

Tom King

Practical Guide to SAP® CO Templates

- ▶ Implement and properly use templates
- ▶ Template configuration tasks
- ▶ Scenarios for using templates in SAP Product Costing and Cost Object Controlling
- ▶ Easy cost planning applications

Table of Contents

Foreword	9
1 Introduction to CO templates	13
1.1 Cost allocation in SAP	13
1.2 Activity Based Costing	21
1.3 Templates and how they work	24
2 Templates in product costing	31
2.1 Costing scenario	31
2.2 Cost estimate	32
2.3 Connecting the template to the cost estimate	35
2.4 Template maintenance	36
2.5 Template columns	40
2.6 Template rows	43
2.7 Cost estimate revisited	49
3 Templates in cost object controlling	63
3.1 Production scenario	63
3.2 Defining the templates	64
3.3 Template methods	65
3.4 Template formulas	80
3.5 Connecting the template to the order	83
3.6 Executing the actual allocation	85
4 Template configuration	91
4.1 Template environments	91
4.2 Template functions	102
4.3 Flexible functions	117

4.4	Assigning templates to costing sheets	122
4.5	Assigning costing sheets to valuation variants	122
5	Template applications	125
5.1	Template applications	125
5.2	COB—cost objects	125
5.3	ECP—Easy Cost Planning	146
5.4	CPI—formula planning	147
5.5	SBP—activity assignments	150
5.6	SKI—statistical key figures	155
5.7	PCA—profit center planning	158
5.8	PAC—costing based profitability analysis	160
5.9	SOP—transfer sales and operation plan	162
5.10	ISB—financial objects	164
6	Easy Cost Planning	167
6.1	Easy Cost Planning scenario	167
6.2	Costing models	168
6.3	Assigning characteristics	173
6.4	Structure the model entry screen	183
6.5	Define derivation rule templates	187
6.6	Create a cost estimate	195
7	Appendix	213
7.1	Template applications	213
7.2	Environments and sub-environments	213
7.3	Tables and structures by environment	218
7.4	Row types	220
7.5	Column types	222
7.6	Template transactions	226
7.7	CKF_RES_TPL fields	231

A The Author	234
B Index	235
C Disclaimer	240

2 Templates in product costing

Templates are made up of rows and columns that are used to calculate allocation quantities. Each row of a template defines an allocation for cost objects using calculations and characteristics assigned to the columns. Product cost estimates can use templates to generate detailed cost allocations from cost centers and business processes that are much more specific than other standard allocation techniques. In looking at how product cost estimates use templates, we are introduced to the concepts of how rows and columns work together to generate the allocations.

2.1 Costing scenario

Chapter 1 introduced a process for using templates to allocate activities to a cost center. The standard way for assigning activity costs in product costing is through the costing definition of work centers that are used in a routing. Cost center/activity type costs are allocated to the product using the formulas assigned to the work center based on the lot size quantity assigned to the material cost estimate. This works well for picking up machine and labor costs, but other overhead costs cannot be determined in detail without using templates. They can calculate activity quantities that are based on specific characteristics associated with the material and the order. The following product costing scenario further demonstrates the power of templates and template allocations.

Plant P100 makes widgets. At the beginning of each production order, the production support department spends two hours setting up the machine. After every 100 widgets are made, the production support department needs to recalibrate the machine. This takes 30 minutes. A finished widget is packed at the end of the process. Packaging requirements vary based on the weight of the widget and whether the widget is declared as a dangerous good. A maximum of 250 kg can be loaded onto a pallet. If a widget is declared a dangerous good, then a special pallet is required for shipping purposes. This special pallet is not only more expensive than standard pallets, but also requires extra handling costs. Quality

inspection is performed for each widget. This requires looking at each individual component as well as the final product, and takes half a minute per material. Any widget components that are considered dangerous goods require additional inspection. This inspection takes 1 minute per component.

Three cost centers are used when manufacturing widgets. Cost center 1301 is the manufacturing cost center and the work center WMAKER (Widget Maker) is assigned to that cost center. There are two activity types used for picking up overhead costs from 1301. These are 1000 (machine hours), and 2000 (labor hours). Cost center 1501 is the manufacturing support cost center. This cost center is responsible for machine setups and calibrations. Activity type 9010 represents the cost of 1 hour of services from this cost center. Cost center 1601 is the quality control cost center and is responsible for inspection of the widget components. Activity type 9020 represents the cost of 1 hour of inspection time. Two packaging business processes are used to represent the cost of palletizing and shipping the widgets. Plan costs include both the cost of the pallet and the labor and supply cost associated with preparing the widgets for shipment. Business process BP001 is associated with standard pallets. Business process BP002 represents special pallets that are required when handling dangerous goods.

The material cost estimate for the widgets should not only include the cost of the components, but also the costs of manufacturing, machine setup, quality inspections, and shipping. The manufacturing cost is determined from the formulas and activity types assigned to the WMAKER work center. The remaining costs are determined by using the MANUFACT template.

2.2 Cost estimate

Material A-100 is a widget that has two components. One B-100 and one B-101 are assembled to make one A-100 unit. The net weight of the final product is 4.1 kg, which is defined on the BASIC 1 tab of the material master, as shown in Figure 2.1.

Dimensions/EANs			
Gross Weight	4.100	Weight Unit	KG
Net Weight	4.100		

Figure 2.1: A-100 weights

The dangerous goods profile is defined on the BASIC 2 tab (see Figure 2.2). Here, it is blank, which indicates that this material is not classified as a dangerous good.

Environment	
DG indicator profile	<input type="text"/>

Figure 2.2: A-100 dangerous goods profile

The costing lot size as defined on the COSTING 1 tab is 1,000 and the overhead group assignment is WIDGET (see Figure 2.3). Overhead key WIDGET is assigned to that overhead group.

Origin group	<input type="text"/>	<input checked="" type="checkbox"/> Material origin	
Overhead Group	WIDGET	Variance Key	000001
Plant-sp.matd status	<input type="text"/>	Profit Center	<input type="text"/>
Valid from	<input type="text"/>		
Quantity structure data			
Alternative BOM	<input type="text"/>	BOM Usage	<input type="text"/>
Group	<input type="text"/>	Group Counter	<input type="text"/>
Task List Type	<input type="text"/>		
SpecProcurem Costing	<input type="text"/>	Costing Lot Size	1,000

Figure 2.3: A-100 overhead group and costing lot size

A template MANUFACT has been defined to account for the special costing scenarios, as defined in Section 2.1. A cost estimate has been created for material A-100 in plant P100.

Costs Based On: Costing Lot Size 1,000

Itemization for material A-100 in plant P100

ItemNo	I...	Resource	Cost Element	Total Value	Currency	Quantity	Un
1	E	1301 WMAKER 1000	943001	10,000.00	USD	50.00	H
2	E	1301 WMAKER 2000	943002	3,500.00	USD	100.00	H
3	M	P100 B-100	400000	5,000.00	USD	1,000	EA
4	M	P100 B-101	400000	9,000.00	USD	1,000	EA
5	E	1501 9010	943160	337.50	USD	4.50	H
6	E	1501 9010	943160	150.00	USD	2.00	H
7	E	1601 9020	943170	750.02	USD	16.667	H
8	X	BP001	943100	170.00	USD	17	EA
				28,907.52	USD		

Figure 2.4: A-100 cost estimate

The cost estimate itemization is shown in Figure 2.4 and is explained below:

- 1 Items 1–4 on the itemization are the costs associated with the route and the bill of material (BOM).
- 2 Item 5 on the cost estimate is the recalibration cost using activity type 9010 from the cost center manufacturing support cost center 1501. After the first 100 items are produced, recalibration should begin. Because the costing size is 1,000, there should be 9 recalibration activities, each taking 30 minutes. This results in 4.5 hours of recalibration work for 1,000 widgets.
- 3 Item 6 is the initial machine setup for the run of 1,000 widgets. This process takes 2 hours. The same cost center and activity type is used for the fixed setup time and for the recalibration.
- 4 Item 7 is the inspection time. The activity type is from the quality control cost center. Because this is not considered a dangerous good, the component inspection only takes 30 seconds per material. There are 2 components in the BOM and this accounts for 1 minute of inspection for each widget. The activity time is therefore 1,000 minutes, which equates to 16.667 hours.

- 5 Item 8 is the packaging cost. The dangerous goods profile is blank, so the standard pallet business process (BP001) is used in the cost estimate. This business process accounts for both the cost of the pallet and the processing that is required for preparing the pallet for shipment. The net weight of the material is 4.1 kg. The total number of widgets that can be assigned to a pallet is 60.98 ($250/4.1$). A partial widget does not make sense, and so the most number of widgets that can be put on a pallet is 60. Therefore, the quantity of pallets required for 1,000 widgets is 16.667 ($1,000/60$). However, since a fraction of a pallet cannot be used, 16.667 is rounded up to 17.

2.3 Connecting the template to the cost estimate

The result of the cost estimate in Section 2.2 matched the specifications for packaging, setup, recalibration, and testing. This was all accomplished by using the MANUFACT template. Section 1.3.3 discussed how templates need to be connected to the receiver objects so that their calculations can be used. In the case of cost centers, this is done by assigning the template directly to the applicable cost centers through master data maintenance. A more flexible approach has been developed for dealing with objects where the master data is less permanent, such as for orders or material cost estimates. Overhead costing sheets were already set up to use overhead keys assigned to the material master in order for them to be accessed for product costing. This same strategy was adapted for use with template allocations. The use of an overhead key is much more generic than directly assigning a template to the material and can point to different overhead structures depending on plant and costing variants.

Costing sheets are accessible to cost estimates through the valuation variant assigned to the costing variant of the cost estimate. The costing sheet is assigned to the valuation variant of the cost estimate; this is covered in Section 4.5. Because this connection already existed, assigning the template to a specific costing sheet also enables it to be accessed by the cost estimate. Section 4.4 provides details of the configuration using transaction KTPF through the use of overhead keys. Different overhead keys can be set up to connect to different templates, making it possible to use different sets of calculations depending on the material being costed.

B Index

A

Activity Based Costing 21
 template use 24

Activity type 14, 17, 19, 20, 23,
 24, 25, 26, 30, 31, 32, 34, 41,
 45, 47, 50, 52, 54, 72, 73, 86,
 88, 111, 120, 129, 135, 148,
 150, 155, 190, 191, 205

Ad hoc costing 147, 167, 195,
 228

Assessment 18

B

Bill of material See *BOM*

BOM 34, 49, 53, 58, 82, 87, 117,
 128, 138, 145, 167, 203, 210,
 218

Business process 13, 15, 23, 24,
 26, 32, 35, 41, 45, 47, 50, 55,
 58, 66, 72, 86, 88, 111, 135,
 147, 150, 164, 180, 186, 190,
 191, 209, 211
 characteristics 75

C

Cell 43, 95, 202
 activation 27, 68, 204
 actual allocation 68
 defined 40
 description 189, 195
 formula 117, 195
 object determination 45, 46, 73,
 204, 208

plan allocation 68
 price 195, 205
 type 43

Characteristic

Addnl Data tab 179
 Basic Data tab 174
 class 173, 175, 179, 181
 Descriptions tab 177
 Restrictions tab 179, 181
 Values tab 177

Characteristic group 175

Charcateristic format 176

Column 40

activation 26, 42, 189
 allocation event 42
 description 26, 41, 189
 object 26, 41, 189
 price 189
 quantity 27, 42, 189
 type 26, 40, 189
 unit 26, 41, 189

CO-PA 13, 160, 164, 230, 231

Cost center 13, 15, 16, 18, 19,
 20, 23, 24, 26, 29, 31, 34, 35,
 41, 45, 47, 50, 51, 52, 54, 72,
 73, 86, 111, 129, 147, 150,
 155, 162, 186, 190, 191, 205,
 210

Cost Center Accounting 13, 25

Cost driver 22, 23, 160, 230

Cost element 13, 15, 16, 18,
 148, 151, 192, 193, 194, 195
 primary 14, 17, 18
 secondary 14, 15, 18, 19, 23

Costing sheet 15, 35, 83, 122,
126, 127, 128, 130, 133, 134,
135, 137, 139, 141, 143, 145,
163

D

Data type 176
CHAR 176, 188
CURR 176
DATE 176
NUM 176
TIME 176

Distribution 16

E

Easy Cost Planning 25, 167
assign characteristic 173
Business Document Navigator
187
characteristic 146, 168, 170,
173, 174, 179, 181, 183, 187,
190, 191, 192, 193, 194, 195,
197, 198, 204, 209
CKF_RES_TPL 180, 186, 190,
191, 192, 193, 194, 195, 219,
231
cost estimate 195
cost estimate Addnl Data tab
196
cost estimate Create with
Planning Forms tab 196
cost estimate itemization 201
cost estimate Planning Last
Edited tab 197
costing model 168
create characteristic 174
derivation rule 147, 168, 171,
187
enter cost estimate
characteristics 198
HTML edit window 183
model maintenance 171

model worklists 169, 170
reuse costing models 209
roles maintenance 171
structure the model entry screen
183

Environment 21, 25, 91

001—production orders and cost
estimates 37, 40, 47, 64, 79,
122, 125, 126, 128, 138, 213,
216, 222, 226
002—base planning objects
126, 127, 213, 216, 222, 227
003—unit cost estimates 126,
128, 213, 216, 223, 228
004—networks 130, 133, 214,
216, 223, 227
004—networks 79
005—WBS elements 79, 133,
214, 216, 223, 227
006—general cost objects 134,
214, 216, 223, 227
007—internal orders 135, 214,
216, 223, 226
008—sales orders 126, 137,
214, 216, 223, 227
009—process orders 37, 138,
214, 216, 223, 227
010—product cost collectors
140, 214, 216, 223, 227
011—service orders 143, 214,
216, 223
012—CO production orders 40,
79, 122, 145, 214, 216, 223,
226
200—ECP
general costing characteristic
128, 147, 168, 188, 214,
216, 223, 226, 228
205—ECP
PSP element 188, 214, 216,
223
206—ECP
gen.cost object/cost obj hier
214, 216, 224

- 207—ECP
 internal order 188, 214, 216, 224
- 208—ECP
 customer order 214, 216, 224
- 214—ECP
 message 214, 216, 224
- 215—ECP
 appropriation request 188, 214, 216, 219, 224, 226, 228
- BAC—accounts 214, 216, 219, 224, 231
- BCD—money mrkt, forex, derivatives 214, 216, 219, 224, 231
- BKK—bank customer accounts 214, 216, 219, 224, 231
- BLN—loans 214, 216, 219, 224, 231
- BPP—business process
 planning 148, 214, 216, 224, 228
- BSO—security orders 215, 216, 219, 224, 231
- BSS—securities positions 215, 216, 219, 224, 231
- BST—security class data 215, 217, 220, 224, 231
- BSV—banking services 164, 215, 216, 220, 225, 231
- BVT—variable transaction 215, 216, 220, 225, 231
- CPD—activity dependent cost center planning 148, 215, 216, 225
- CPI—activity independent cost center planning 148, 215, 216, 225
- defined 91
- PAC—profitability analysis
 allocations 161, 215, 216, 220, 225, 230
- PCA—profit center planning
 158, 215, 216, 225, 230
- SBP—business process actual allocations 151, 215, 216, 225, 229
- SCD—activity-dependent cost center actual allocations 151, 155, 215, 216, 225, 229
- SCI—activity-independent cost center allocations 26, 28, 151, 155, 215, 216, 225, 229
- SKD—activity-dependent statistical key figure allocations 155, 215, 216, 225, 229
- SKI—activity-independent statistical key figure allocations 155, 215, 216, 226, 229
- SOP—sales and operation planning 162, 215, 216, 220, 226, 230
- F**
- Flexible function 54, 87, 106, 111, 117
- Formula See *Template formula*
- Function 94, 102
 ABAP reference 102, 110
 Basic Data tab 104
 change 115
 copy 115
 delete 116
 display 116
 documentation 109
 field reference 102, 104
 Function Hierarchy tab 107
 Implementation tab 105, 110
 Language tab 108
 Parameters tab 112
 save 109
 Usage tab 106
- Function reference 92, 100
 change 102
 copy 102

- delete 102
- insert 101
- Function tree 91, 94
 - activate/deactivate 97
 - copy 96
 - create 96
 - custom 91, 95, 96, 97, 98, 101, 104, 108, 109
 - delete 98
 - import 97
 - recreate 96
 - SAP1 94, 96, 97, 98, 99, 100, 101, 102, 104, 108, 109

I

- Indirect activity allocation 18
- Indirect costs 14
- Internal order 13, 135, 147, 188

M

- Material characteristic 72, 110
- Method See *Template method*

N

- Network 42, 79, 130, 133

O

- Overhead costing sheet See *Costing sheet*

P

- Product Cost Controlling 13, 25
- Profitability Analysis See *CO-PA*
- Project See *Project systems*
- Project systems 13, 131, 147, 188

R

- Row 26, 43
 - base planning object 194
 - business process 45, 190
 - calculation 46, 191
 - comment 48, 189
 - cost center/activity type 45, 190
 - costing model 191
 - external activity 192
 - material 193
 - service 193
 - subcontracting 192
 - subtemplate 47
 - text item 195
 - variable item 195

S

- Statistical key figure 16, 19, 25, 27, 29, 155, 158
- Structure node 91, 98
 - change 100
 - copy 99
 - create 99
 - delete 100
- Sub-environment 37, 91, 92, 93, 97, 98, 103, 106, 107, 109, 118, 130

T

- Target=Actual activity allocation 20
- Template allocation 20, 29, 85
- Template application 91, 125, 213
 - COB—cost objects 40, 42, 43, 47, 48, 79, 125, 213, 220, 226
 - CPI—formula planning 147, 151, 213, 214, 220, 228
 - ECP—Easy Cost Planning 49, 146, 213, 214, 221, 228

- ISB—financial objects 164, 213, 214, 221, 231
 - PAC—costing based profitability analysis 160, 213, 215, 221, 230
 - PCA—profit center planning 48, 158, 213, 215, 221, 229
 - SBP—activity assignments 150, 155, 213, 215, 222, 229
 - SKI—statistical key figures 155, 213, 215, 222, 229
 - SOP—transfer sales and operation plan 162, 213, 215, 222, 230
 - Template assignment See *Template connection*
 - Template connection 28, 35, 122, 128, 134, 135, 139, 145, 149, 151, 155, 158, 161, 163, 165
 - Template formula 20, 25, 26, 28, 32, 38, 40, 41, 42, 43, 46, 50, 51, 52, 54, 56, 63, 65, 71, 80, 82, 84, 86, 88, 90, 91, 92, 111, 113, 117, 176, 179, 188, 191, 195, 204, 206, 207, 208, 209
 - arithmetic operators 81
 - defined 80
 - editor 38, 81
 - mathematical functions 81
 - use of parentheses 81
 - Template maintenance 36
 - create 37
 - delete 39
 - display 39
 - modify 38
 - regenerate 38
 - Template method 38, 63, 65, 81, 82, 84, 90, 92, 110, 113, 188
 - activation 51, 53, 55, 66, 68, 118, 132, 151, 179, 204, 206, 208
 - allocation event 79, 80, 133
 - Boolean operators 67, 69, 73
 - defined 65
 - editing window 68, 73
 - object determination 52, 72, 73, 190
 - relational operators 66, 69, 72
 - use of parentheses 67
 - Tracing factor 17
- V**
- Valuation variant 35, 83, 122, 126, 127, 128, 137, 139, 141, 143, 145
- W**
- WBS element 42, 79, 131, 133, 147, 188
 - Weighting factor 17

C Disclaimer

This publication contains references to the products of SAP SE.

SAP, R/3, SAP NetWeaver, Duet, PartnerEdge, ByDesign, SAP BusinessObjects Explorer, StreamWork, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE in Germany and other countries.

Business Objects and the Business Objects logo, BusinessObjects, Crystal Reports, Crystal Decisions, Web Intelligence, Xcelsius, and other Business Objects products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of Business Objects Software Ltd. Business Objects is an SAP company.

Sybase and Adaptive Server, iAnywhere, Sybase 365, SQL Anywhere, and other Sybase products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of Sybase, Inc. Sybase is an SAP company.

SAP SE is neither the author nor the publisher of this publication and is not responsible for its content. SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.