Business Blueprint -The SAP R/3 Reference Model

SAP is a leading vendor of integrated business application software. R/3 is SAP's *client/server application for open-system platforms. The tremendous success of R/3 and the constant demands placed on SAP to provide not only solutions, but also complete computing infrastructure, is driving the company's march towards open implementation.*

SAP has packaged 25 years of business know-how in many different industries in the form of a "blueprint" - the R/3 Reference Model - that will guide companies from the beginning phases of engineering, including evaluation and analysis, to implementation. Today, the R/3 Reference Model is the definitive description of R/3, providing a comprehensive view of all the processes and business solutions available in the system without the technical details. What is the blueprint and why did we make the R/3 Reference Model?

Customer Orientation

As a basic principle, reference models can be created for different target groups. Whereas, a software developer might want to see every detail, it can be harmful from the point of view of end-users and planners to have to face an excess of detailed information during the first stage. Therefore, the goal was to select a clear and simple method of description (with only a few different symbols and particular arrangement of symbols) that a layperson could immediately understand.

The SAP blueprint concentrates on four key areas: events; tasks or functions, organization, and communication. In other words, the model defines who must do what, when and how. Events are the driving force behind a business process, prompting one or more activities to take place.

Model Orientation

Models portray real-world happenings in an abstract way. However, a balance needs to be struck between information content and comprehensibility. Considering how complex most corporate structures are, especially in the case of internationally active companies, it's apparent that a straight-forward, but naive, approach to modeling all possible situations would soon get bogged down in an impenetrable thicket of applications and models.

Business Engineering versus Re-Engineering

A business blueprint like the R/3 Reference Model can be the starting point for a successful engineering effort. Documenting processes in R/3 is a critical part of the "understanding equation" at customer sites. The idea of blueprint-backed engineering is not radical, but to date few companies have been able to provide a comprehensive process-oriented description of a business that fits into almost any industry. The R/3 Reference Model is a valuable means of quickly implementing R/3 without having to start from the beginning, thereby facilitating business engineering and providing the basis for life cycle. In this rapidly changing environment, SAP offers the right product at the right time to combat old traditional views and processes. The R/3 Reference Model can promote new concepts and trends, such as lean management, TQM (total quality management), and globalization because it provides a comprehensive view of the processes in a corporation.

The Business Engineer's Toolset

In Release 3.0, the R/3 Reference Model can be viewed and analyzed with the help of the "Business Engineering Workbench." A set of integrated tools for configuring R/3, BEW has graphical browsing facilities for displaying the R/3 Reference Model directly from the repository. The BEW also includes customizing components that allow a user to adapt or modify the system to meet the user's own specific needs.

With the release of R/3 Reference Model 3.0, SAP is rolling out the lastest release of a product well-equipped to serve as the benchmark for standard software business process engineering tools.

Container of Maps and Models - the R/3 Repository

Key to any model or model-based system is a container or a place to store the information that's included in the model. As the central container for all of R/3's application information, the R/3 Repository stores the business process models and diagrams that describe the R/3 business application logic. The R/3 Repository also contains other application information, including new development, design and maintenance of applications and other components. It is able to export information via an open API (application programming interface) to graphics software, modeling tools or BPR tools.

Integration between R/3 and its many different components, as well as third-party products, is heavily dependent upon repository technology. The repository is crucial to process integration because it is the key container for application objects. SAP's integrates the different areas and target groups, including workflow, application distribution, data model, application programming, configuration and organization, as well as each major application development.

Over 800 Process Maps

In Release 3.0, SAP offers about 800 predefined business processes, with variants, that roughly correspond to different industries and kinds of corporations. These are illustrated with a graphical method called the Event-driven Process Chain (EPC). By connecting events and tasks, even very complex business processes can be clearly modeled and analyzed. An EPC model can show where breaks in the chain of tasks and responsibilities hurt the ability of a company to optimize its processes.

Graphical models help users select and understand the software, visualizing how data flows through business areas and showing how various functions interact with each other. The EPC model is the central, process-oriented view. Other models show function, process, information flow and organization views.

The R/3 Reference Model is the logic blueprint, the set of maps and the communication medium of choice between consultants and their R/3 customers. Overwhelmingly, consultants, both business and technology, are being used on R/3 Reference Model projects. Consultants are the biggest group involved in R/3 Reference Model projects followed by modelers, project managers, programmers, strategic planners, methodology experts and others.

Process Innovation

Business users need models to help them clearly and quickly understand the effect process modifications have on the whole company. Senior executives and workgroups can use the R/3 Reference Model for "what if" process modeling and fine-tuning.

A new way of designing processes might include these ideas:

- focus on creating value for customers and suppliers;
- integrate all critical business processes;
- manage the performance of the process as a whole, not the individual task; and
- reduce hand-offs and complex chains.

One of the overall goals of R/3, is to abandon a function-oriented approach to standard software in favor of a process-oriented approach. The R/3 Reference Model accomplishes an important task to this end, displaying the currently available processes found in R/3.

Groundbreaking "Best Business Practices"

The "best business practices" and processes available in the R/3 Reference Model and R/3 system are based on more than 25 years of SAP experience in industries like oil, chemicals, foods and high-tech. As standard software, R/3 offers standard business solutions. However, R/3 is also flexible enough to be customized or extended to meet the special needs of some customers. In general, some companies create customized models for SD, MM, FI, PP and PM. Using the R/3 Reference Model as the basis, customers have created models in the following areas:

- Order processing inside and outside of R/3;
- Handling of new contracts, installation of equipment at customer site, scheduling workers for reading meters
- at customer site;
- Project-related order processing, manufacturing order and requirement processing; and
- Operating funds administration, freight data management

The Integrated View of Business

Integration between data and process models is important to companies involved in business process engineering and business modeling. With R/3 Release 3.0, integration is achieved because the R/3 Repository stores both process and data models. The comprehensive Business Engineering Workbench accesses the models from the repository and makes configure-to-order a real possibility.

The R/3 Reference Model is a unique starting point for customer business engineering projects. Customers who begin engineering projects with other modeling tools often switch to the R/3 Reference Model in later phases, finding the models and analysis techniques helpful during R/3 implementation. The R/3 Reference Model is seen as a successful starting point for R/3 implementation.

The market for business blueprints and associated engineering tools includes:

- Consultants;
- Organization planners;
- IT managers; and
- Academic institutions.

Third-Party Access

R/3 Release 3.0 is characterized by openness. R/3 not only runs core business operations, it also integrates into the user's environment, such as the Microsoft Windows platform. New interfaces developed last year allow users to exchange data with other systems and integrate desktop applications, such as MS Word, MS Excel, Visual Basic and MS Access.

Such integration was achieved with SAP's desktop integration software development (DISDK) kit , which provides Windows developers with access technology. The R/3 Repository has an open interface consisting of numerous callable functions.

The aim is to increase user performance while at the same time extend R/3 functionality with state-of-the-art integration technology. In the medium-term, third-party access technology developed between SAP and other companies to increase the accessibility of the blueprints. This is achieved using R/3 Repository API`s.

The Benefits

The benefits of having the R/3 Reference Model during R/3 implementation include quick overviews, business engineering support and communication between different departments. A majority of R/3 Reference Model customers are involved in business process modeling. Different organizations, use modeling tools and methods in different ways to meet their specific needs. "Documentation," "understanding," "visualization" and "process optimization" were many of the words customers used to describe the importance of process modeling in their organizations.

Continuous business engineering, i.e. using the R/3 Reference Model to incrementally install and optimize R/3, is a common practice at R/3 customer sites. The R/3 Reference Model increases productivity on business analysis and in implementing R/3.