

## Paper 122

## Using SAS® Software as a Decision Support System on Top of SAP FI Financial Accounting Module

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### ABSTRACT

Financial information is vital for all departments of a company. The requirements in terms of analysis are different depending on each department's approach (marketing, sales, finance, production....)

This paper will give solutions to allow the different company departments to exploit the financial information coming from SAP/FI adding their own views, dimensions and information.

It will be demonstrated how to exploit the data coming from the General Ledger and Account Receivable (SAP-FI 'GL-AR') modules to build : A Decision Support System and a CFO Vision™ software interface for consolidation purpose.

First it will give an overview of the different steps to build the decision support system and the SAS CFO interface:

- Searching information through the SAP AG's enterprise data model;
- Extracting automatically SAP 'FI data with SAS/ACCESS® to SAP AG's R/3;
- Defining dimensions, hierarchies and building a multidimensional database using SAS MDDB Software;
- Creating multidimensional analysis tool with SAS/EIS® software;
- Creating a CFO Vision™ interface for consolidation purpose;

The paper includes a demonstration of a SAS/EIS application, and concludes with the feasibility and benefits of building a powerful decision support system based on data from SAP AG's R/3 system financial accounting module.

### INTRODUCTION

#### PURPOSE

The purpose of this paper is to demonstrate the feasibility and the profitability of a Decision Support System on top of SAP-F.I. through a concrete Business solution. This solution uses efficiently existing technology, systems, concepts and methodology.

#### STRUCTURE

Because the paper subject is a business solution, it is structured like a project.

The paper contains: The project scope, the subject area, the goal, the success Keys and the solution design.

#### FOCUS

We want to stress the integration aspect of a SAP installation into your SAS Data warehouse and show some architectural aspects of this.

### BUSINESS SOLUTION DESCRIPTION.

#### PROJECT SCOPE AND SUBJECT AREA

The subject area focus is the "Market" using customers and financial information.

☞ Intentionally to limit the scope, only the financial and Customer information is used.

The product side is not taken into consideration even if it's necessary in most cases to use the "Product / Market" pair.

The D.S.S. uses internal and external company information.

- Internal Information coming from the Financial Information System (SAP- FI) merged with information coming from Marketing and Sales Information System.
- External information coming from company external source, "Balance sheet and profit and loss information" for all the national companies. (National Bank Office of Belgium)

☞ The company of the case study is fictive and we use public information to ensure the non-disclosure of any confidential information with regard to our Business relations.

#### THE D.S.S. USERS

The users concerned by the DSS are those who make both tactical and strategic decisions within the organization as well as those who make audits and surveys. This project concerns mainly the management and the departments: finance, marketing and sales.

## PROJECT SUCCESS KEYS

- ✂ Limit the scope and keep it simple to ensure a quick R.O.I.
- 👁 Identify clearly the users interested in the subject area to define the different point of view.
- ? Identify the user's questions about the subject area to ensure the DSS to give the needed answers
- ✓ Identify the right data to build relevant and correct information.

## PROJECT GOAL

The project goal is to allow financial diagnostic and relevant analysis of the Customers and Market covering the different company point of view and opening the company to the external world including external Information.

👁 Larger is the view and more comparison points taken into account, more efficient are the analyses.

The Decision support system will covered the following analysis:

1. **Financial Accounting analysis based on information coming from Finance I.S. (SAP-FI)**  
Reporting on the hierarchical balance sheet structures defines in Financial Accounting. The system enables you variance analysis you require using actual and previous data. (Yearly, monthly comparisons....). Financial analysis using the Ratios.
2. **Business analysis based on Financial Information merged with Marketing and SALES departmental Information.**  
Customer Analysis using geographical dimension, customers type dimension.  
Sales analysis using the sales organization dimension.  
Marketing Promotion analysis. Comparisons between promotional actions.
3. **Business analysis based on Internal Information merged with External Information.**  
Customer and market analysis, the market potential and penetration.  
Analysis of the concurrence.

## SOLUTION DESIGN AND CONSTRUCTION.

### OPERATIONAL SOURCE OF DATA ANALYSIS AND DEFINITION.

#### Understanding the FI-Financial Management Module.

The SAP R/3 FI-Financial accounting comprises a number of components.

#### 📁 The General Ledger (FI-GL)

The General ledger will be supported by a set of sub-ledger including:

- 📁 **Account Receivable (FI-AR)**
- 📁 Account payable
- 📁 Fixed Assets
- 📁 Human resources
- 📁 Material.

We focus on the FI-GL and FI-AR.

#### 📁 The General Ledger (FI-GL)

The General Ledger is the source from which are built the external accounting documents, the balance sheet and the profit and lost statement.

Because the general ledger can be regarded as a complete and reliable record of all the business transactions undertaken by a company organization we have focused on it.

**Chart of accounts:** The accounts are configured in the General Ledger using the « chart of accounts »

We have extracted the « *chart of account* » and the « *General Ledger documents* » (transactions).

#### 📁 Sub-Ledger - Account Receivable (Fi-Ar)

The sales and marketing organization need not have the same organizational structure as the legal structure of the company. Extracting Customer information it allows other organizational structure views.

We have extracted the « customer master data record ».

#### 📁 Customer Master Data Record

Master data are organized into three parts: **general data**, data applicable only for specific company codes, and sales data. **General data** are the information of a general kind needed by all or some departments about each customer.

## UNDERSTANDING THE FI-FINANCIAL MANAGEMENT MODULE.

### Sap R/3 Organizational Structure

The structure of an organization from an accounting point of view has to be formally defined if it is to be used by a computing system. SAP R/3 defines a multilevel structure in terms of nested classifications, which are known collectively as the EDM **Enterprise Data Model**.

### The Enterprise Data Model.

The intention of the Enterprise Data Model is to enable user of a database network to assemble the data relevant to that enterprise and to attach the correct interpretation to it. The purpose of an enterprise data model is to make sense of and take account of how the business uses the data structures defined in the active **ABAP/4 data dictionary**.

### ABAP/4 Data Dictionary

The ABAP/4 Dictionary describes the logical structure of the objects used in application development and shows how they are mapped to structures in the underlying relational database. It makes central description of all data used in the system without redundancy possible. The ABAP/4 Dictionary provides a logical view on the application data and the organization of this data in the underlying database system.

By an extensive use of the data dictionary it is 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 **metadata**, which is very important in data warehousing, can be taken from the operational environment.

These **metadata** are as said very well documented and because of this very useful for D.S.S. purposes.

## SOLUTION DESIGN AND CONSTRUCTION.

### INFRASTRUCTURE : PHYSICAL ARCHITECTURE AND SOFTWARE.

(Ref. Picture 001)

#### Operational System:

- Financial SAP R/3 -FI
- Marketing Departmental I.S.
- Sales Departmental I.S

#### Data Warehouse: SAS System.

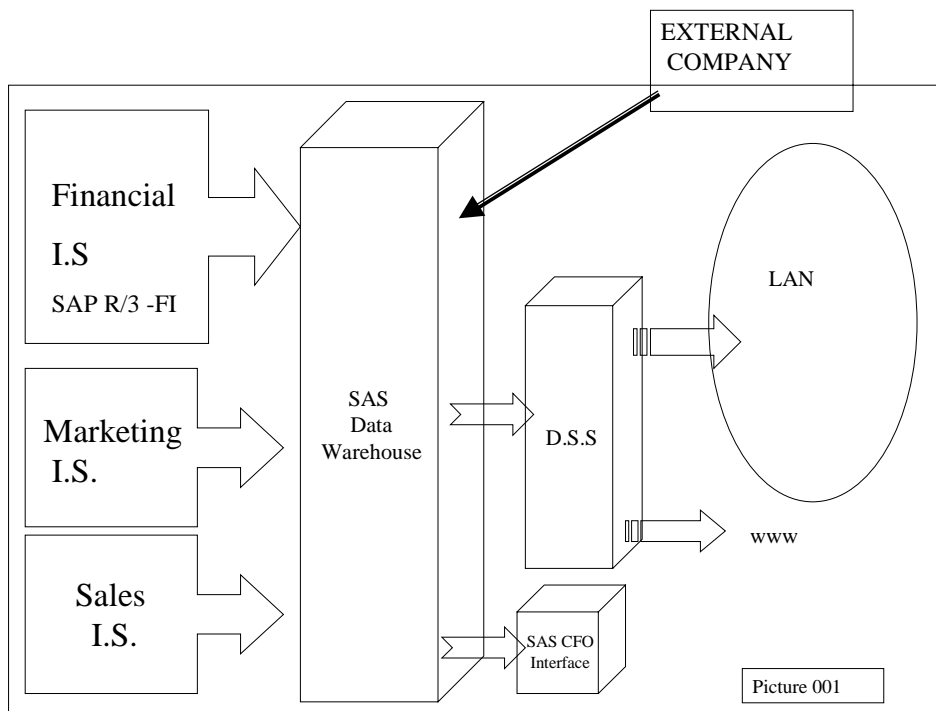
SAS/Warehouse Administrator™ software

SAS ACCESS® software to SAP AG'S R/3, SAS access® to DBMS

Client/server architecture : SAS CONNECT® software.

D.S.S.-OLAP : SAS EIS® and SAS MDDB™ software in client/server mode with HOLAP

: SAS INTRNET™ software

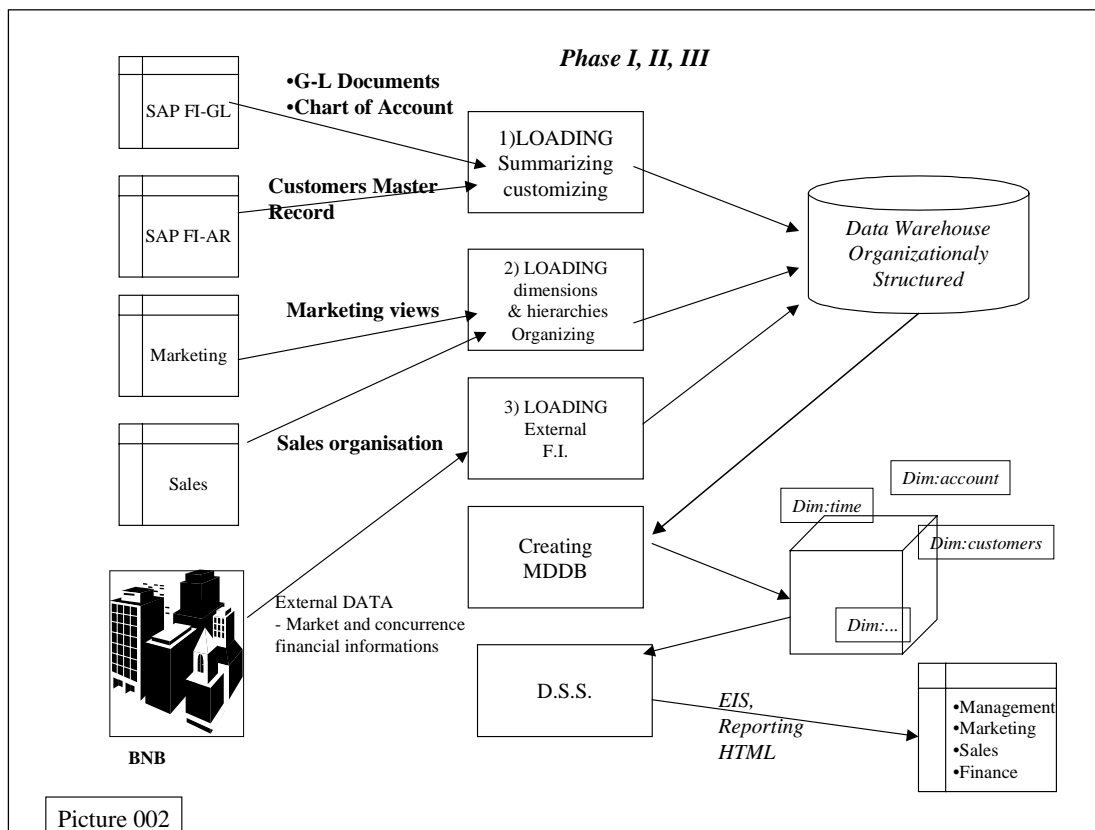


## APPLICATION DESIGN.

(Ref. Picture 002)

To build the application it is used internal and external company information.

The following picture explains how to build step by step the D.S.S.



### Step 1

Load in the Data Warehouse the information coming from SAP-FI. Build the Multi Dimensional Database and EIS application.

### Step 2

Load in the Data Warehouse the information coming from the Marketing and Sales Information System.

Merge the financial data SAP R/3 with the sales and marketing data. Build the MDDB with new facts and dimensions and build the EIS application.

### Step3

Load the information coming from external company I.S. the "National Bank Office of Belgium" which are financial information about the national companies. Merge the Internal Information with the External Information.

## THE PROJECT SOLUTION CONCLUSION AN EVALUATION.

Because:

Financial information is vital for all department of a company.

We have demonstrate the feasibility to build a Decision System Support on top of SAP R/3-FI Financial Accounting.

### ✓ Identify the right data to build relevant and correct Financial Information.

**How:**

↳ | We have reach the data in SAP R/3 FI-GL and FI-AR modules using the Enterprise Data model, the ABAP/4 dictionary.

We have extracted the General Ledger transactions and the Customers General information and we have integrated this data in the Data Warehouse environment. Using the SAS/ACCESS® to SAP AG's R3.

### ☞ Larger is the view and more comparison points are taken into account and more efficient are the analyses.

**How:**

↳ | We have integrated data coming from other department Information System as well as external source of data.

We have used SAS/ACCESS® to DBMS, SAS/CONNECT® software the departmental I.S. system platform and SAS® software facilities to load external data.

We have build multidimensional database using the SAS/MDDB™ software.

### ✂ Limit the scope and keep it simple to ensure a quick R.O.I.

**How:**

↳ | We have used the SAS Rapid Warehousing Methodology and SAS/EIS® software.

SAS/EIS® software is code free and allows building quickly tailored analysis.

### 👤 Identify clearly the users interested in the subject area to define the different point of view.

**How:**

↳ We have gone through the different departments of the company

### ? Identify the user's questions about the subject area to ensure the DSS to give the needed answers.

**How:**

↳ | We have built the D.S.S. using SAS/EIS® software, which allows to build the analysis in interaction with the Business user in an iterative manner.

The SAS® software covers the Business Solution and allows to give a very satisfy response to the success keys.

## CONTACT INFORMATION

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