshops; but this is not enough. Indeed, assessing individuals’ competence is a highly sensitive domain in companies, and a competence assessment, which would only be considered as a ranking of people, would immediately result in social troubles. Therefore, it is necessary to give – at the same time – tools for managing the competences through time, by suggesting objectives and providing means to reach these objectives though practice and training.

A generic framework for defining a competence management system will be first described in this chapter. This framework has shown its interest in several applications, which will be described. As a second step, an attempt has been made for using this framework at the operational level of a large company that assembles complex sub-systems in the aeronautical area. We shall show what new constraints have had to be integrated in this framework to adapt it to that context. The structure and main functionalities of the software developed for implementing this framework are then detailed. It is shown how, thanks to the data structure, simple queries on the database may allow definition of a *dashboard* of the competence system within the company, then management of these competences through time.

**HUMAN RESOURCE BASED-BUSINESS PROCESSES**

Defining the characteristics of human resources allowing allocating the right task to the right person is an old and major concern of companies. We show in this section how the competence model has progressively replaced the qualification model, and how knowledge management has emerged as a mandatory condition for competitiveness.

**Competences and Roles in an Industrial Context**

The qualification model is based on the idea that there exists a stable relationship between individual capacities, length of service and workstation. It has a “Fordian” view on industrial manufacturing and, for instance, has been intensively used for the definition of minimum salaries (Paradeise, 2001). In response to the necessity to promote continuous improvement and flexibility, the competence model emerged in the 1980s. Instead of assessing a worker by comparing pre-defined activities related to a workstation and the ability of a worker to perform these activities, it consists of characterizing an actor by the set of capability he or she possesses and can set to work (Zarifian, 2002). The main goals of the companies that promote a competence approach are identified by Wustermann (2001) as improvement of individual efficiency, decrease of turnover or improvement of technical competences. Some companies give as the main reason of this choice the necessity to develop new competences required by the enterprise (Strebler, 1996), while others consider that the concept of competence may provide a common language and facilitate cultural exchanges (Strebler, 1997). The strategic