



# **Data Warehouse Management with SAP BW<sup>®</sup>**

## **Case Study “Driver Ltd.”**

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# 1 Introduction

The exemplary enterprise “Driver Ltd.” is a company founded in 1985. It produces three kinds of vehicles

- Trucks
- Cars
- Motor cycles

and permanently keeps eye on continuous improvement of the entire business process, i.e. shareholder, customer, and employee satisfaction, as well as process improvement.

After an overall business analysis in the year 2003, Driver Ltd. launched a business improvement campaign focussing on the business section identified as the one with the most improvement potential – the production process. The campaign followed the determined strategy “become market leader within the next five years”.

The target lines of the campaign, i.e. the lines with the highest profit margin, were identified as cars and trucks. After analysis of the production processes, additional investments of 20%, and 15% respectively of the lines’ capital were made in April 2004 – parallel to the launch of the campaign. Additional investments in the motorcycle line were of negligible size.

Restructuring the production process also required a reshuffle of employees which lead to a number of layoffs and great dissatisfaction of staff during the next periods.

These two factors controlled the entire business process and thus key figures of the business year and demanded a number of initiatives and resources. In December 2004, as the turbulences are eased, Driver Ltd. wants to see how the production process campaign affected the other business objectives, especially with view to sustaining business success and guaranteeing continuous business improvement.

For this purpose, the Balanced Scorecard lends itself to an appropriate means of business process analysis, performance measurement, as well as performance management.

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As Driver Ltd. already works with an SAP system, the introduction of the Balanced Scorecard feature of the SAP Strategic Enterprise Management module is suggested.

Imagine you are a business consultant authorised by the management board to implement a data source, then to set up a Scorecard and subsequently to analyse the last business year.

The following information sections should give you an overview of the business parameters of the company, as well as of its values and goals.

## 2 Data – Business Information Warehouse

Since the SAP SEM module accesses data that is stored in the SAP Business Information Warehouse, an Info Cube must be created.

The derived classical star schema of Driver Ltd. is depicted in Figure 1.

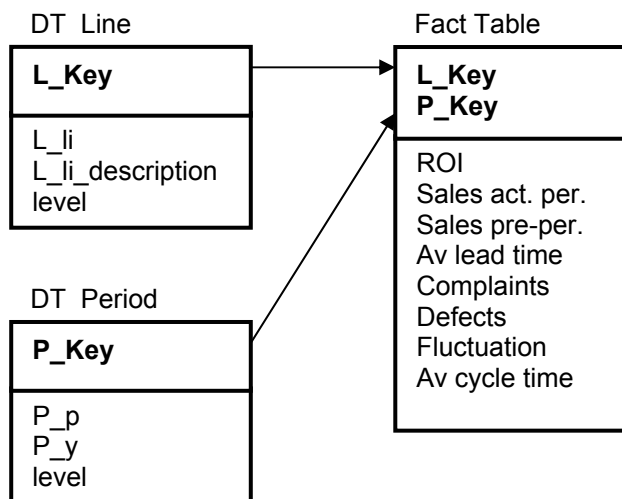


Figure 1: The classical star schema of Driver Ltd.

The following **Info Area** and **Info Cube** should be created whereas “00” stands for the user number:

Variable	Input Value
InfoArea	DRIVER_00
Info Cube	DR_00_BSC

(Data files are available in the “Download” section of <http://erp.wu-wien.ac.at>)

The **key figures** should be named as follows:

Key Figure	Long description
K00_ACT	K00_average cycle time
K00_FLU	K00_fluctuation of employees
K00_OUT	K00_average output per employee
K00_DEF	K00_number of defects
K00_CC	K00_customer complaints
K00_ALT	K00_average lead time
K00_SAP	K00_sales active period
K00_SPP	K00_sales past period
K00_ROI	K00_return on investment

The Info cube does not contain any **hierarchies**.

The **time** dimension only contains "0CALMONTH".

Any further information can be derived from the structure of the **data file**.

The **source system** and **application component** should have the following notation:

Variable	Input Value
Source System	DR_00_SOSY
Application Component	DR_00_APPCOMP

**Data is loaded** from a flat file system ("file system, manual meta data, data using file interface").

Transaction data should be **updated** directly.

The sequence of transfer data again can be reviewed in the data file.

Data flow within the BW system is repeated in Figure 2.

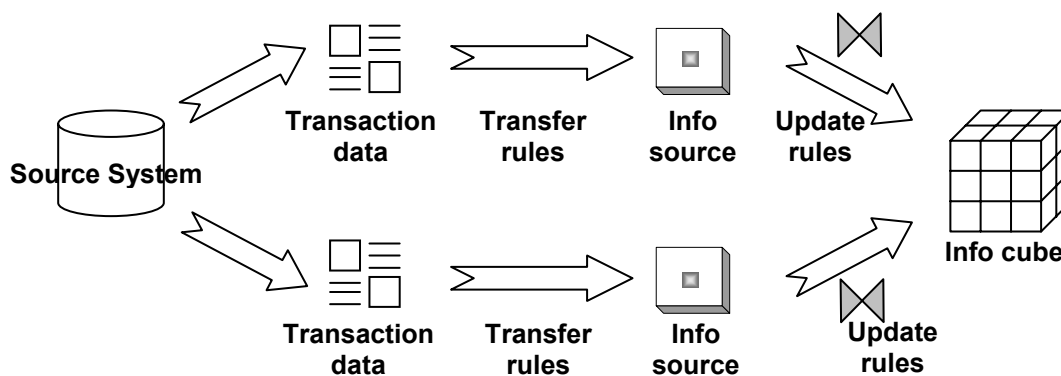


Figure 2: Overview of Data and Info Sources

### 3 Data – Strategic Enterprise Management

As data sources are available, the Balanced Scorecard can be implemented in the Strategic Enterprise Management module.

As can be seen in the Fact Table of the preceding section, the star schema already includes the key figures used to build the Balanced Scorecard. But what is their position in the Balanced Scorecard?

Looking at the corporate mission of Driver Ltd. (“Number one in delivering value to customers, employees, and shareholders”), goals and subsequently objectives could be derived in the scope of the Balanced Scorecard’s four perspectives (Table 3-1). Each objective’s target can be measured by one or more predefined key figures. To keep the exemplary Balanced Scorecard simple and still comprehensive, the number of key figures is limited to two per perspective (or one per objective). In reality, these key figures would not suffice to see the overall connections of the issue.

Perspective	Goals	Objective	Measure
Financial	Continuously improve financial performance	Exceed Prosperity	ROI
		Exceed Success	Sales growth
Customer	Continuously improve customer satisfaction	Fast delivery	Average lead time
		Reduce customer complaints	Number of customer complaints
Internal Business	Continuously improve business processes	Increase quality	Number of defects
		Increase productivity	Average output per employee
Learning & Growth	Continuously improve employee satisfaction	Improvement of employee satisfaction	Fluctuation
	Continuously improve technology	Improve technology	Average cycle time

Table 3-1: Translating goals into objectives and measures

The connections between the objectives of the several perspectives are depicted in the Value-Driver Chain below (Figure 3-1).

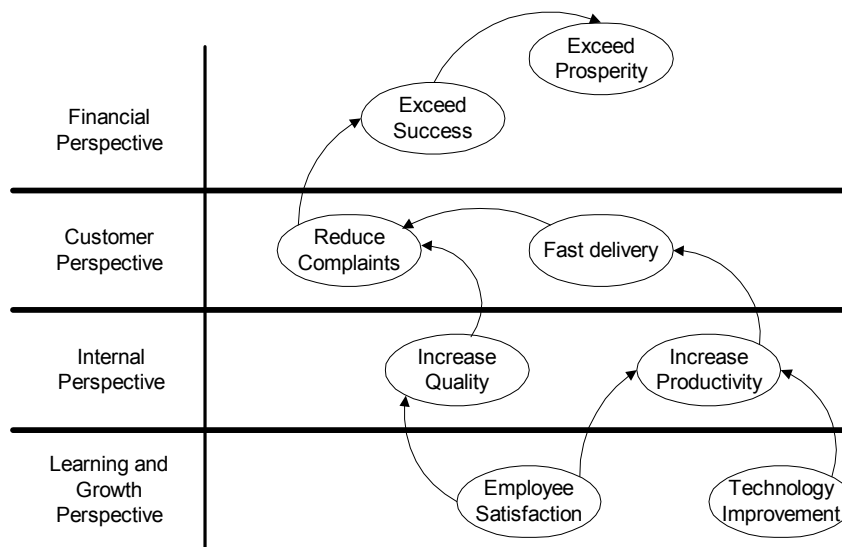


Figure 3-1: Cause-Effect Chain of Driver Ltd.

The measures, i.e. the basic elements of the Scorecard should be named and described as follows (any further information can be derived from the data files):

Measure	Unit	Formula description
M00_ACT	Hours	Time from beginning to end of production process
M00_FLU	Number of Persons	Number of employees leaving the company
M00_OUT	Units	Average production output in relation to number of employees
M00_DEF	Units	Number of defects
M00_CC	Units	Number of customer complaints
M00_ALT	Days	Time from point of order to point of delivery
M00_SGR	Percent	Percentage change of sales numbers compared to pre-period
M00_ROI	Percent	Amount of value received relative to the amount of money invested

Table 3-2: Measure definition

Please implement now the Balanced Scorecard for the “Car” line for the last business year (January 2004 to December 2004).