



Chapter IX

An Object-Oriented Awareness-Based Methodology for ERP

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INTRODUCTION

It is now believed that success of ERP systems is largely dependent on not only the successful evaluation, selection, implementation and post-implementation of ERP systems, but also on integrating it with the organizational business processes. On the other hand, nearly all business processes are collaborative in the sense that multiple human agents or *actors* interact with one another for achieving one or more process goals. As a result, one can claim that one major factor in successful implementation of the ERP systems is development of appropriate conceptual models of the ERP process from various perspectives. In this chapter the writer, being a member of the CSCW (computer supported cooperative work) research community, introduces a conceptual model for ERP which has an emphasis on the collaborative nature of ERP process that explicitly addresses the “awareness” and “knowledge-sharing” issues within the ERP process. This conceptual model demonstrates collaboration requirements of the actors behind individual business processes as well as the relationships among these business processes. This chapter is intended to introduce to the ERP community a relevant piece of work in conceptual modelling from the perspective of CSCW with the aim of attracting research collaborators for further investigation in these fields.

A major research work by the author is in progress for developing an expert system that enhances collaboration among various entities within an enterprise through providing these entities with required levels of awareness. This chapter introduces the conceptual model that constitutes the bulk of the inference engine of this Expert System when applied to the enterprise resource planning.

Like many existing ERP frameworks/models, the proposed framework is also based on a widely accepted assumption that a corporate-wide information system consists of a set of potentially related subsystems. As a result, information flows among these subsystems must be identified and required resources be planned using an appropriate ERP methodology. What makes the proposed framework unique among others is that it explicitly treats an ERP process as a *collaborative process* by modelling the process using collaborative semantic concepts. This conceptual model consists of multiple interrelated subprocesses with each subprocess in turn being composed of one or more simple tasks (as opposed to the collaborative tasks explained later). For simplicity, simple tasks are referred in this chapter as *tasks*. Each task requires certain resources for achieving its local goal or purpose, as well as certain other resources for achieving its collaborative goals with other tasks within the ERP process. The term *process resource* is the term used to describe the resource required for performing a task with no regards to its collaborative resource requirements, whereas *collaborative resource* is used to describe additional resources required by a task in order to collaborate with other tasks. Each task is performed by a *role* and each role is played by a human agent called an *actor*, although there is no representation for the *actor* in the framework, and the actor is indirectly identified through the *role* that they play at any time. Actors may play multiple roles in an ERP process. When more than one role performs a task, then we call the task a *collaborative task* that consists of a pair of (simple) tasks, each played by a different role and as a result, that would require an additional set of resources in order for the collaboration to be realised.

Another unique characteristic of the proposed framework is that it regards effective communication or information/resource exchange among the actors as being closely related to the level of awareness that each actor possesses about other components of the collaborative process (e.g., roles, subprocess tasks, process resources and collaborative resources). In other words, both the proposed framework and its derived ERP methodology are based on the awareness of human agents, where such awareness is defined in terms of the knowledge about various aspects of the ERP process itself. Have a look at this familiar scenario:

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