Chapter X

New Directions in SAP R/3: Service Oriented Architecture (SOA) and Netweaver

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Learning Outcomes

• Be able to provide an analysis of the case study regarding process design changes and integration with other software systems in the future
• Understand how to simplify the design and implementation of cross-component processes
• Be able to utilize SAP NetWeaver as an IT toolset for realizing service-oriented architecture
• Be able to identify basic ideas for enhancing the given architecture at Robert Bosch Group based on the NetWeaver components
Review of the Current SAP R/3 Architecture

The case studies discussed in earlier chapters showed how the Robert Bosch Group (RB) implemented a structured ERP platform by using SAP and standardized most of its business processes, thus facilitating smooth information flows throughout the corporation. But what will the future bring and what issues still remain to be solved? Instead of simply providing predictions on the future of the ERP systems at RB, we will first analyze the current architecture.

The original problem at RB in the mid-1990s was a non-integrated system landscape based on outdated business systems that were not able to support future business requirements. As they considered how to deal with this problem, RB realized that the situation represented a great opportunity to completely redesign the landscape, which would better satisfy their long-term corporate requirements. After examining the situation from all angles, issues arose which involved more than just IT and organizational matters. The decision to implement the SAP modules using a single instance concept was accompanied by questions related to the existing structure of the organization and process flow. A complete reengineering of the business processes and organization was necessary in some divisions as a result of changing important IT systems.

When we summarize the results achieved by the implementation of the ERP system at RB, we see on the one hand changes in technical domains and on the other modifications in concept. The main technical achievement was the abolition of the legacy systems that hampered the development of new concepts and integration. By replacing the old systems with a single ERP system, the user interface also changed. This was one of the most noticeable changes for end-users because instead of using many different programs, only one interface was in place. Figure 1 shows that by segmenting the SAP systems into its most important parts and by adding the SAP user interface (or SAPGui), this “front-end integration” was achieved. In addition to this step, another important integration was realized, namely data integration. Important changes in the way business data was handled were synchronized with other ERP instances to avoid the problems caused by data redundancy. Later in this chapter we will explain why this kind of presentation was chosen for the R/3 architecture at RB.

Data integration is closely linked to data consolidation. It is important, therefore, to provide clear guidelines on how master data is to be created and how normalization procedures should be applied. At RB, these conceptual modifications took place not only in terms of process redesign, but also in the company organization structure. The standardization of both the processes and the organization were necessary steps toward global unification.
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