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. Online 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). Online 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 dif-
ficulties 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 de-
scription 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 in-
f ormation related to their operation processes and
area of activity, in a flexible and dynamic way,
allowing the analysis, detailing and understand-
ing 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, categoriza-
tion 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 reposi-
 tory (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 fol-
low 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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