

Building a Data Mart on top of SAP R/3-HR

Christ D'haeveloose
Sophie Debaets
SOLID PARTNERS N.V.

Introduction

In the field of human resources there is a growing trend towards moving from activity based functions to a more strategic, business oriented role.

Nowadays a company wants to align its human asset management goals more closely to its corporate objectives.

Therefore HR professionals need a sophisticated tool to understand their personnel by measuring for instance the employee satisfaction and analyse the impact of decisions about compensation policies, organisational structure, hiring and so on.

A Data Mart focusing on the HR information needs is the best solution to meet these objectives.

Purpose

The purpose of this paper is to explain how the SAS System® can be used on top of SAP R/3 HR, the Human Resource module of SAP A.G., to obtain real business benefits on a very short time.

It is explained how one can easily implement a data extraction using SAS Access to SAP AG's R/3, integrate this information in a HR Data Mart and exploit its contents using SAS EIS. The

paper explains business issues as well as technical issues.

Structure

This paper is based on a practical experience at the Belgian Gas and Electricity provider. There SAS Institute provides the continuity in the services for the HQ department "Studies and control personnel administration", at the moment that the operational system shifted from a DB2 environment to SAP A.G. HR.

The structure, followed for this paper is :




- First we explain the business functions that are covered by SAP R/3 HR and at the same time the shortcomings of this kind of system are pointed out.
- Next we explain the solution that our customer chose to address these shortcomings. Therefore we discuss the business objectives for the Data Mart project and the business benefits that result from it.
- Finally we explain the project approach, focusing on the specific attention points when building a Data Mart with the SAS System on top of the SAP R/3 HR module.

Understanding the SAP R/3 HR module

The SAP HR is composed of the following sub-modules :

The SAP Human Resources module

PA (Personnel Administration & Payroll Accounting)

-  PA Master Data
-  PA Personnel Time Management
-  PA Payroll

PD (Personnel Planning & Development)

The PA-Master Data component provides the functions for the management of the general employee information :

- ✓ Personal details
- ✓ Contractual elements
- ✓ Function
- ✓ Salary classification
- ✓ Organisational assignment

The PA-Time Management component provides the functionality for the management of time and leave, which includes :

- ✓ Time data maintenance (work schedule, absences, overtime)
- ✓ Time collection from multiple sources
- ✓ Valuation of time and absence data for payroll accounting




The PA – Payroll component provides the functionality for the payroll administration.

- ✓ Salary and benefits administration
- ✓ Payroll accounting
- ✓ National supplements

The PD – Personnel Development provides the functionality for :

- ✓ Organisational Management
- ✓ Career Planning
- ✓ Applicant administration

By using this SAP HR module for the daily transactional operations, a mass of information becomes available. However, just like with other ERP systems, this system has the following shortcomings when one wants to fully exploit this information :

-  The data structure used for even one single SAP module, quickly results in several hundreds of tables. This makes it very difficult for the end user to find the relevant information.
-  The SAP system always shows the current situation. While historical information is available, it is very difficult to get an overview of the information on the employee's at a given moment in time.
-  The SAP system is optimised for transactional processing, but scores bad on performance for information retrieval due to its complex data structure and the lack of efficient reporting tools.

The Data Mart solution with the SAS System

This section describes the solution chosen by the Belgian Gas and Electricity provider to overcome the above mentioned, shortcomings and to create a complete HR information retrieval environment.

For our customer, the SAS system provides the continuity in the services for the HQ department "Studies and control personnel administration", at the moment that the operational system shifted from a DB2 environment to SAP A.G. HR.

This HQ department has a twofold role, namely :

- ✓ Providing a control function on the compensation policies
- ✓ Providing the necessary analysis solutions as decision support for the HQ and local management as well as the local personnel administrations

Therefore our customer quickly decided to develop a Data Mart which had to cover a number of functional areas such as general employee information, headcount analysis, labour turnover, and personnel cost management.

For this the Data Mart contains detailed information on :

- ✓ The employee (personal details, contractual elements, salary classification, function ...) and his organisational assignment
- ✓ The hours for planned work, absences and overtime
- ✓ The individual salary components

The available features are a centralised access to current as well as historic information, ad hoc querying and a complete analysis functionality including multidimensional viewing.

The realisation of this Data Mart very quickly resulted in real business benefits, such as :

- ✓ production of legal reporting requirements
- ✓ ad hoc querying environment for requests originating from collective conventions negotiations, to respond to Social Insurance inspections ...
- ✓ an interactive analysis environment
- ✓ a full set of controls on compensation policies

Next to that, the Data Mart provides an efficient analysis environment on which a number of tools were implemented :

- ✓ Business templates providing an entry level view on the business information that is made available with the Data Mart
- ✓ Simulation and forecasts on the personnel cost
- ✓ A Balanced Scorecard tool providing the management with a framework, which can be used to define, organise and evaluate KPI's reflecting the companies HR strategy. The solution proposes a meta data driven approach, permitting the specification of definition, formula, standards of the KPI's, as well as an administration tool.

Furthermore, due to its design and architecture the Data Mart can evolve to the use of the most recent technologies of SAS Institute and the development of enterprise wide applications.

The Project Approach

In this section we want to provide more detail on how the solution was implemented. Hereby we will focus on the aspects that need specific attention when building a Data Mart on top of the SAP/R3 HR system.

The project is realised by means of short iterations, which was essential to be able to quickly fill the most urgent reporting requirements. In each of these iterations we distinguish the following phases :

- Analysis of the business requirements
- Analysis of the data sources
- Solution design
- Implementation

As with any Data Mart project it is necessary to have a good understanding of the business processes involved. Since SAP provides a packaged solution it is even more important to have a good knowledge on :

- ✓ How these processes are implemented by SAP
- ✓ The SAP concepts and terminology

Since SAP is a customisable system, one also has to get a clear understanding of the customisations that took place for the customer. However once the basic structure of an SAP module is known, one can quickly identify the impact of these since they

are also documented in the data dictionary.

Next one has to identify the source of information that will be needed to feed the Data Mart. Therefore a good knowledge is needed about the data structure that is used by SAP. For this an extensive use of the SAP Data Dictionary will be necessary. The SAP R/3 system contains a very well documented data dictionary. In this dictionary not only the physical layer (tables, variables, relations,...) is available but also the logical layer is documented. This means that the business logic is available in the SAP R/3 system. This creates the possibility to access the physical data through the logical business model. By an extensive use of the data dictionary, it was also possible to easily extract the necessary descriptive information for all building elements from data model to variable. The latter means that the documentation part (meta data) which is very important in data warehousing, can partially be taken from the operational environment.

For the realisation of the Data Mart we used the SAS Access to R3 module. This tool accesses the data in SAP using the meta data available in the data dictionary. In this way you can access all the SAP data without having to know the technical details of the SAP data structures and the SAP programming language Abap 4. However for SAP HR there is an additional complexity with the HR cluster tables which contain the results of time evaluation and the Payroll accounting. For reasons of volume of data, these results are compressed in a

very particular way, which is not completely documented in the data dictionary. Therefore SAS Institute has worked out a specific extraction solution.

Conclusion

SAS Institute offers an end to end solution, starting from a very efficient extraction tool which reuses the business logic you've already defined in the SAP system. Furthermore the well known, data management facilities and the SAS EIS tool make it possible to deliver quick results to the end users. Finally the newest technological developments in SAS Institutes products offer a lot of opportunities for the future.

The approach using short iterations and a high involvement of as well the business as IT people of our customer made it possible to make a good follow up of the progress and solve arising problems very fast.

Finally the expertise that SOLID Partners built in the SAP domain and the use of the SAS Access to R3 tool, has shown to be a real time winner and one of the reasons for success of the project. This expertise is now made available for North America through SOLIQ inc., the joint venture created between SOLID Partners N.V. and Qualex inc.

Authors

Christ D'haeveloose
Consultant

SOLID Partners N.V.
Boulevard Wahis – Wahislaan 21
1030 – Brussels
Belgium
Tel. : +32 2 706 03 00
Fax : +32 2 706 03 09
Email : Christ.Dhaeveloose@SolidPartners.be
Web address : <http://www.SolidPartners.be>

Sophie Debaets
SAP consultant

SOLID Partners
Boulevard Wahis – Wahislaan 21
1030 – Brussels
Belgium
Tel. : +32 2 706 03 00
Fax : +32 2 706 03 09

Email : Sophie.Debaets@SolidPartners.be

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