Chapter 16
Using OLAP Tools for e–HRM:
A Case Study

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ABSTRACT

In the growing challenge of managing people, Human Resources need effective artifacts to support decision making. On Line Analytical Processing is intended to make business information available for managers, and HR departments can now encompass this technology. This paper describes a project in which the authors built a Data Warehouse containing actual Human Resource data. This paper provides data models and shows their use through OLAP software and their presentation to end-users using a web portal. The authors also discuss the progress, and some obstacles of the project, from the IT staff's viewpoint.

INTRODUCTION

Since the late 1980's and the beginning of the 1990's, Business Intelligence (BI) tools have been proposed as valuable tools for companies (Inmon, 2005; Kimball et al., 1998), helping with decision support. Inside and outside the Human Resources department there is need for information that is not delivered by traditional HR systems, such as intranets (Guiderdony, 2007). On Line Analytical

Processing (OLAP) is one of the BI proposals for making information available for managers.

Most of the literature examples of OLAP used in companies is based on financial or production data, for instance, the sales amount. According to Ngai and Wat (2004), the use of Information Systems in the HR to help make more precise decisions is only the tenth in the ranking of their perceived benefits.

In this paper we present the experience gathered during the course of a project that aimed to apply OLAP tools for HRM, targeting on employees

demography and absenteeism. This text represents the point of view of the IT staff regarding the project progress and sequels, intending to provide an example of how such powerful technology can help the Human Resource area, and potential difficulties in this way.

The projects began in 2005 at the Human Resources department of a public Brazilian University. It offers 58 undergraduate and 127 graduate courses and is organized in 20 Institutes and Schools, one academic medical center, 23 research centers and an administrative area. The institution employs teachers and researchers, technical and bureaucratic staff, physicians and nurses, comprising about 10,000 workers.

This paper is organized as follows: in the next sections there are, respectively, an overview of the adopted Business Intelligence theory, the description of implementations of two Data Marts regarding Human Resource information and how their content can be provided to final users. In the remaining sections, we discuss the challenges faced during the project, the drawbacks, lessons learned, project follow-up and present our final remarks.

Business Intelligence Overview

The concept of Business Intelligence (BI) refers to the abilities of the corporations to retrieve information related to their operation processes and area of activity, in a flexible and dynamic way, allowing the analysis, detailing and understanding their work and providing means for decision support. The term has been popularized since the late 1980's by Howard Dresner and the Gartner Group (Power, 2002).

The data managed by Business Intelligence systems have certain specific characteristics, reflecting on the way they are gathered, stored and retrieved, which will be briefly explained in the following sessions.

EXTRACT, TRANSFORM, AND LOAD

The process of obtaining and modifying the data for feeding a Business Intelligence database is called ETL, in respect to the three steps it involves: Extract, Transform and Load.

In the Extract step data are typically queried from other systems of the company, the so-called OLTP – On Line Transactional Processing – that supports the day-by-day organization operations. Spreadsheets and plain text files can also be used as data sources for Extraction.

In the Transform step the data are handled aiming to fit in the view the users of the decision support system have of the process and of the facts they represent. This means unit conversions, codes standardization, data filtering, categorization and so forth.

In the Load step the data produced by the prior steps are stored in a special database structure called Data Warehouse, which is described as follows.

DATA WAREHOUSE AND DATA MART

The Data Warehouse (DW) is a large data repository (Inmon, 2005), obtained from all the relevant sections of the organization. The Data Warehouse contains the raw material for the management's decision support system.

When the Data Warehouse is updated from ETL, no data is deleted or overwritten. Instead, the data are accumulated, constructing the history of the data involved in the company operations.

The data structure of a DW often does not follow the common database systems techniques that use normalization to ensure data integrity and less storage space. Instead, the data are de-normalized and arranged in such a way that helps to query for reports and analysis.

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