

# The design of a budget/forecast system with Excel as front end

## 1 Introduction

In paper “A universal method to create complex reports in Excel” I describe how Excel can be used to create complex reports with data from different sources.

Many organizations create budget and prognoses. There are many suppliers offering system support for that need. But it is also very common to design a dedicated “system” using Excel. Excel is an excellent tool for that purpose but there is a big pitfall. Excel is not a database handler and linking Excel files with macros etc can result in a spaghetti system which will be a pain in the ass to maintain. This article describes a method how to use Excel as a front end to a database to show actual figures and create budget/prognoses values. The purpose is not to describe all possible functionalities but an **example** of what can be done.

## 3 The budget process

To create a budget is an interactive process. The figures are often “massaged” before they are approved. The budget figures to fill in are not just there. Often the figures have to be calculated like salary and overhead costs from number of employee of different kinds. Simulation can be a necessary. Excel can act as a container with data and built in functions to support the process. The budget process is not an on line process like an order entry or flight booking system. The budget process is a typical batch process.

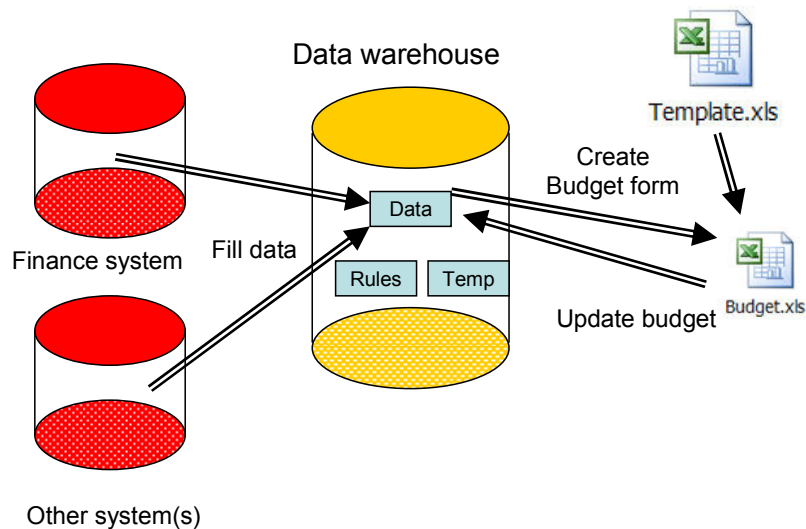


Figure 1

The budget system in figure 1 has a lot in common with the Data warehouse etc set up to create reports. There are routines to fill the table Data with data from external system. There is a routine which will create one or many budget forms in Excel. There is a routine which will update the table Data with values from each budget form. This routine can either be a built in routine in the Excel application VBA (Visual Basic for Application) or a routine which will read budget Excel files with data sent to a dedicated catalogue. (See section 4).

#### 4 The budget/forecast form

Lets assume one Excel file per cost center.

For example cost center 234 with (workbook) Center234forecast.xl

Each cost centers conducts projects where a project creates its own worksheet in the workbook. Sheet ProjectABC

		YTDA	YTDB	(formula)	(formula)	2007B	2007F1
SWDC SBFC (formula) ect	Head	Actual YTD	Budget YTD	deviation	year trend	Total Budget	Forecast1
	Salary w color						
	Salary b color						
	Total						

Figure 2 A forecast form

Assume that the company makes a budget with figures per month and the budget already has been updated in the system (table Data). The task now is to create a first forecast for the whole year 2007. Existing figures are fetched from table Data and calculated in the yellow (locked) cells. The year trend (prolongation) can for example be calculated as actual YTD plus budget the rest of the year.

The green **unlocked** cells are empty and input cells. The hided first row (red) only contains **valid** columncodes. The first hided column (red) only contains **valid** rowcodes. The coordinates of each cell is **exactly specified** by its rowcode like SWDC and columncode like 2007F1. An extra column with a comment or an URL reference can be added.

The form can act as a budget or forecast form or both at the same time.

Timecode	Explanation	Period
AM	Actual month	200703
AMLY	Actual month last year	200603
YTD	Year to date	
YTD200701		200701
YTD200702		200702
YTD200703		200703
2007	Year 2007	2007
200701		200701
200702		200702
200703		200703
200704		200704
200705		200705
200706		200706
200707		200707
200708		200708
200709		200709
200710		200710
200711		200711
200712		200712

Figure 2 Table Period

In this case we use period YTD (aggregated actual A and budget B) and 2007 the year 2007 for the forecast F1. Timecode 2007 also **aggregates** actual month values for year 2007. A, B and F1 are type of values in table Data.

Rowcode	Costcenter	Project	Period	Value	Type of value	Comments	Update	Sign
SWCD	234	ABC	200701	2346	A			
SWCD	234	ABC	200702	1234	A			
SWCD	234	ABC	200703	4563	A			
SWCD	234	ABC	200604	2341	A			
SWCD	234	ABC	etc	etc	A			
SWCD	234	ABC	200701	2453	B	eteet	2006-12-01	TOM
SWCD	234	ABC	200702	1232	B	wfv	2006-12-01	TOM
SWCD	234	ABC	etc	etc	B	ffv	2006-12-01	TOM
SWCD	234	ABC	2007	2345	F1	deed	2007-04-10	TOM
SBFC	234	ABC	200701	5674	A			
SBFC	234	ABC	2007	3434	F1	vbvb	2007-04-10	TOM
etc	etc	etc	etc	etc	etc	etc		

Figure 3 Table Data

Comments can be stored, like the sign of the responsible and updated date. Green rows are inserted for forecast1.

## 5 Distributing Excel files and updating the Data warehouse.

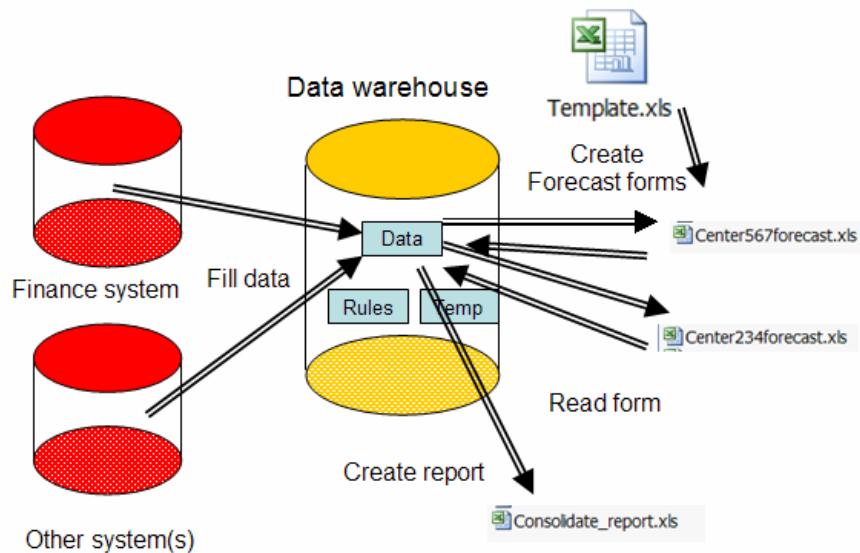


Figure 4 Routines

In the Data warehouse there is also information of existing cost centers and which projects are running. Process description:

- 1 One Excel file (can be pass word protected) is produced per cost center.
- 2 Each Excel file (workbook) is updated by respectively responsible user.
- 3 The routine "Read form" can either be a built in macro VBA code in the workbook or a stand alone routine which will read each workbook sent in to a dedicated catalogue by the responsible user. Which way to do it depends on company security polices etc. Routine "Read form" will scan each worksheet. If a column in row one contains a **columncode** and a row in column one contains a **rowcode** and the intersecting cells are **unlocked** the **columncode** will be split into two parts, **timecode** and **type of value**. For example in rowcode 2007F1 2007 is a timecode found with **period** 2007 in table Period. F1 (Forecast one) is the type of value.

The codes etc (rowcode, costcenter, project, period, value in the cell, type of value, comment, date, user id) are stored as rows in an internal array in the workbook.

When all worksheets are scanned the array contains the necessary data to update table Data, which is the last step.

For each row in the array a SQL statement test if there already is a transaction with the combination rowcode, costcenter, project, period, type of value in table Data. If there already exists a transaction for example in this case the purpose is to revise existing forecast1, the transaction is updated with the value, comment, date and sign. If no transaction exists a new complete transaction is created.

- 4 Another routine (not shown) controls that all responsible users reports back. When so is the case a consolidate report in Excel including forecast etc from everybody can be created. Budget values etc can be of course be transferred back to a source if that is needed and technical feasible.