Integration of Work Status with Activities of the Business Process Flow in BPC
An Example-Based How-To Guide

Applies to:
Integrated Business Planning in SAP Simple Finance

Summary
SAP customers who use Integrated Business Planning for financial planning in Management Accounting want to control the overall planning process by a guided work flow. This How-To Guide describes the use of Business Process Flow (BPF) from Integrated Business Planning (IBP) and the combined synchronized use of BPF and Work Status (WS) within the embedded Business Planning and Consolidation (BPC). The description bases on a step-by-step example to demonstrate this integration of WS with BPF.

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**Business Scenario**

SAP customers want to control their financial planning process in Management Accounting by using a process flow that guides through a sequence of tasks. BPF of BPC is used as process flow tool that interacts with the WS feature of BPC to demonstrate by means of an example how a planning process can be controlled.

The example scenario describes the planning of costs for two cost centers. The cost planning is done by a performer and a reviewer for each cost center. They are defined as performer and reviewer for the cost centers using an external dimension. The owner and manager who control the work flow are determined by a BAdI that takes the performer and reviewer of the to be planned cost center.

**Background Information**

SAP delivers planning scenarios for financial planning in Management Accounting as local BW content (that is, BW content in the ERP system, not in the central BW system), based on the real-time InfoCube /ERP/SFIN_R01 (Financials Planning). Analysis Office Workbooks constitute part of the planning scenario. Customers can use these to enter planned figures in a Microsoft Excel environment.

SAP delivers the following Workbooks:
- Cost Center Planning on Years (/ERP/SFIN_A00_WB01)
- Cost Center Planning on Periods (/ERP/SFIN_A01_WB01)
- Internal Order Planning on Years (/ERP/SFIN_A10_WB01)
- Internal Order Planning on Periods (/ERP/SFIN_A11_WB01)
- Project Planning on Years (/ERP/SFIN_A20_WB01)
- Project Planning on Periods (/ERP/SFIN_A21_WB01)
- Market Segment Planning on Years (/ERP/SFIN_A50_WB01)
- Market Segment Planning on Periods (/ERP/SFIN_A51_WB01)
- Profit Center Planning on Years (/ERP/SFIN_A70_WB01)
- Profit Center Planning on Periods (/ERP/SFIN_A71_WB01)
- P&L Planning on Years (/ERP/SFIN_A90_WB01)
- P&L Planning on Periods (/ERP/SFIN_A91_WB01)

Figure 1 shows the technical architecture of the delivered planning scenarios.
On the highest level are the Analysis Office Workbooks, with which the end user can enter planned figures. The figures entered in this way are persisted in InfoCube /ERP/SFIN_R01.

InfoProvider /ERP/SFIN_V01 is used to read the actual values from the previous year and compare the planned values of the current year in the Workbooks. A planning function can also be used to copy the actual values from the previous year as a template for the planned values of the current year in the Workbooks. The InfoProvider is based on HANA Information Model sap.erp.sfin.co.pl.COPA_DOC.

**Step-by-Step Procedure**

The How-To guide describes how you can combine the BPF process steps/activities with the states of the work status. The states of the work status lock data slices defined by the owner dimension and other dimensions in the planning cube /ERP/SFIN_R01. For this the planning model PL_PLANNING_DEMO that comprises the planning cube is linked to the Analysis Office workbook.

See also help for BPC
Step 1: Create an Environment

Call BPC in Web Client: Open a browser and connect to the URL http://<PC_server:port>/sap/epm/bpc/web/, where <PC_server:port> is the server name or IP address and port number of the Business Planning and Consolidation application location.

If you have no environment to log on then create your own environment by pressing on the environment name in the footer line. The “Connect to Environment” dialog comes up and press button “Manage All Environments”.

![Connect to Environment dialog]

On the following screen press button “Create” in header line and enter environment ID and description.
<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI_Planning_DEMO</td>
<td>P&amp;L Planning comprising Profitability Planning (Simpl)</td>
<td>Embedded</td>
</tr>
<tr>
<td>DFCM_LP_ENV</td>
<td>Liquidity Plan Environment</td>
<td>Embedded</td>
</tr>
</tbody>
</table>

**Create an Environment**

- **Type:**
  - Embedded
- **Environment ID:**
- **Description:**

[Create][Cancel]
Step 2: Create a Model

If you have no model in your environment that contains info provider /ERP/SFIN_R01 then create a model that only contains info provider /ERP/SFIN_R01 as presented in the following picture.

To do this press on „Administration“, thereafter on “Models” and on “New”. Enter ID and description, select info provider /ERP/SFIN_R01 and create.
Step 3: Create external dimension in backend system

Instead of using the internal dimension /ERP/COST_CNTR of the info provider /ERP/SFIN_R01 as driving dimension you can use an external dimension ZCOSTCNTR for the cost center. This dimension has the advantage that you can configure its structure and add additional attributes beside the performer as example the reviewer.

Call transaction RSD1. Enter info object ZCOSTCNTR and press create button:

Select Tab General
ZCOSTCNTR has Data Type CHAR and Length 10.
Select tab Master Data/Texts
Master Data Access is set to “Default” and flag “With Texts” is marked.

Select tab Attributes:
Enter attributes ZPERF and ZREV that you have created before (see below) and activate.

Attributes ZPERF and ZREV are characteristics of type CHAR with length 12 because they contain only user names (see SYST-UNAME). They are display only attributes and have no master data. Create these two attributes and activate.
Press button “Maintain master data”

At least capture all the cost centers you want to use in your process template. Assign a performer and reviewer for each cost center: On tab “Texts” you can enter a short description for each cost center. Finally press button “Save and Activate”.
### Q91: Change Master Data of InfoObject ZCOSTCNTR

#### Selection

#### Data

<table>
<thead>
<tr>
<th>Time Independent</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Line</td>
<td></td>
</tr>
<tr>
<td>Withdraw Changes</td>
<td></td>
</tr>
<tr>
<td>Change all records</td>
<td></td>
</tr>
<tr>
<td>Details</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Controlling Area</th>
<th>Cost Center Test Hie</th>
<th>Performer</th>
<th>Reviewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>C010</td>
<td>1220</td>
<td>BOLTE2</td>
<td>BOLTE</td>
</tr>
<tr>
<td>C010</td>
<td>1250</td>
<td>BOLTE2</td>
<td>BOLTE</td>
</tr>
</tbody>
</table>

---

### Q91: Change Master Data of InfoObject ZCOSTCNTR

#### Selection

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</tr>
<tr>
<td>Details</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Controlling Area</th>
<th>Cost Center Test Hie</th>
<th>Language</th>
<th>To</th>
<th>Valid from</th>
<th>Short description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C010</td>
<td>1220</td>
<td>EN</td>
<td>31.12.9999</td>
<td>01.01.1000</td>
<td>Sales Office East</td>
</tr>
<tr>
<td>C010</td>
<td>1250</td>
<td>EN</td>
<td>31.12.9999</td>
<td>01.01.1000</td>
<td>Sales Office South</td>
</tr>
</tbody>
</table>
Step 4: Create a Work Status

From the administration view select under "Work Status" "Work Status Configuration". You get a list of models. In this example only model PL_PLANNING_DEMO is available. Click on model PL_PLANNING_DEMO to enter the work status configuration. The configuration consists of a work state list, locking dimensions as owner dimension and other dimensions and finally the owner definition.

"Work State List" is defined by the user. In this example it consists of the following 4 states:

<table>
<thead>
<tr>
<th>Order</th>
<th>Name</th>
<th>Controlled by</th>
<th>Controller by Permitted Data Entry Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>In progress</td>
<td>Owner and Manager</td>
<td>Owner</td>
</tr>
<tr>
<td>1</td>
<td>Sent for approval</td>
<td>Owner</td>
<td>Owner</td>
</tr>
<tr>
<td>2</td>
<td>Approved</td>
<td>Manager</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>Finished</td>
<td>Owner and Manager</td>
<td>All</td>
</tr>
</tbody>
</table>

Owner dimension is the info object cost center (/ERP/COSTCNTR). Select via F4 value help a hierarchy that is defined in the backend system (in this example H1 is chosen from controlling area C010). Important is only that the selected hierarchy contains the cost centers you have chosen as driving dimensions from the external dimension when you defined your activity.

Mark owner "Define by Customer Implementation" because info object /ERP/COST_CNTR has no attribute for the owner.

The owner of the cost center can be determined by the performer attribute of the external dimension cost center (ZCOSTCNTR) used in the BPF activity Activity Plan Expenses on Cost Centers (using an external dimension)\(^1\). The manager for the cost center can be determined by the reviewer attribute of the external dimension cost center (ZCOSTCNTR) used in the BPF activity Activity Plan Expenses on Cost Centers (using an external dimension). Therefore BAdI RSBPCB_SETUSER is implemented in the backend system to determine owner and manager for each cost center. The implementation could look like this:

**Method if_rsbpcb_setuser_logic-execute_setuser_logic.**

```plaintext
constants:
  gc_env       type  rsbpc_appset_id  value 'PL_PLANNING_DEMO',
  gc_perf      type  rsiobjnm         value 'ZPERF',
  gc_rev       type  rsiobjnm         value 'ZREV'.

"out put formats

types begin of ws_type. "Return struc of owner and manager for work status
types: mem_id type rschavl.
types: iobj_id type rsiobjnm.
types: owner_user_id type rsstring.
types: owner_team_id type rsstring.
types: manager_user_id type rsstring.
types: manager_team_id type rsstring.
types end of ws_type.

Table type
```

\(^1\) Only internal dimensions from the info provider of the model are available
types: ws_badi_owner_table type standard table of ws_type.

" Structure of input table

data: l_t_mem type cl_rsbpc_services=>tn_t_mem,
       l_s_mem like line of l_t_mem.

" Structure of result table

data: l_t_result_mem type ws_badi_owner_table,
       l_s_result_mem like line of l_t_result_mem.

data: l_t_result_mem_bo type bo_badi_owner_table,
       l_s_result_mem_bo like line of l_t_result_mem_bo.

data: l_t_result_mem_br type br_badi_reviewer_table,
       l_s_result_mem_br like line of l_t_result_mem_br.

" Parameter for master data of external info object

data: lt_performer type rsdm_tx_shlpreturn,
       lt_req_atr type rsdm_t_req_atr,
       ls_req_atr like line of lt_req_atr.

field-symbols: <ls_performer> like line of lt_performer,
                <s_value> type rsdm_s_value.

clear e_t_result_mem.

if i_feature_type = cl_rsbpcb_service=>n_c_feature_type_ws and
i_appset_id = gc_env.
   " Within Work Status in specific environment
   ls_req_atr = gc_perf.
   append ls_req_atr to lt_req_atr.
   ls_req_atr = gc_rev.
   append ls_req_atr to lt_req_atr.

   call function 'RSD_CHA_GET_VALUES'
      exporting
         i_chanm = 'ZCOSTCNTR'
         i_t_req_atr = lt_req_atr
      importing
         e_tx_return = lt_performer
      exceptions
         illegal_infocube = 1
         illegal_infoobject = 2
         x_message = 3
         no_values_available = 4
         illegal_input = 5
         others = 6.
   if sy-subrc = 0.
      loop at i_t_input_mem into l_s_mem where iobjnm = '/ERP/COSTCNTR'.
      read table lt_performer assigning <ls_performer> with key chavl = l_s_mem-
      mem_id.
      if sy-subrc = 0.
         l_s_result_mem_mem_id = l_s_mem-mem_id.
         l_s_result_mem-iobj_id = l_s_mem-iobjnm.
read table <ls_performer>-t_value assigning <s_value> with key iobjnm = gc_perf.
  l_s_result_mem-owner_user_id = <s_value>-value.
read table <ls_performer>-t_value assigning <s_value> with key iobjnm = gc_rev.
  l_s_result_mem-manager_user_id = <s_value>-value.
append l_s_result_mem to l_t_result_mem.
endif.  " Performer found for cost center
endloop.
eendif.  " Master data from Info object exist

e_t_result_mem = l_t_result_mem.

As additional locking dimensions controlling area /ERP/CO_AREA Category /ERP/CATEGORY, Fiscal year variant OFISCVARNT, Fiscal year OFISCYEAR are used to determine along with the owner dimension the data slice that the work status locks when the work status is applied. Finally set flag Enable Work Status and save work status. This work status is now attached to the model.
Step 5: Create a Process Template

To do this press on „Process Templates“ and on “New”. You get the following screen:

Enter name and description. Select as identity dimensions Category, Company Code, Fiscal year variant and Fiscal Year. Select yourself as “Process Monitors”.

Save process template.
Step 6: Create Activities within Process Template

Activity Plan Expenses on Cost Centers (using an external dimension)

Now you define a specific task within the process template that is the call of an analysis office workbook to plan the expenses on cost centers.
Select tab Activities and press button “New”. Enter name and description.

Select as driving dimension external dimension Cost Center (ZCOSTCNTR)\(^2\) that bases of a structure that comprises the attributes controlling area, cost center, performer and reviewer (as defined under tab Attributes for info object ZCOSTCNTR).

\(^2\)See Step 3: Create external dimension in backend system
Select members from the cost center hierarchy. Take in this example Sales Office East (1220) and Sales Office South (1250).

Map Driver to: Cost Center
Mark flag “Define Performer by Property” and select field Performer for “Performer User Property”

Mark flag “Require Reviewer”.  
Mark flag “Define Reviewer by Property” and select field Reviewer for “Reviewer User Property”.  
Mark flag “Workspace Same as Performer” Save activity.
Hyperlink Analysis Office Workbook

Press button “Create” in “Performer Definition” to define the activity itself.

Assign a controlling area in the header line because this is neither passed by the identity dimension nor the driving dimension. Here C010 is used as an example controlling area.

Press button Add Hyperlinks

Enter name and description.

Select as target action Analysis Office and then Open Workbook. Enter name of the workbook. Take in this example ZDEMO1_SFIN_A01_WB01 that is a copy of the delivered cost center planning workbook /ERP/SFIN_A01_WB01. The workbook is copied because some restrictions have been done to the workbook. The underlying query ZDEMO1_SFIN_A01_IRQ0001 is a modified copy of the delivered query /ERP/SFIN_A01_IRQ0001. It has a single value parameter ZERP_P_COSTCNTR01 for cost center because the original select option variable will be supported with BPC SP06 that is contained in BW SP11. Furthermore the GL accounts are restricted in the query to vehicle costs, misc. admin. costs, salaries, insurance (see below).
The workbook needs to be modified by setting the planning model (Step 7: Link Analysis Office workbook to planning model).

Press button Get Variable and you get the name of the data source/query used in the workbook. In this example it is DS_1.

Press button Set Variable to pass values to the variables of the query of the workbook. Set for fiscal year, category, company code, currency, cost center “Use Workspace Content”.

Hyperlink Set Work Status
Press button Add for a new hyperlink.

Assign a controlling area in the header line because this is neither passed by the identity dimension nor the driving dimension. Here C010 is used as an example controlling area.

Enter name and description.
Select as target action “Work Status” and then “Set Work Status”.
Select in target context model “PL_PLANNING_DEMO”, controlling area “Use Workspace Context” and cost center “Use Workspace Context”.

Mark “Automatically executed on a change of activity state”. Because the activity has a reviewer the activity states “On Submit”, “On Approve” and “On Reject” can be set. Therefore assign “Sent for Approval” to “On Submit”, “Approved” to “On Approve” and “In progress” to “On Reject” The performer has to submit the activity after planning is done. Then the reviewer has to approve or to reject the activity.
Save Hyperlink and go back to activities.

The work status is automatically executed when the performer presses the “Submit” button of the activity. The “Submit” button is only available for the performer if the activity has a reviewer (If the activity has no reviewer the performer gets a “Complete” button). After pressing “Submit” the work status switches to “Sent for Approval”. The reviewer can then decide between an “Approve” and “Reject” button for the activity. After pressing “Approve” the work status switches to “Approved”, after pressing “Reject” the work status switches to “In progress”.

Not working: Validation of hyperlink returns
Therefore select member C010 (see header line) as workaround.
Activity Close Cost Center Planning (optional)

This activity is optional and is only needed to inform the performer that planning data has been approved and therefore the planning process can be closed now.

Enter name and description.

Select as driving dimension internal dimension cost center (/ERP/COST_CNTR) that is a compound dimension with controlling area (/ERP/CO_AREA).

Select members from a cost center hierarchy in this example 1220 and 1250 from hierarchy C010H1.

Mark “Define Performer by Property”. Select “Performer User Property” Person Responsible. A reviewer is not needed for this activity.

Save activity.
Hyperlink Set Work Status

Assign a controlling area in the header line because this is neither passed by the identity dimension nor the driving dimension in this example C010.

Press button “Add Hyperlinks”.

Enter name and description.

Select as target action “Work Status” and then “Set Work Status”.

Select in target context model PL_PLANNING_DEMO, controlling area “Use Workspace Context” and cost center “Use Workspace Context”.

Mark flag “Automatically executed on a change of activity state”. Because the activity has no reviewer and no reopen only the activity state “On Complete” can be set. Therefore assign “Finished” to “On Complete”.

Save hyperlink and then close hyperlink so that you go back to activities.

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4 Not working: Validation of hyperlink returns

Therefore select member C010 (see header line) as workaround.
Step 7: Link Analysis Office workbook to planning model

To enable the link between Analysis Office workbooks with the BPC planning model there exists at the moment a workaround by creating manually registry key `ShowAdvancedPlanningProperties=True` under path `HKEY_CURRENT_USER\Software\SAP\AdvancedAnalysis\Settings\Planning`. With AO 2.0 this will become standard.

![Registry Editor](image1.png)

Open analysis office workbook (ZDEMO1_SFIN_A01_WB01) and go to tab Analysis. Select button Display Design Panel. On design panel go to Components and tab Planning. Select planning model `PL_PLANNING_DEMO` via value help.
Finally you can deploy your process template now and create a new process instance to perform the planning process of your created process template.
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