

Browse the Book

In this chapter, we'll discuss the basic reports that every organization needs to run its core business, including coverage of general Controlling, Product Cost Controlling, and Profitability Analysis reports.



“Reporting”



Table of Contents



Index



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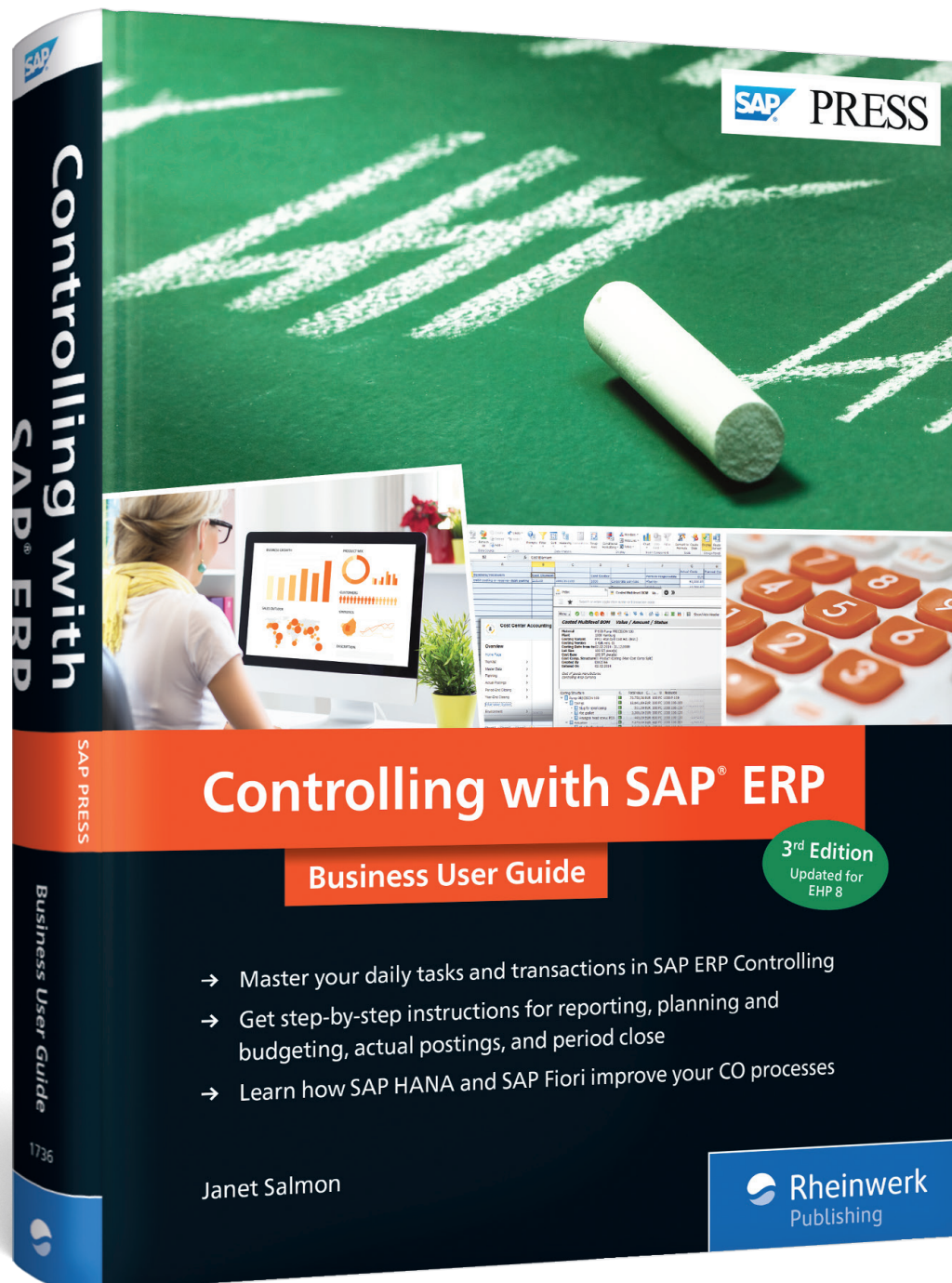
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Chapter 2

Reporting

In this chapter, we'll discuss the basic reports that every organization needs to run its core business, including coverage of general Controlling, Product Cost Controlling, and Profitability Analysis reports.

Almost all SAP documentation and training materials cover reporting at the end, as something of an afterthought, once the main topics surrounding the business processes and underlying master data have been explained. However, if you're a controller, the need to analyze business performance each month is at the heart of your job, the very reason for doing controlling in the first place, so it makes sense to start by looking at some of the standard reports that controllers use every day. This way, you'll get a sense of what information is available in each area of the Controlling component of SAP ERP Financials (CO) and what you can expect from the chapters to follow.

The other reason to start with reporting is that it means we'll have covered the basic functions, such as changing the column structure or downloading the report contents to a spreadsheet, when we walk through how to post expenses to a cost center or production order later.

In this chapter, we'll focus on the line item that records expense postings, allocations, and so on, looking at reports that allow you to search for the relevant line items in each application area. Controllers also like to bring these line items into *context* to understand whether cost center spending is going according to plan, whether project spending is about to exceed a budget limit, or whether production lines are executing to target. While we're looking at the line items for each area, we'll try to bring these line items into their Controlling context.

This chapter will look at your reporting options in SAP ERP. If your organization is already using a data warehouse for reporting, you'll find a discussion on when to use SAP Business Warehouse (BW) in Chapter 8. However, even controllers whose organizations have implemented SAP BW still tend to use the line item reports in SAP ERP

for detailed cost tracking and analysis. In Chapter 13, we'll look at the newer options available with SAP HANA. Because these newer options build directly on the line items, it's more important than ever to understand what information is being captured at the source.

Note

Wherever possible in this book, we'll use the new-look user interfaces that are available from EHPs 5 and 6 for SAP ERP 6.0. For readers not yet using this version of the software, we'll also provide the menu path and transaction so that you can follow the instructions no matter which version of SAP ERP you're running. You'll find information about how to install the SAP NetWeaver Business Client in SAP Note 1029940 and information about how to implement the user interfaces in Appendix A, which you can download at www.sap-press.com/4691. If you're concerned about the continued availability of the SAP NetWeaver Business Client, check the details of the maintenance strategy in SAP Note 2302074.

2.1 Cost Center Line Items

Let's start our journey in Cost Center Accounting. The cost center line item report that helps you monitor expense postings to a cost center and allocations from the cost center is one of the most widely used transactions in SAP ERP Financials. If you know how to use it properly, you'll already be well on the way to being an expert in CO with SAP ERP Financials.

2.1.1 Classic Cost Center Line Item Report

In the **SAP Easy Access** menu, all transactions and reports are grouped into folders for the main application areas, such as **Cost Center Accounting**, **Internal Orders**, **Product Cost Controlling**, **Profitability Analysis**, and so on. These *application areas* are delivered as *roles* in EHP 5 for SAP ERP 6.0. When you log on, you'll see all the roles assigned to your user. We'll start each section of this chapter by looking at the relevant role structure. Figure 2.1 shows the entries in the **Cost Center Accounting** role. You'll find all the reports available for this role under **Information System**.

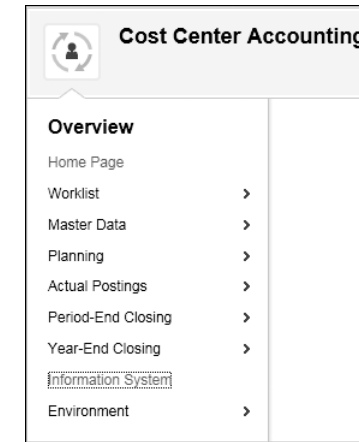


Figure 2.1 Cost Center Accounting within SAP NetWeaver Business Client

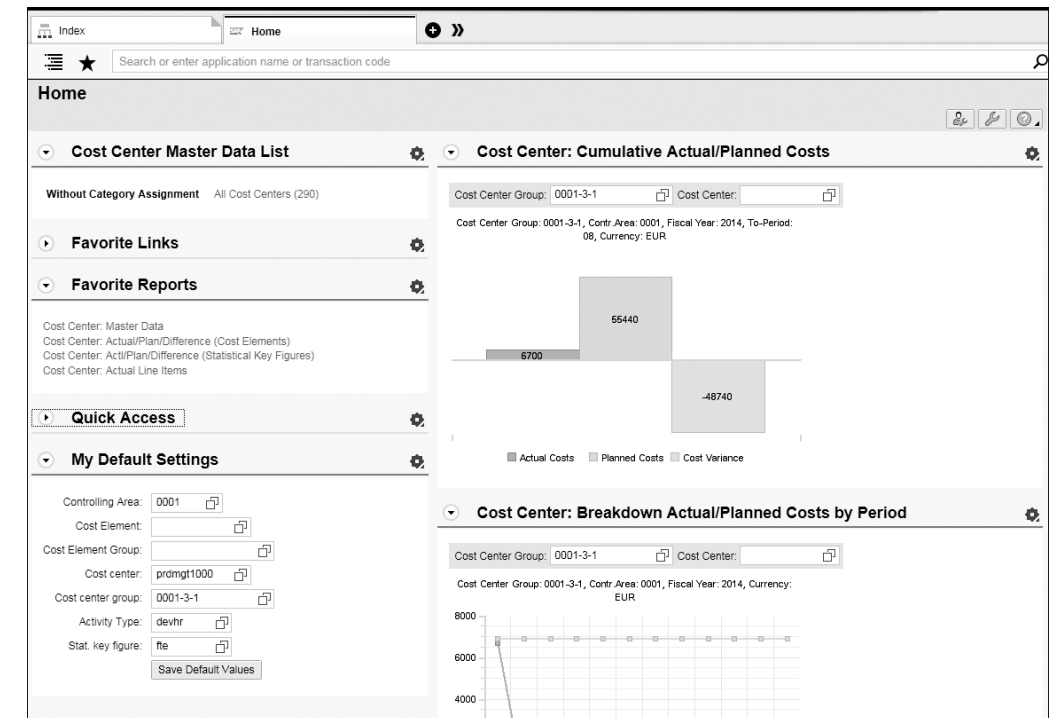


Figure 2.2 Home Page for Cost Center Accounting

Before we explore the reports on offer, let's look at the **Home** page shown in Figure 2.2. This page is delivered as part of the **Cost Center Accounting** role (SAP_EP_RW_CO_KSMN) if you're on EHP 6 for SAP ERP 6.0. As a controller, it can be good to start the day with a quick overview of the plan/actual costs on your cost centers before you delve into the details. To make sure that this report can run without you entering any selection parameters, you need to set certain defaults for your user. To do this, select **System • User Profile • Own Data**, choose the **Parameters** tab, and enter the parameter CAC for the controlling area. You'll notice an area called **My Default Settings** in the lower left of the screen. As you enter a cost center and/or cost center group, you'll be updating your user parameters with the parameter KOS for the cost center and your chosen cost center.

The **Information System** link shown in Figure 2.1 will take you to a screen that shows the reports available for **Cost Center Accounting**. This is the equivalent of choosing the menu path **Financials • Controlling • Cost Center Accounting • Information System • Reports for Cost Center Accounting** in earlier versions of the software. If you compare the links in Figure 2.3 with the entries in the classic menu, you'll find that more reports are shown here. This is because we've included newer reports in the list that were delivered in EHPs 3 and 5 for SAP ERP 6.0. All reports with the word **List** in the title can be run directly in your SAP ERP environment.

Activating New Reports via the Enhancement Packages

To find out how to make the new reports work in your organization, refer to Appendix B, which you can download at www.sap-press.com/4691.

In the **Line Items** folder, select the **Cost Centers: Actual Line Items** link. The *actual line items* document every posting taking place to CO in real time (such as the expense posting we looked at in Chapter 1) and at period close (such as the allocations we'll look at in Chapter 7).

The selection screen for the cost center line item report now appears (see Figure 2.4). Experienced controllers will recognize this as Transaction KSB1. From this point onward, all functions will be the same as in the classic transaction. The new user interface simply changes the way the transaction is accessed, replacing a menu or transaction call with a role-based approach.

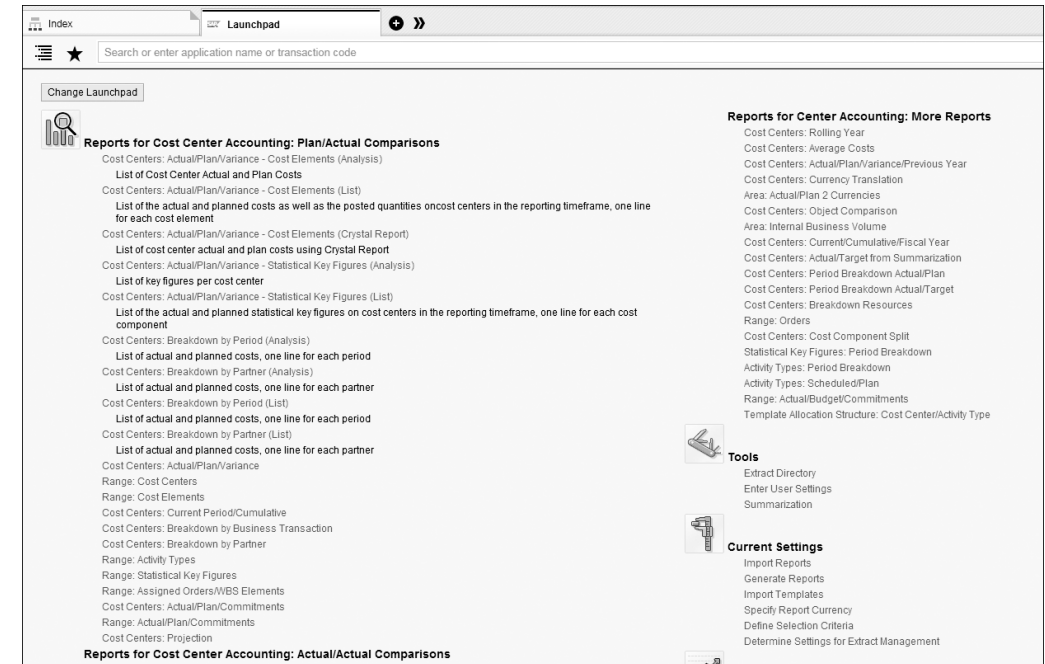


Figure 2.3 Reports for Cost Center Accounting

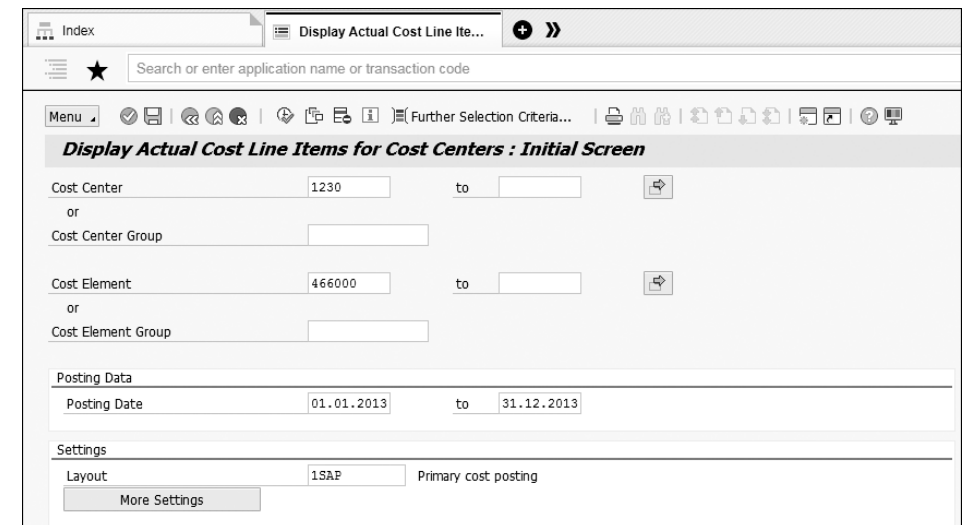


Figure 2.4 Cost Center Line Items: Selection Screen

To select the relevant line items for analysis, enter cost center 1230 (Power), cost element 466000 (Insurance Expenses), and posting dates between 01.01.2013 and 31.12.2013 in the selection screen, then click on the **Execute** button. The result is a list of all postings for insurance expenses to the cost center in 2013, as shown in Figure 2.5. This is the CO view of the expense posting we used as our example in Chapter 1. Of course, if you know the document number, you can access the line items of the relevant documents directly using Transaction KSB5 (Display Actual Cost Documents), but it's generally more efficient to search via the cost center or cost center group. We'll see how to access the CO document when we look at the integrated process flows for buying, making, and selling goods in Chapter 6.

Cost Elem.	Cost element name	Σ	Val.in rep.cur.	Total quantity	P...	O. Offst.acct	Name of offsetting account
466000	Insurance expenses		3.027,42			K 1100	Phunix GmbH
	Insurance expenses		2.847,58			K 1100	Phunix GmbH
	Insurance expenses		2.787,63			K 1100	Phunix GmbH
	Insurance expenses		2.817,60			K 1100	Phunix GmbH
	Insurance expenses		2.847,58			K 1100	Phunix GmbH
	Insurance expenses		2.967,48			K 1100	Phunix GmbH
	Insurance expenses		3.057,40			K 1100	Phunix GmbH
	Insurance expenses		3.027,42			K 1100	Phunix GmbH
	Insurance expenses		3.087,37			K 1100	Phunix GmbH
	Cost Center 1230 Power		26.467,48				
			26.467,48				

Figure 2.5 Result List

This type of *list report* is available throughout CO and in other areas of SAP ERP, so it's worth taking time to get familiar with the standard report functions. You'll recognize reports built with this technology throughout the book by the standard toolbar. The technical term for this kind of report is *SAP List Viewer*. To explore this type of result list, some controllers immediately reach for the **Export to Excel** button to start exploring their data in a spreadsheet.

You should know, however, that SAP List Viewer has its own spreadsheet-like functions. You can sort columns, include totals and subtotals, and so on in any list. To remove unnecessary columns, position the cursor on the column, right-click, and select **Hide**.

In general, you are more likely to add fields to such reports than remove them because the line item includes far more fields than can reasonably be displayed on a single screen. The group of fields displayed in SAP List Viewer at any point is called the *layout*. SAP delivers several layouts for use with cost centers. You can change these with the **Change Layout** dialog, which you can reach by clicking on the **Choose Layout** button; the **Choose Layout** screen is shown in Figure 2.6.

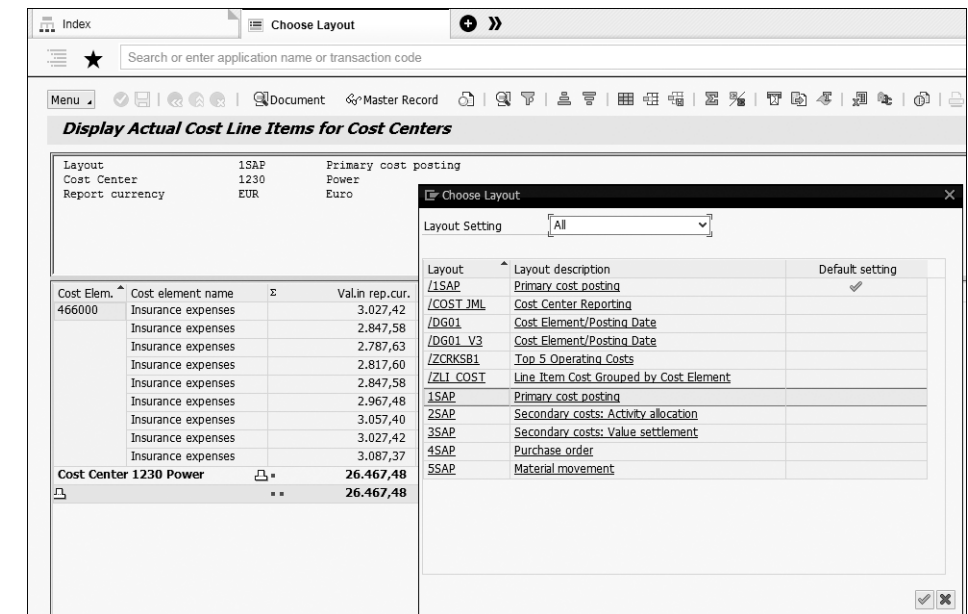


Figure 2.6 Change Layout in SAP List Viewer

The cost center line item includes layouts for the following:

- **Primary Cost Posting**
Use this layout to analyze expense postings from the General Ledger.
- **Secondary Costs: Activity Allocation**
Use this layout to analyze direct activity allocations charged from another cost center (see Chapter 6).
- **Secondary Costs: Value Settlement**
Use this layout to analyze order values that have been settled to the cost center (see Chapter 7).

■ Purchase Order

Use this layout to analyze purchase orders for which the account assignment is the cost center (see Chapter 6).

■ Material Movement

Use this layout to analyze goods movements charged to the cost center (see Chapter 6).

These layouts will get you started, but you'll almost certainly want to create more layouts to organize the data in the list the way you want to see it (you'll notice that additional layouts have also been created in this demo system). To change a layout or to create a new one, click on the **Change Layout** button, which takes you to the **Change Layout** dialog shown in Figure 2.7.

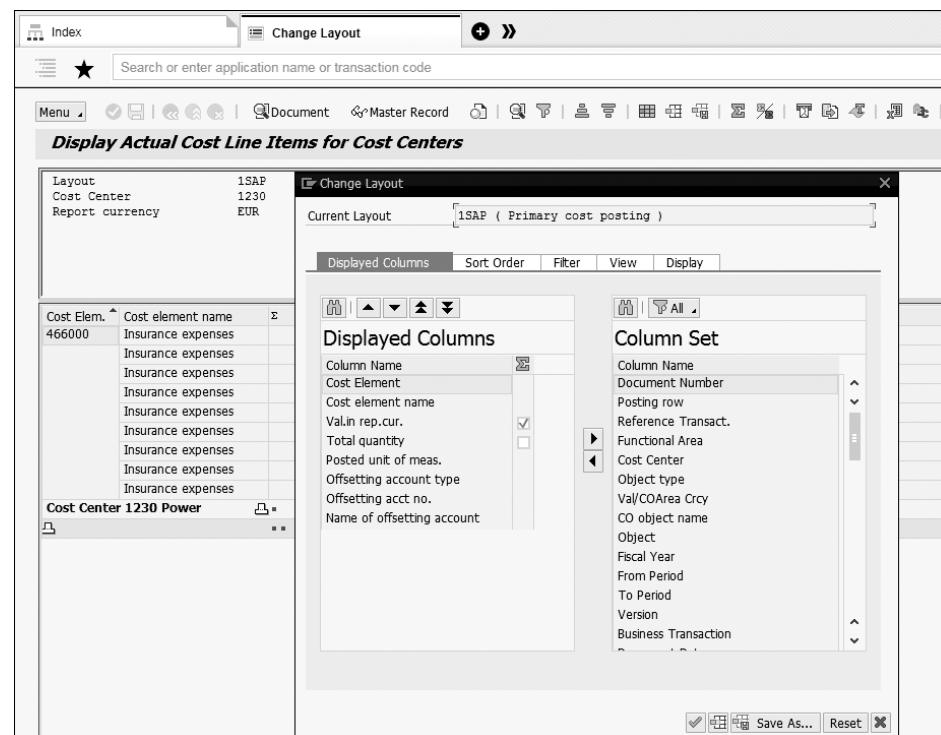


Figure 2.7 Adding Fields Using SAP ABAP List Viewer

To add fields, move them to the left by marking the relevant field in the right-hand column (**Column Set**) and selecting the left-facing arrow button in the center. To hide columns, move them to the right by marking the relevant fields in the left-hand column (**Displayed Columns**) and selecting the right-facing arrow button in the center. If the result is a layout that you want to use regularly, it's worth saving the layout under a meaningful name by clicking on the **Save** button. The new layout is assigned to your user, so nobody else will see your layout. To help you explore the potential of this list, let's consider the data available in the line item report.

Primary Cost Postings

The layout shown in Figure 2.6 and Figure 2.7 is for primary cost postings. It explains expense postings that originated in the General Ledger and shows the cost element in CO that mirrors the profit and loss account in the General Ledger and the offsetting reconciliation account for the vendor in Accounts Payable. We'll look at cost elements and accounts in more detail in Chapter 3 and Chapter 4. The layout also includes details of the offsetting account type—the insurance company whose services have been purchased—so the layout includes account type K for vendors and the offset account for the vendor invoice in our example.

If you want to reconcile your cost center documents against the data in the General Ledger, you can extend this layout to include the following fields, all of which are defaulted from the cost center master record:

■ Company Code

If you're looking at cross-company postings, you may want to know in which company code each posting was made.

■ Business Area

This is the main way of segmenting your business activities in the General Ledger.

■ Functional Area

This is used to segment activities for cost-of-goods-sold (COGS) reporting and in Public Sector Accounting.

■ Segment

This is used for segment reporting according to International Financial Reporting Standards (IFRS). The segment is derived from the profit center in the cost center.

One field you won't find in the layout is the controlling area. Every posting in CO takes place in a controlling area. Depending on your configuration, the controlling

area may cover one or more company codes. In recent years, there has been a trend in global organizations toward a global controlling area. Whatever your settings, the golden rule is that all postings in CO and all reporting activities take place in a single controlling area. The only way to show data in multiple controlling areas is to report in SAP BW.

Secondary Postings or Allocations

If we assume that the cost center allocates the insurance expenses to several other cost centers, you might want to explain these postings by creating a new layout to show the *partners* participating in the allocation. This layout still includes the cost element and the cost center as the sender of the allocation, but you can extend it to include the following fields for the *sender*:

- **Object Type**
The type of object against which the posting was made. In our example, the cost center is CTR. For the order line item that we'll look at later, the object type is ORD, for example.
- **Object**
The object against which the posting was made. In our example, this is cost center number 1230.
- **Debit/Credit Indicator**
Whether the posting was a debit (D) or a credit (C).

To explain the other side of the *partner relationship*, include the following fields:

- **Partner Type**
The type of object to which you made the allocation. This might be CTR if you are using assessment cycles or distribution cycles or ORD (order) if you are charging a department's costs to an order using time recording.
- **Partner Object**
The key of the other cost center or the order that received the allocation.
- **Partner Object Name**
The name of the other cost center or the order that received the allocation.
- **Business Transaction**
This enables us to distinguish between different types of postings and allocations for auditing purposes. We'll see examples of the different codes for the business transactions when we look at sample expense postings in Chapter 6 and the various forms of allocations that take place at period close in Chapter 7. It's worth

familiarizing yourself with the business transactions used in your organization as the locking mechanisms at period close will lock, for example, the assessment postings (RKIU) or the settlement postings (KOA0).

Multiple Currencies

If you work with several currencies, it's also a good idea to create a separate version of your chosen layouts for each of the relevant currencies and another layout that shows relevant combinations:

- **CO Area Currency**
This is usually the group reporting currency and is set for the controlling area. In general, this is the same as the group currency in the General Ledger.
- **Object Currency**
This is the currency of the object (in our case, the cost center) and is set in the cost center master record. For example, a cost center based in the United States would have US dollars as the object currency. In general, this is the same as the company code currency in the General Ledger.
- **Transaction Currency**
This is the local currency in which the transaction was performed. For example, if the US cost center purchases goods in Canada, the Canadian supplier would invoice in Canadian dollars (transaction currency).
- **Report Currency**
This is set centrally for reporting purposes.

The other fields in the line item report are of two types. Some are specific to the business process (such as supplier, material, or employee) and make sense in that context but will not be filled by other transactions. Others are fairly technical and tend to be used for troubleshooting or when extracting data to another system, such as SAP BW.

2.1.2 Simplified Cost Center Line Item Report

In EHP 3 for SAP ERP 6.0, SAP modernized the user interface for the cost center line item report so that the whole user interface is on the web. From EHP 5 for SAP ERP 6.0, you'll find the new reports in the list we showed in Figure 2.3. In earlier enhancement packages, you'll find them in a separate list that you'll have to copy into your existing roles. All reports labeled List behave the same way as the cost center line item report. There are also reports labeled Analysis and SAP Crystal Reports. We'll come back to

these reports when we look at alternative reporting options using SAP BW (for the analysis reports) and SAP BusinessObjects (for SAP Crystal Reports) in Chapter 8.

Clicking on **Cost Centers: Actual Line Item (List)** takes you to the new report. Enter the same search criteria as before. Figure 2.8 shows the resulting layout. Without getting too technical, notice that the screen rendering of an application built specifically for the web looks “cleaner” than a transaction that was built in preweb days and has simply been called via the role. However, the costs displayed are identical, because both reports read the same underlying data from SAP ERP. You might also consider making this report available to cost center managers and keeping the classic line item report for use in Controlling.

This report looks slightly different, in that the selection screen can be toggled on and off with the **Search Criteria** button rather than being left behind once the report is executed. The basic principles for list reporting that we just discussed are the same. To create layouts and change the fields displayed, click on the **Settings** button. Be aware, however, that this time the hidden columns are on the left and the displayed columns on the right (see Figure 2.8).

Cost Center	Cost Element	Cost Element Name	Value	Currency	Quantity	Unit	Account Type	Offsetting Acct No.	Offsetting Acct Name
1230	466000	Insurance	7,508.10	USD			K	3803	Multi-State Brokers, Inc.
		Insurance	7,582.44	USD			K	3803	Multi-State Brokers, Inc.
		Insurance	7,062.07	USD			K	3803	Multi-State Brokers, Inc.
		Insurance	6,913.40	USD			K	3803	Multi-State Brokers, Inc.
		Insurance	6,987.73	USD			K	3803	Multi-State Brokers, Inc.
		Insurance	7,359.42	USD			K	3803	Multi-State Brokers, Inc.

Figure 2.8 Simplified Cost Center Line Item Report

Simplified Reporting and the SAP Easy Access Menu

Although the first enhancements for simplified reporting were introduced in EHP 3 for SAP ERP 6.0, activating the business function FIN_REP_SIMPL_1 does not activate new transaction codes or bring these reports into your SAP Easy Access menu. The way to work with the list reports delivered for simplified reporting is to make them part of a report launchpad that is included in the user’s role. To find out how to configure a report launchpad like the one shown in Figure 2.3, refer to Appendix B (found at www.sap-press.com/4691).

2.1.3 Totals Records for Cost Centers

The line item is by far the most commonly used data record for reporting. Similar data records exist to document what happened during the planning process (Transaction KSBP) and how commitments are created and used (Transaction KSB2). However, to put the entries in the line items into context, most controllers will want to look at how the costs compare with their plan. The plan data is generally at a higher level of aggregation than the line item (it’s rare to plan by supplier, employee, and so on). Every line item has its sister *totals record* that stores a subset of the data available in the line item in each accounting period. Most of the period-close reports that we will look at in Chapter 7 read the totals records rather than the line items because performance is better if you select from a handful of fields organized in period blocks rather than from all 80 fields in the line item table. You’ll find that most of the other reports in **Cost Center Accounting**, including the plan/actual comparison, target/actual comparison, and so on (see Figure 2.3), also work with totals records. In essence, the reports are bringing the detailed line item data up to the level at which you planned (cost center/account/period) so that you can make a line-by-line comparison. We’ll look at planning in more detail in Chapter 5.

In general, you can display the line items from these reports by selecting the line you’re interested in and double-clicking. The selection parameters (cost center, cost element, time frame, etc.) are passed to the line item report through the *report-to-report interface*. As an example, select **Plan/Actual Comparison Report** (shown in Figure 2.3) and enter the cost center 1230 and the periods January to December 2013 in the selection list. The result is a formatted report (see Figure 2.9) designed to show the cost center manager the state of spending on his cost center in that time frame (the total **Debit** line), together with how these costs have been charged to other cost

centers (the total **Credit** line). To display the line item, double-click on the line for insurance expenses, then select **Cost Center: Actual Line Items** from the pop-up. This passes the parameters from your selection, and you then see the line item report we used as our initial example.

Cost elements	Act. costs	Plan costs	Abs. var.
261000 0000261000	8.572,00-		8.572,00-
416100 Electricity Base Fe	18.614,28	25.041,64	6.427,36-
416200 Electricity Usage	102.049,57	680.040,84	577.991,27-
420000 Direct labor costs	43.252,24	52.560,80	9.308,56-
430000 Salaries	4.601,64		4.601,64
430900 Other sal. expenses			
431900 Holiday premium			
435000 Annual Bonus		3.783,56	3.783,56-
440000 Legal social expens	10.498,84	13.664,36	3.165,52-
440100 Soc. secur., salary	857,17		857,17
449000 Other pers. costs	463,23	562,43	99,20-
466000 Insurance expenses	26.467,48	35.969,40	9.501,92-
481000 Cost-acctg deprec.	8.572,00	12.395,76	3.823,76-
483000 Imputed interest		8.479,80	8.479,80-
632000 IAA Corporate Serv.	24.370,12	32.797,13	8.427,01-
633000 IAA Canteen	1.199,75	815,87	383,88
634000 IAA Telephone Units	378,89	459,31	80,42-
635000 IAA Telephones	854,61	1.151,00	296,39-
637000 IAA Human Resources	3.534,21	2.482,50	1.051,71
* Debit	237.142,03	870.204,40	633.062,37-
617000 DAA Energy		868.329,09-	868.329,09
639200 IAA power			100,00-
* Credit		868.329,09-	868.329,09
** Over/underabsorption	237.142,03	1.875,31	235.266,72

Figure 2.9 Cost Center Plan/Actual Variance and Link to Line Item Report

It's unlikely that you'll work with cost centers alone, so let's now look at the reports for internal orders.

2.2 Order Line Items

Let's continue our journey by looking at internal orders. Orders have many uses in SAP ERP, either detailing the activities on a cost center or representing activities going on completely separate from the cost center, such as capital investments. Others are purely statistical and are entered as an additional account assignment alongside the real cost center or order. There are also many orders that don't originate in CO but are created in Logistics (production orders, process orders, maintenance orders, QM orders, networks, and so on).

The costs for these orders can be analyzed using the same report, which probably explains why the order line item report is one of the most widely used transactions in SAP ERP Financials.

Order line item reports follow the same basic principles as cost center line item reports. In Figure 2.10, we've selected the **Internal Orders** role (SAP_EP_RW_CO_KAMN). You'll find all the reports available for this role under **Information System**. This corresponds to the menu path **Financials • Controlling • Internal Orders • Information System • Reports for Internal Orders** in earlier versions of the software.

Figure 2.10 Internal Order Accounting within SAP NetWeaver Business Client

Again, let's look at the **Home** page (see Figure 2.11) before looking at the reports in detail. This time, consider setting defaults for the order type AAT and the order number ANR to ensure that the report can start with a default setting.

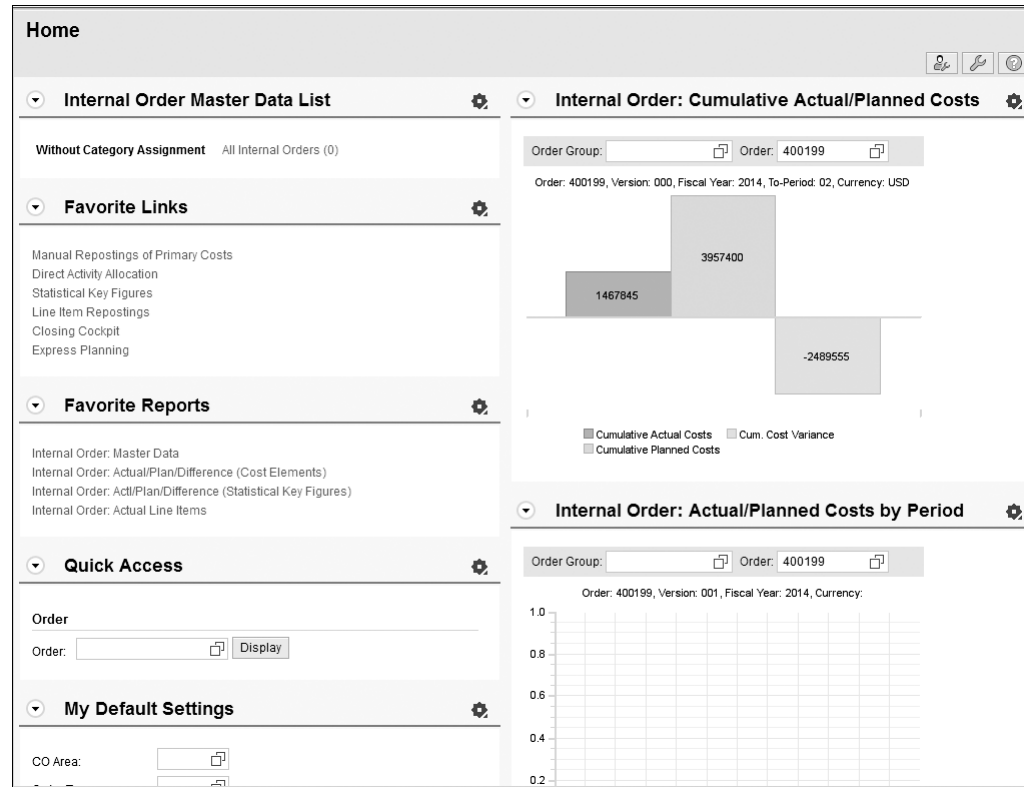


Figure 2.11 Home Page for Order Accounting

Figure 2.12 shows the list of reports for the internal orders. Again, this includes classic reports in all releases of SAP ERP and further reports that can be activated through the simplified reporting business functions.

Now, select the **Line Items** folder and then **Orders: Actual Line Items**. Experienced controllers will recognize this as Transaction KOB1. To select the relevant line items for analysis, enter order 400199, leave the cost element group blank, and enter posting dates between 01.01.2013 and 31.12.2013 in the selection screen. Then click on the **Execute** button. The result is a list of all postings for order 400199 in 2013, as shown in Figure 2.13.

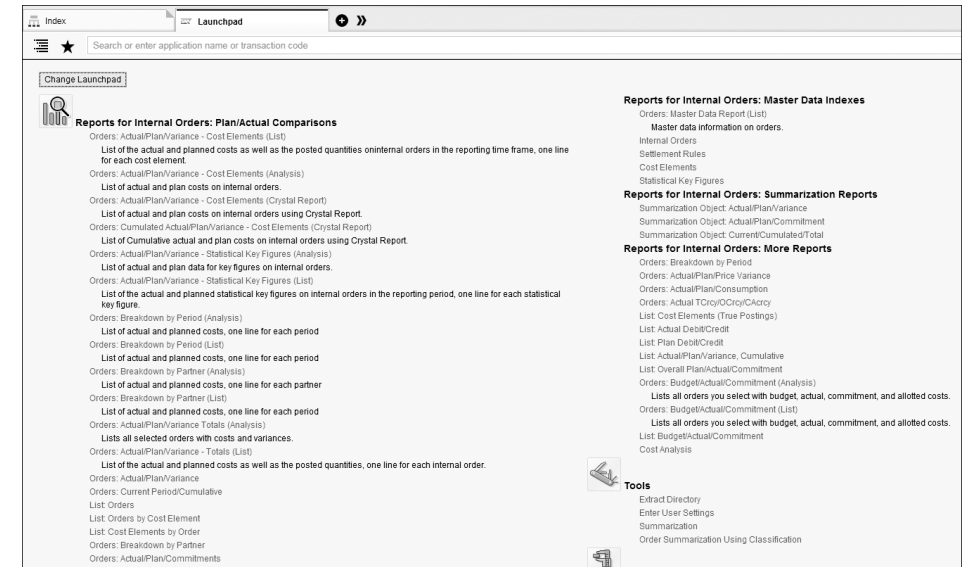


Figure 2.12 Reports for Order Accounting

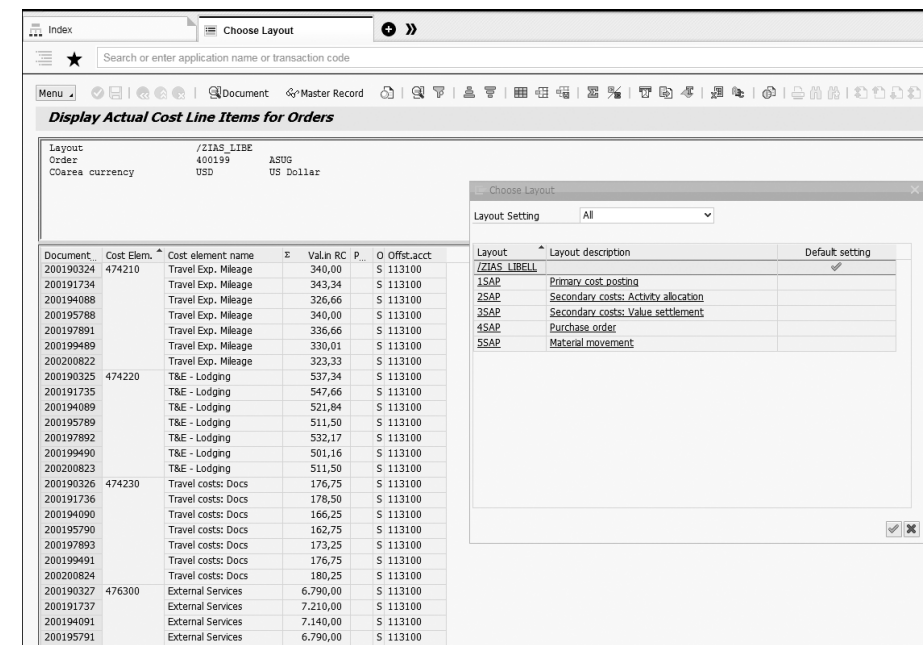


Figure 2.13 Order Line Item Results

The same layouts are available as for the cost center line item report except that this time the account assignment is the internal order. Additional line item reports document what happened during order planning (Transaction KABP) and how commitments are created and used (Transaction KAB2).

User-Specific Layouts

Once order managers understand how to create their own layouts, you are likely to find that layouts for this transaction proliferate. These same managers will tend to set their own layouts as default for all users. Encourage users to set the **User-specific** flag when they save their layouts, especially if they are creating a default. If you need to clean up your layouts at any point, choose **Settings • Layout • Manage**. You can then toggle between your personal layouts and those belonging to your organization, checking them and if necessary deleting ones that are no longer needed.

When it comes to putting order-spending in context, you can of course compare planned costs against actual costs just as we did for the cost center, but it's also possible to set a budget for internal orders—in other words, a ceiling on spending for that order. You won't use this for all order types, but it's common to set budgets for investment orders and some maintenance orders. As an example, select **List: Budget/Actual/Commitments** (shown in Figure 2.12) and enter the controlling area and a range of internal orders (we've used a range of marketing orders) in the selection list. The result is a formatted report (see Figure 2.14) designed to show the order manager the state of spending by comparison with the budget. We'll come back to planning and budgeting in Chapter 5 and will explain how this ceiling is used to block spending on the order and how the **Commitment** column gets filled in Chapter 6.

Orders	Budget	Actual	Commitment	Assigned	Avail. qty
400177 SAPPHIRE	1,000,000.00	270,819.01		270,819.01	729,180.99
400178 CEBIT	1,500,000.00	469,975.59		469,975.59	1,030,024.41
400179 ASUG	500,000.00	213,552.83		213,552.83	286,447.17
400197 SAPPHIRE	1,500,000.00	270,819.01		270,819.01	1,229,180.99
400198 CEBIT	1,000,000.00	439,464.34		439,464.34	560,535.66
400199 ASUG	500,000.00	195,661.17		195,661.17	304,338.83
400200 SAPPHIRE	1,000,000.00	316,530.33		316,530.33	683,469.67
400201 CEBIT	1,500,000.00	458,075.59		458,075.59	1,041,924.41
400202 ASUG	500,000.00	195,661.17		195,661.17	304,338.83
* Total	9,000,000.00	2,830,559.04		2,830,559.04	6,169,440.96

Figure 2.14 Budget/Actual Report for Marketing Orders

Although cost centers and internal orders are the simplest account assignments, if you work for a manufacturing company you'll also want to understand how to report on product costs, which we cover in the next section.

2.3 Product Costs: Itemization

The concept of cost center line items and order line items is easy for most accountants to grasp because of the affinity between a line item and a document in the General Ledger. When we come to product costing, the data structures change as the document takes something of a back seat and the focus moves to multilevel production structures, a familiar view for engineers but a new world for some accountants.

The *standard costs* for each manufactured product are calculated using a product cost estimate. The first step in costing is to read the bill of material (BOM) in Logistics to determine the materials to be used. The BOM is a multilevel structure that describes which raw materials are used to make a quantity of semifinished product and which semifinished products are used to make a quantity of finished product. The costs of converting the raw materials into semifinished products and then into finished products is described in *routing*s. This focus on the production master data is also apparent in the reports, with the multilevel costed BOM being by far the most commonly used report, followed by the itemization that displays a line for each input to the production process (i.e., for each material and each internal activity from the routing).

If the product can be manufactured on different production lines or manufactured in-house and purchased, then you'll find each approach represented in the reports as a procurement alternative. If such alternatives have been defined for a product, the system creates a cost estimate for each alternative and then mixes them according to a percentage (such as 60% make, 40% buy). Depending on the implementation, you may also see items for purchasing info records, subcontracting, external activities, coproducts, planned scrap, and so on in the product cost reports.

Every costing item is automatically assigned to a cost element that represents the account under which actual goods movements are posted. The cost elements are then assigned to *cost components* that represent the major cost blocks in production. There are several ways of looking at product costs:

- **Cost of goods manufactured**

This method sees the product costs as material costs, internal activities, external

activities, overhead, and so on. There can be up to 40 cost components, and the assignment is based on the cost elements under which the actual postings are captured in the system.

- **Primary cost component split**

This split looks at what is behind the internal activity. In other words, to provide an internal activity, a cost center uses energy, wages, depreciation, operating supplies, and so on.

- **Partner cost component split**

This split looks at the value added by each plant, company code, or business area involved in the manufacturing process.

2.4 Classic Reports for Product Cost Reporting

We'll start as we did for the cost centers and internal orders, with the role for Product Cost Planning (SAP_EP_RW_CO_CK00).

To access the relevant reports, select **Information System**, shown in Figure 2.15. Figure 2.16 shows a list of reports for product cost planning. In earlier versions of the software, follow the menu path **Controlling • Product Cost Controlling • Product Cost Planning • Information System • Reports for Product Cost Planning**. You may find that these reports are used not just by controllers but also by the engineers responsible for designing new products and the supply chain people responsible for cost assignment on the production line.

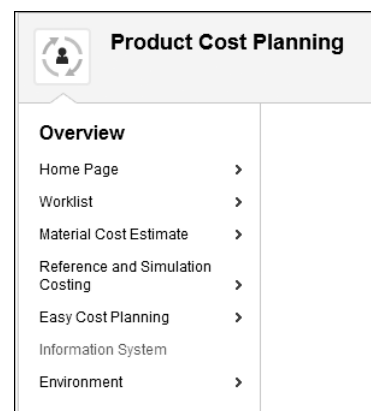


Figure 2.15 Product Cost Planning within SAP NetWeaver Business Client

Let's start with the **Detail Reports** folder and select **Costed Multilevel BOM** (see Figure 2.16). Enter the following and execute the report:

- **Material number and plant**

This identifies the product you're interested in. The plant is always part of the key in these reports.

- **Costing variant**

This provides the link to the configuration settings, telling you the purpose of the cost estimate (setting standard costs, determining the accuracy of current standard costs, balance sheet valuation for annual close, etc.), how the bill of material and routing should be selected, and what prices will be used in this calculation.

- **Costing version**

Normally, this is 1, unless you're using mixed costing (for which multiple cost estimates are weighted) or group costing (for which the same BOM and routing are costed first using the local prices and again using the group costs).

- **Costing lot size**

The reference quantity for the cost estimate against which all variable costs will be adjusted.

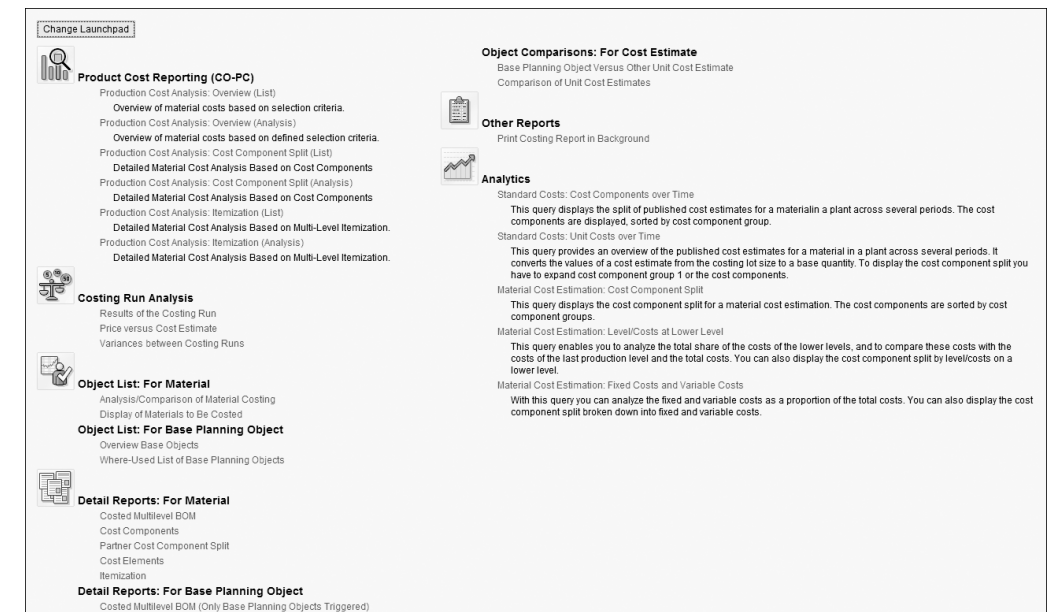


Figure 2.16 Reports for Product Cost Planning

Figure 2.17 shows the BOM together with the cost per item. You'll see the same report integrated in the cost estimate itself when we calculate the standard costs in Chapter 5.

Costing Structure	E.	Total value	C...	...	U	Resource
▼ Pump PRECISION 100		70.750,36 EUR	100	PC	1000	P-100
▼ Casings		13.641,80 EUR	100	PC	1000	100-100
• Slug for spiral casing		511,00 EUR	100	PC	1000	100-110
• Flat gasket		2.300,00 EUR	100	PC	1000	100-120
• Hexagon head screw M10		440,00 EUR	800	PC	1000	100-130
▼ Actuation		7.273,00 EUR	100	PC	1000	100-200
• Slug for fly wheel		2.613,00 EUR	100	PC	1000	100-210
▼ Hollow shaft		28.087,40 EUR	100	PC	1000	100-300
• Slug for Shaft		2.450,00 EUR	100	PC	1000	100-310
▼ Electronic		5.251,00 EUR	100	PC	1000	100-400
• Casing for electronic drive		511,00 EUR	100	PC	1000	100-410
• Circuit board M-1000		1.023,00 EUR	100	PC	1000	100-420
• Lantern ring		256,00 EUR	100	PC	1000	100-430
• Mains adaptor 100 - 240 V		102,00 EUR	100	PC	1000	100-431
• Cable structure		194,00 EUR	200	PC	1000	100-432
• Screw M 6X60		153,00 EUR	300	PC	1000	100-433
▼ Bearing case		4.133,04 EUR	400	PC	1000	100-500
• Ball bearing		3.680,00 EUR	400	PC	1000	100-510
• Sheet metal ST37		1.638,40 EUR	...	M2	1000	100-700
• Hexagon head screw M10		440,00 EUR	800	PC	1000	100-130
• Support base		5.120,00 EUR	200	PC	1000	100-600

Figure 2.17 Costed Multilevel BOM

Notice that some of the icons in this report are familiar from the cost center line item report. This is because this report also uses SAP List Viewer, but it uses a tree structure to represent the quantity structure in production, with each level in the tree representing an assembly with its own bill of material.

To display the costs per operation in the routing, select the **Itemization** report in the **Detailed Reports** folder. Because of the sheer number of ways of looking at data for a cost estimate (by item category, by operation, by cost element, by cost component, etc.), SAP delivers many layouts. To view the operations in the routing, select the **Operations** layout before executing the report.

Figure 2.18 shows the items by operation, together with the delivered layouts:

- **Item Categories**
Groups the items of the cost estimate by the internal categories **Material, Internal Activity, Overhead**, and so on.
- **Costing Items**
Lists the items of the cost estimate by their technical IDs.
- **Cost Components**
Shows the assignment of each costing item to one of up to 40 cost components.
- **Assemblies/Raw Materials**
Shows the raw materials (materials without BOMs—i.e., purchased materials) and assemblies (materials with their own BOMs—i.e., manufactured materials) used in the final product.
- **Cost Components/Cost Elements**
Used to check the assignment of the items to cost elements and from there to cost components.

It.	Resource	Resource (Text)	Total Value	Currency	Quantity	Unit
9	G 4130 655300	OHS Administration	0,00	EUR		
10	G 4130 655400	OHS Sales & Distrib.	0,00	EUR		
< not assigned >			0,00	EUR		
1	E 4275 PC-A 1420	Assemble acc. to drawi...	0,00	EUR	0	H
2	E 4275 PC-A 1420	Assemble acc. to drawi...	7,21	EUR	0,667	L
3	E 4275 PC-A 1421	Assemble acc. to drawi...	9,36	EUR	0,667	L
4	M 1200 R-1260C	Housing for modem	2,05	EUR	1	PC
5	M 1200 R-1270C	Board for modem X.25	30,70	EUR	1	PC
0010 Assemble acc. to drawing and routing			49,32	EUR		
6	E 4275 PC-T 1420	Check electrical features	0,00	EUR	0	H
7	E 4275 PC-T 1420	Check electrical features	2,16	EUR	0,050	H
8	E 4275 PC-T 1421	Check electrical features	9,36	EUR	0,667	L
0020 Check electrical features			11,52	EUR		
			60,84	EUR		

Figure 2.18 Itemization with Layouts

- **Operations**

Shows the assignment of the costing items to the operations in the routing.

- **Coproducts**

In the case that multiple products are manufactured in a single process (joint production), each coproduct is shown with item category A. We'll discuss coproducts in more detail in Chapter 4 and Chapter 6.

- **Planned Scrap**

Normal spoilage is planned in the BOM, routing, and material master for the assembly. We'll discuss planned scrap in more detail in Chapter 4.

- **Cost Elements**

Shows the assignment of the costing items to the accounts/primary cost elements and the secondary cost elements.

The product cost reports we've looked at so far help us analyze the *standard costs* for the product and support us mainly during the planning process (see Chapter 5). We'll now look at the reports available during the manufacturing process to explain how the costs are captured for production orders and similar objects. These are later compared against the standard costs for the product during variance analysis.

2.5 Product Costs: Cost Objects

Product Cost Planning almost never exists in isolation but exists as a preparation for Cost Object Controlling, in which the costs of executing the individual work orders are monitored. The reporting for Product Cost Planning introduced many new concepts, but the reporting for Cost Object Controlling is similar to the reports for the internal order. The data structures for the line items and totals records are identical. The main difference between an internal order and a *production order* is that the production order includes a planned lot size (the planned output measure for the order; see Chapter 1). Therefore, although an internal order for a research project simply collects the costs associated with the research, a production order collects costs for the manufacture of a given *quantity* of the finished product. This is important because all planned costs for this quantity will be adjusted later to calculate the *target costs* for the actual quantity of goods produced. This in turn provides the basis for variance analysis—a line-by-line comparison of the target costs against the actual costs in which the differences are explained as quantity variances, price variances, resource-usage variances, and so on. We'll look at the calculation of target costs and variances in more detail in Chapter 7.

Probably the biggest initial challenge is gaining an understanding of which cost objects your organization has chosen to work with because several approaches exist in Cost Object Controlling, depending on the nature of the chosen manufacturing process and your organization's approach to management accounting.

2.5.1 Product Cost by Order

The product cost by order approach is used when the individual production order or process order is the focus for cost management and the production costs for each individual lot are regularly monitored. The idea of the work order as the key element is an approach that has been around since the 1930s. The business goal is to monitor how each order gradually accumulates costs as goods are issued to the shop floor, operations confirmed, scrap reported, and so on. This approach makes sense when setup costs are significant and full cost traceability for each order is a business requirement and is widely used. It's also common when batch traceability is required in certain industries. However, practitioners of lean accounting argue that focusing on the work order in isolation encourages a "push" approach that potentially results in excessive inventory for which there is not necessarily a demand. Cost collection by order is also necessary for *joint production*—in other words, cases in which multiple products are produced in the same manufacturing process and the order costs have to be split to the coproducts. The **Product Cost by Order** menu offers several reports for tracking the costs of *production campaigns*, in which a series of production orders are manufactured in sequence because of the high costs of initial setup and cleanup on completion. This is particularly common in the chemical and pharmaceutical industries. More recently, developments for cost collection in outsourced manufacturing have brought the CO production order back into favor. We'll explore this in Chapter 6.

In Controlling terms, this approach is characterized by the delivery of the finished product to stock, the calculation of variances on completion of the order, and the calculation of work in process if the production or process order happens to be open at the time of the period close. We'll look at this process in detail in Chapter 7.

Figure 2.19 shows the role for **Order-Related Controlling** (SAP_EP_RW_CO_KKSM). To see the reports, select the **Information System** link. This is the equivalent of following the menu path **Financials • Controlling • Product Cost Controlling • Cost Object Controlling • Product Cost by Order • Information System • Reports for Product Cost by Order**.



Figure 2.19 Order-Related Controlling in SAP NetWeaver Business Client

Figure 2.20 shows all reports for product cost by order. Because of the number of production orders being processed at any given time, the detailed reports we looked at for the internal orders are supplemented by various mass reports that select, for example, all materials in a given plant or for a given product group.

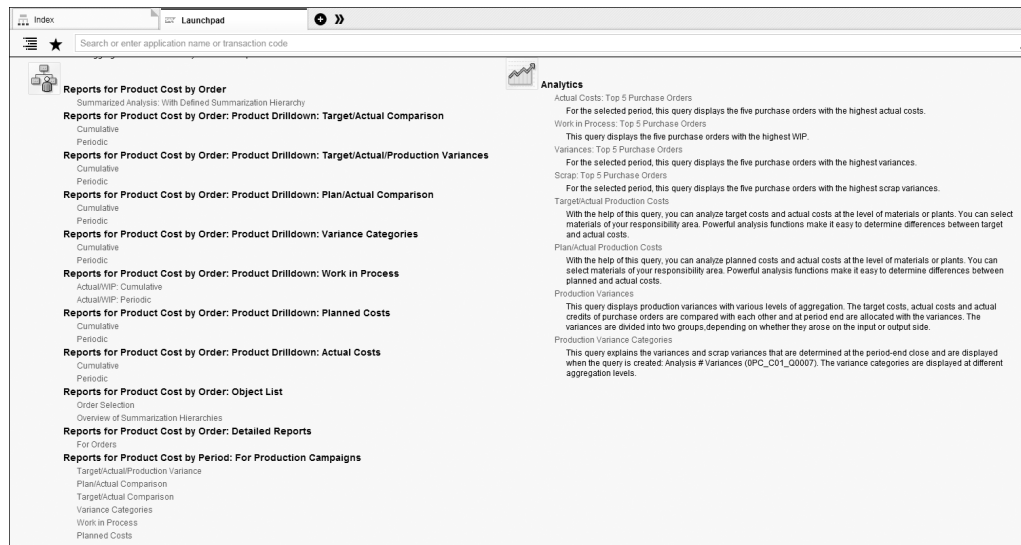


Figure 2.20 Reports for Production Order Reporting

Figure 2.21 shows the various production orders we created for the manufacture of material ACT-DCD in plant 6000 in February 2014 (you'll see how we created these postings in Chapter 6). To view this report, choose **Reports for Product Cost by Order** •

Object List • Order Selection or Transaction S_ALR_87013127. From here, you can select an order and navigate to the detailed reports that show the actual costs in context.

Order Selection: Results List							
Values in Company Code Currency/Object Currency							
Current Data							
Order	Material Number	Plan cost debit	Actual cost debit	Crcy	Plan qty	Actual qty	O...
701644	ACT-DCD	0,00	0,00	MXN			
60003867	ACT-DCD	265,85	265,85	MXN	5	5	PC
60003868	ACT-DCD	188,35	188,35	MXN	5	5	PC
60003872	ACT-DCD	1.063,42	853,42	MXN	20	20	PC
60003873	ACT-DCD	531,71	426,71	MXN	10	10	PC
60003874	ACT-DCD	531,71	426,71	MXN	10	10	PC

Figure 2.21 List of Production Orders

In Figure 2.22, we've selected one of these production orders for detailed analysis. The target costs have been adjusted in line with the delivered quantity (five pieces). You'll immediately notice some significant variances. This is because we posted additional inventory to the order after an inventory count and additional activity costs to demonstrate the distribution of variances.

Target/Actual - Comparison							
Order							
Order Type							
Plant							
Material							
Planned Quantity							
Actual Quantity							
Target Cost Version							
Period							
Legal Valuation							
Company Code Currency/Object Currency							
Cost Elem.	Cost Element (Text)	Origin	Total target costs	Total act. costs	Target/actual var.	T/I var(%)	Currency
895000	Factory output production orders	6000/ACT-DCD	108,00-	108,00-	0,00		MXN
895000	Factory output production orders		0,00	157,85-	157,85-		MXN
	Credit/Reporting		108,00-	265,85-	157,85-		MXN
400000	Consumption, raw material 1	6000/ACT-LCD	25,00	25,00	0,00		MXN
890000	Consumption of semifinished product	6000/ACT-BCD	0,00	50,00	50,00		MXN
890000	Consumption of semifinished product	6000/ACT-BCD	50,00	0,00	50,00-	100,00-	MXN
	Material Components		75,00	75,00	0,00		MXN
655100	Overhead Surcharge - Raw Material	1000	0,00	2,50	2,50		MXN
	Material Overhead		0,00	2,50	2,50		MXN
619100	Machine	CC530-00/ATR-00	14,58	96,27	81,69	560,29	MXN
619200	Labor	CC530-00/ATL-00	6,25	92,08	85,83	1.373,28	MXN
	Other Costs		20,83	188,35	167,52		MXN
			12,17-	0,00	12,17		MXN

Figure 2.22 Actual Costs, Target Costs, and Variances for Production Order

We'll look at the reports to aggregate production orders en masse when we look at mass reporting in Chapter 8. It's also common to move such orders to a data warehouse for reporting due to the huge data volumes involved. Some organizations choose the **Product Cost by Period** option simply because they believe this is the only way they'll be able to handle the data volumes in question.

2.5.2 Product Cost by Period

At some sites, the volume of production orders is so high that it's nearly impossible for CO to monitor the costs successfully. This can be the case in the food industry, in which the production orders can be very short-lived (less than a day). It can also be the case with continuous, repetitive production with minimal setup that there is simply no requirement for individual lot-oriented controlling and that storing each production order as a separate order in CO represents an unnecessary burden for reporting and at period close. In this case, costs can be assigned to product cost collectors that represent each production alternative, and you might report on each production version, where the production version represents a production line or a set of manufacturing cells, rather than on the individual work orders. We'll create a product cost collector for cost collection in Chapter 3. These provide lean controlling by period, in which the goods movements and confirmations in Logistics are made by production or process order, but the costs are automatically routed to the product cost collector. The output measure is then not the lot size on the individual order but the sum of all delivered quantities in the period. Variance calculation and work-in-process calculation take place for each product cost collector at the end of the period. This approach is mostly used in a make-to-stock environment but is occasionally found in simple make-to-order scenarios. A typical example might be a manufacturer of car tires, for which there is little variability in the specification for each product.

Lean Accounting

Lean accounting encourages organizations to move away from the collection of costs by work order and toward a value-stream-based view of the organization. The product cost collector fits nicely into this concept, capturing the costs for each production version by period. If the value stream involves multiple products, then such costs can be rolled up to the value-stream level in reporting, where the value stream is typically represented by a product group or material group.

Figure 2.23 shows the role for **Product Cost by Period** (SAP_EP_RW_CO_KKPM). To see the reports, select the **Information System** link. This is the equivalent of following the menu path **Financials • Controlling • Product Cost Controlling • Cost Object Controlling • Product Cost by Period • Information System • Reports for Product Cost by Period** (see Figure 2.24).

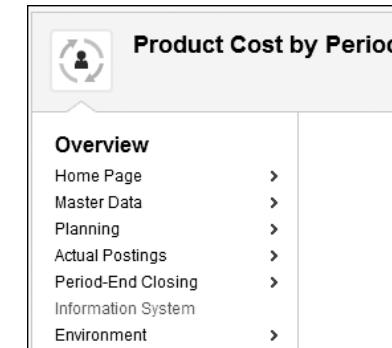


Figure 2.23 Product Cost by Period in SAP NetWeaver Business Client

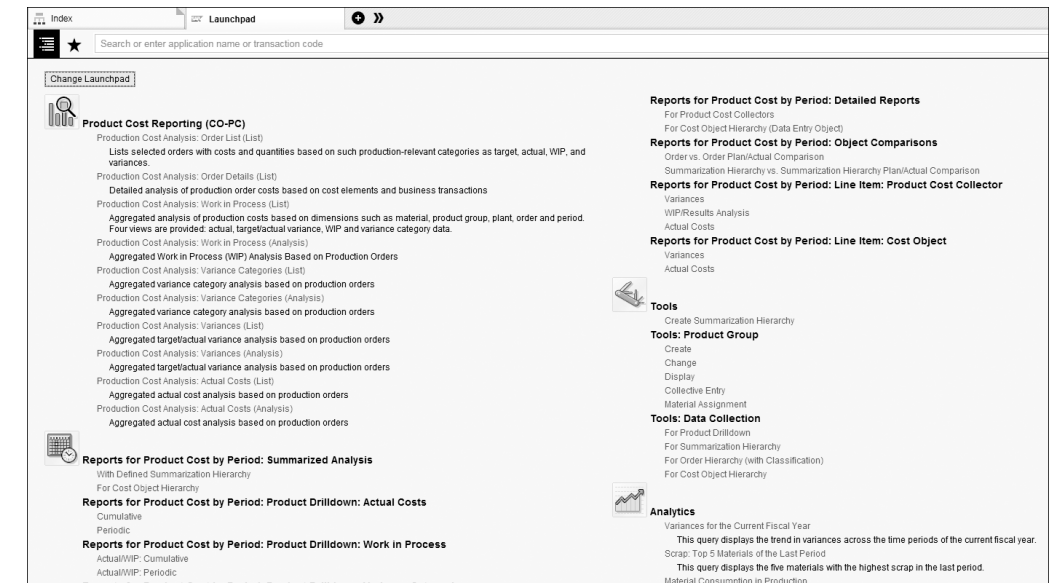


Figure 2.24 Reports for Product Cost by Period

The main difference between the product cost by period approach and product cost by order is that the status of the production order plays no role in the period close. At the end of every period, the confirmations to the product cost collector are analyzed to determine which operation quantities are work in process (i.e., have been started but not completed), which operation quantities are complete and can be analyzed for variances, and for which operations scrap has been confirmed. Although most of the reports are similar to those for product cost by order, you'll also notice line items for a cost object. The cost object hierarchy is used to create a cost object for which the cost of internal activities can be captured when there is no routing or the routing does not capture all manufacturing activities. These costs can then be distributed to the assigned product cost collectors or production orders at period close. Alternatively, the costs on the production orders or product cost collectors can be summarized to the cost objects and then settled. We'll look at how to create cost object hierarchies in Chapter 3.

2.5.3 Product Costs by Sales Order

The product cost by order and product cost by period approaches are mainly used in a make-to-stock environment. In this case, sales controlling takes place in Profitability Analysis, where the sales orders and associated invoices are captured. Product cost by sales order is used when the manufacturing process is linked to the sales order, generally because a customer-specific configuration has taken place in the order, as might happen in the automotive, steel, or high-tech industries. This approach is gaining favor in other industries as organizations move to adopt a lot size of one with a highly tailored product offering. It can also be used in service scenarios in which a customer service order is associated with the sales order rather than a production order. In this case, there can be no standard costs for the product because the product is unique to that sales order. In general, a cost estimate is created for each such item in the sales order, and this cost estimate may be used to price the sales order. To ensure that the finished product cannot be taken from stock and shipped to a different customer, delivery from the production line is made to *sales order stock*, and the delivery to the customer can only be made from this stock. Because there are no standard costs, the sales order cost estimate is also used to value goods movements to and from sales order stock.

Lean Accounting

Lean accounting encourages the use of make-to-order, where the sales order initiates, or “pulls,” the manufacturing process in its wake. This is the opposite of the classic work order approach, where work orders “push” their goods into inventory in the hope that sales will then be able to sell the product in stock.

Figure 2.25 shows the role for **Sales Order Controlling** (SAP_EP_RW_CO_KKAM). To view the reports, select **Information System**. Figure 2.26 shows the standard reports delivered for sales order reporting. You can find this by following the menu path **Financials • Controlling • Product Cost Controlling • Cost Object Controlling • Product Cost by Sales Order • Information System • Reports for Product Cost by Sales Order**.

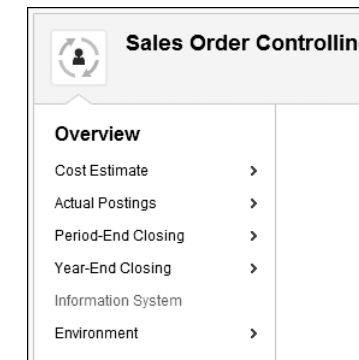


Figure 2.25 Sales Order Controlling in SAP NetWeaver Business Client

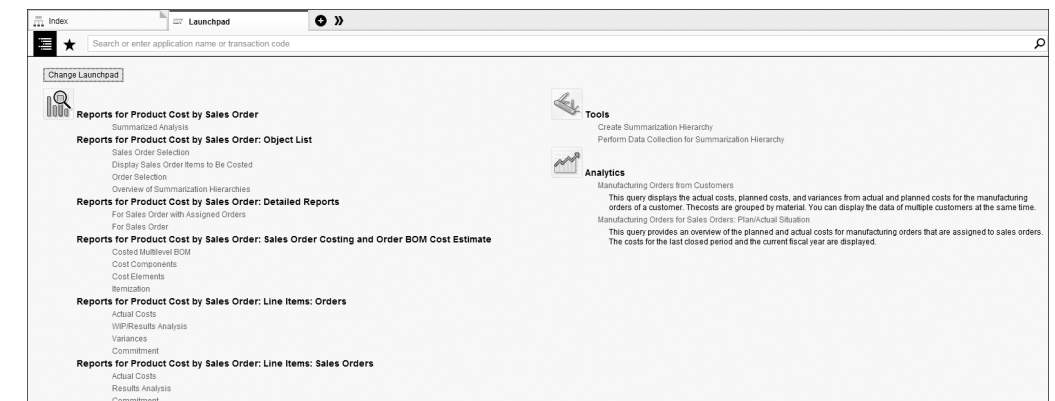


Figure 2.26 Reports for Sales Order Reporting

The line items and total records are similar to those you would see for any order, but you also have reports for sales order costing that are more like those we discussed for Product Cost Planning in that the quantity structure (BOM and routing) is very prominent. It's also important to be able to select sales orders the way we selected production orders, as shown in Figure 2.27. Be aware here that these aren't all the sales order items in your organization, but only those that are make-to-order items.

Sales Order Selection: Results List													
Currency: EUR Euro (EMU currency as of 01/01/1999)													
Current Data													
Sales Doc.	Item	Material	S.	SOFF.	Planned Costs	Total plan costs	Planned Costs O	Actual Costs	Plan Revenue	Actual Revenue	Planned Profit	Actual Profit	Cur.
15710	10	M0001		101 1000	0,00	0,00	0,00	0,00	2.520,00	0,00	2.520,00	0,00	EUR
15714	10	LOW_1AND2			0,00	0,00	0,00	0,00	673,89	0,00	673,89	0,00	EUR
15715	10	LOW_1AND2			0,00	0,00	0,00	0,00	1.010,84	0,00	1.010,84	0,00	EUR
15717	10	LOW_1AND2			0,00	0,00	0,00	0,00	1.186,05	0,00	1.186,05	0,00	EUR
15718	10	LOW_1AND2			0,00	0,00	0,00	0,00	12.558,24	0,00	12.558,24	0,00	EUR
15722	10	M0001		101 1000	0,00	0,00	0,00	0,00	1.890,00	0,00	1.890,00	0,00	EUR
15733	10	LOW_1AND2			0,00	0,00	0,00	0,00	219.504,59	0,00	219.504,59	0,00	EUR
15757	30	C-1100		110 1010	0,00	0,00	0,00	0,00	1.124,80	0,00	1.124,80	0,00	EUR
15975	10	M-777		110 1010	0,00	0,00	0,00	0,00	5.200,00	0,00	5.200,00	0,00	EUR
15976	10	M-777		110 1010	0,00	0,00	0,00	0,00	1.040,00	0,00	1.040,00	0,00	EUR
15976	20	M-444		110 1010	0,00	0,00	0,00	0,00	2.120,00	0,00	2.120,00	0,00	EUR
15977	10	M-777		110 1010	0,00	0,00	0,00	0,00	520,00	0,00	520,00	0,00	EUR
15980	10	M-111		110 1010	0,00	0,00	0,00	0,00	1.000,00	0,00	1.000,00	0,00	EUR
15980	20	M-444		110 1010	0,00	0,00	0,00	0,00	2.120,00	0,00	2.120,00	0,00	EUR
16033	10	PROD319			0,00	0,00	0,00	0,00	10,00	0,00	10,00	0,00	EUR
16038	10	PROD319			0,00	0,00	0,00	0,00	10,00	0,00	10,00	0,00	EUR
16040	10	PROD319			0,00	0,00	0,00	0,00	10,00	0,00	10,00	0,00	EUR
16042	10	PROD319			0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
5002301	1200	HT-1010			0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
30000058	10	104844-15			0,00	0,00	0,00	0,00	1.226,05	0,00	1.226,05	0,00	EUR
30000059	10	104844-15			0,00	0,00	0,00	0,00	1.226,05	0,00	1.226,05	0,00	EUR
40000073	10	PC_SERVICE_CONF		130 1030	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
40000074	10	PC_SERVICE_CONF		130 1030	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
40000075	10	PC_SERVICE_A		110 1010	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
40000076	10	REPAIR_SERVICE		101 1000	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
40000083	10	PC_SERVICE_A		110 1010	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
40000094	10	PC_SERVICE_A		110 1010	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
40000095	10	REPAIR_SERVICE		101 1000	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	EUR
					0,00	0,00	0,00	0,00	517.195,68	0,00	517.195,68	0,00	EUR

Figure 2.27 Sales Order Results List

If you don't have a requirement to revalue material inventory at actual costs, you can skip the next section and go straight to Profitability Analysis. If you work in a country with a legal requirement to report according to actual costs or an industry in which actual costing prevails (such as chemicals), then the next section will introduce the Material Ledger as a tool for collecting actual costs.

2.6 Material Ledger/Actual Costing

Not all sites use the Material Ledger for actual costing. Your organization may use it if you have a legal requirement to value inventory at actual costs (common in Asia and South America), if you have highly volatile raw material prices or unstable

production structures that make standard costing with detailed variance analysis impractical, or if you use it to provide a second inventory valuation approach for legal reporting.

From a reporting point of view, the Material Ledger differs from cost center and order reporting in that the reports display the *inputs and outputs* in each procurement, production, and sales process. The Material Ledger has its own documents for every goods movement, every business transaction that affects material prices (invoices, order settlement, etc.), and its own calculations at period close. Call up a report for a raw material, and you'll see the goods receipt and invoice from the supplier in the **Receipts** line and the goods issue to production in the **Consumption** line along with details of any stock currently in inventory. Call up the same report for a finished material, and you'll see the goods receipt from raw material inventory in the **Receipts** line and the goods issue to sales and the invoice to the final customer in the **Consumption** line. Chapter 6 will walk you through a complete manufacturing process from procurement to sales, showing you the Material Ledger postings for each goods movement that will provide the basis for Actual Costing at period close.

Figure 2.28 shows the role for **Actual Costing/Material Ledger** (SAP_EP_RW_CO_CKML). To access the list shown in Figure 2.29, select **Information System**. You can find this by following the menu path **Financials • Controlling • Product Cost Controlling • Material Ledger/Actual Costing • Information System**. Two reports are used frequently: **Material Price Analysis** (Transaction CKM3N) and the **Valuated Material Quantity Structure** (Transaction CKMLQS). Note that the standard reports focus on the reporting of a single material. SAP recently introduced new drill-down reports for reporting on multiple materials. We'll show how to work with these in Chapter 13, because they were originally introduced in the context of SAP HANA.

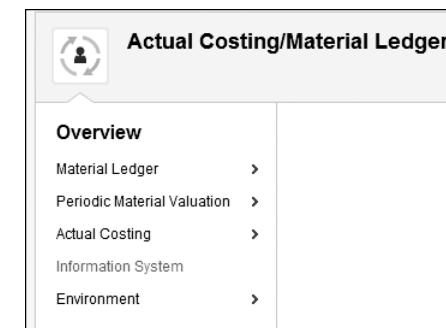


Figure 2.28 Material Ledger in SAP NetWeaver Business Client

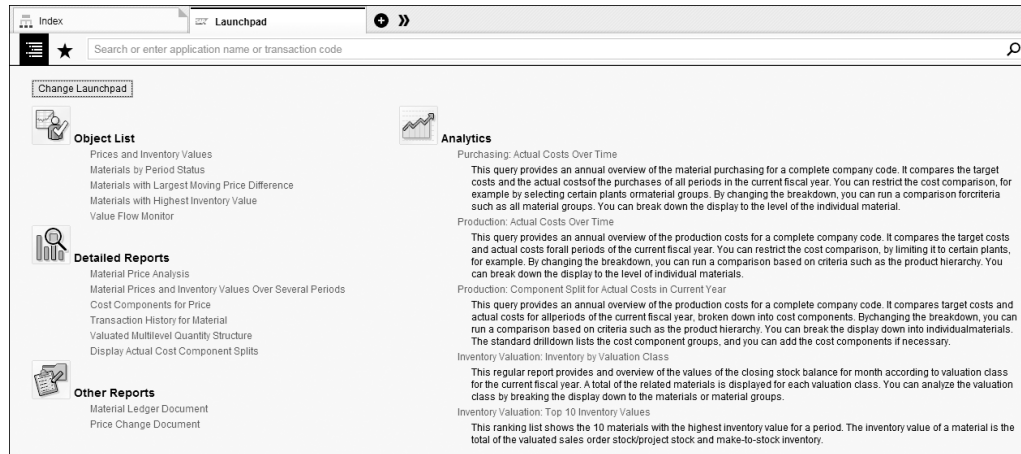


Figure 2.29 Reports for Material Ledger Reporting

Figure 2.30 shows the Material Ledger postings for a raw material that has been purchased from an external supplier and then issued to an internal production process for conversion into a finished product. Technically, this is a list viewer tree report like the one we saw for the multilevel costed BOM in Product Cost Planning.

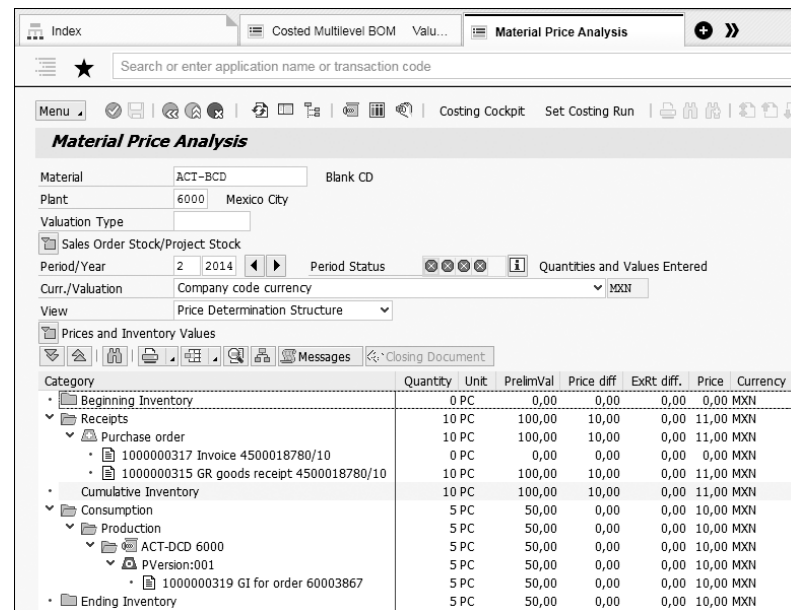


Figure 2.30 Material Price Analysis for Raw Material

Figure 2.31 shows the quantity structure for a finished product (PCG-FERT-01) that has required three semifinished products (PCG Barrel Head, PCG Construction Kit, and PCG Motor Housing) in its manufacture. Manufacturing activities were performed to convert the three semifinished products into PCG-FERT-01. This report first became available in Release 4.7 of SAP R/3 (see Appendix C at www.sap-press.com/4691).

Valuated Quantity Structure (Multilevel)									
Period/Year 001.2011 Currency/Valuation T Company code currency EUR									
Valuated Quantity Structure (Multilevel)	Quantity	Unit	PrelimVal	Diff.	ActualVal.	Price	Currency	Resource	Per
PCG-FERT-01	10	PC	5,431,10	110,763,75	116,194,85	11,619,49	EUR	PCG-FERT-01 1000	1
Rest(Production)	10	PC	5,431,10	110,763,75	116,194,85	11,619,49	EUR	Rest(Production)	1
PCG Barrel Head	10	PC	1,076,10	323,90	1,400,00	140,00	EUR	PCG-HALB-01 1000	1
Purchase order (grp)	10	PC	1,076,10	323,90	1,400,00	140,00	EUR	Purchase order (...)	1
PCG Barrel Head	7,143	PC	514,51	663,35	1,177,86	164,90	GBP	PCG-HALB-01 20...	1
PCG Barrel Head	1,429	PC	102,93	132,70	235,63	164,90	GBP	PCG-HALB-01 20...	1
PCG Barrel Head	1,429	PC	102,93	132,70	235,63	164,90	GBP	PCG-HALB-01 20...	1
PCG Construction Kit	360	KG	851,04	111,014,40	111,865,44	31,073,73	EUR	PCG-HALB-CO-01...	100
PCG Motor Housing (batch valua	10	PC	1,200,00	395,62-	804,38	80,44	EUR	PCG-HALB-SV-01...	1
Rest(Transfer posting - specia	10	PC	1,200,00	395,62-	804,38	80,44	EUR	Rest(Transfer po...	1
PCG Motor Housing (batch val	10	PC	1,200,00	395,62-	804,38	80,44	EUR	PCG-HALB-SV-01...	1
Rest(Transfer posting - spe	10	PC	1,200,00	395,62-	804,38	80,44	EUR	Rest(Transfer po...	1
PCG Manufacturing Machine 01	15,455	H	1,545,50	579,53	2,125,03	1,374,98	EUR	KLPCG-MF-02/PC...	10

Figure 2.31 Valuated Quantity Structure

In addition to these two detailed reports for the material and the quantity structure, much reporting in the Material Ledger is performed in the context of the period close (see Chapter 7), in which each step in the periodic costing run (used to calculate the weighted average costs per material at the end of each period) and each step in the alternative valuation run (used to provide actual costs in a wider time frame or according to a second accounting approach) has its own supporting report that allows you to check the values calculated in that step.

The Material Ledger collects all costs from the first purchase of the raw material through all conversion steps to the final delivery of the finished product to the customer. We'll walk through all the steps in this process when we look at actual postings in Chapter 6. However, as the name implies, the Material Ledger gathers costs by material. It keeps track of the cost of goods sold for these materials, but it does not capture revenue, and it provides no information about the customer who bought the finished product, the sales organization that performed the sale, and so on. For such information, we must move to Profitability Analysis (or CO-PA).

2.7 Profitability Analysis Reports

The Profitability Analysis reports differ from the other reports we've looked at so far in that there are virtually no standard reports because the structure of the operating concern is determined during implementation. Figure 2.32 shows the **Profitability Analysis** role (SAP_EP_RW_CO_KEMN). Choose **Information System** to access the reports.

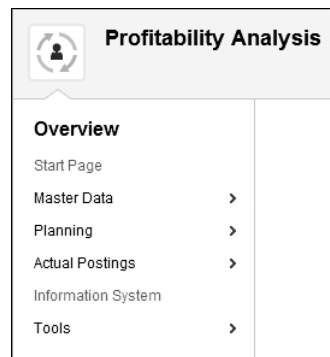


Figure 2.32 Profitability Analysis within SAP NetWeaver Business Client

The only commonality in Profitability Analysis reports is that certain standard events write data into the Profitability Analysis application. In costing-based Profitability Analysis, these are distinguished by the *record type*. The following transactions transfer data to Profitability Analysis:

- Incoming sales orders (record type A)
- Direct postings from Financial Accounting (record type B)
- Order and project settlement (record type C)
- Cost center allocations (record type D)
- Single-transaction costing (record type E); industry specific, so you might not use it
- Billing documents from Sales and Distribution (record type F)
- Customer agreements (record type G); used in some industries
- Statistical key figures (record type H)
- Transfer of sales orders from projects (record type I); used for commercial projects that are linked with sales orders for billing

If this list sounds fairly technical, consider instead the different levels of detail captured for the main record types in Profitability Analysis:

- Let's start with an *incoming sales order* (record type A). We'll see in Chapter 6 that an incoming sales order includes the name of the customer, the product or products purchased, the sales organization making the sale, the distribution channel, the division, the sales office, the sales group, and so on. This is the lowest level of granularity available in Profitability Analysis.
- Usually, the same characteristics are captured when the customer is *billed* for his purchase (record type F). Again, this is extremely detailed information.
- A *direct posting* from Financial Accounting (record type B) may be made at this level of detail if the person making the posting has all the listed information. However, as you'll see in Chapter 6, it may be possible to know only the affected material at the time of the posting and not the customer who will ultimately purchase the finished product. In this case, the record includes the product as a characteristic but not the customer.
- *Production variances* (carried in the settlement document, record type C) always apply to the product produced, but only apply to the customer if it's a make-to-order scenario and the production process is triggered by the sales order.
- *Cost center allocations* (record type D) offer the most options. In Chapter 7, you'll learn how to set up assessment cycles that can be very granular, breaking all expenses down to individual customers or products. You'll also see that it's possible to do an allocation to a much higher-level characteristic, such as a region or a country. This might be key for marketing expenses (e.g., if it's clear that a trade fair took place in the northwestern region of the United States but unclear which customers participated).

We'll look at some of these different record types by selecting the line item report (Transaction KE24). Figure 2.33 shows the selection screen for the CO-PA line items. We've selected all documents created by this user in company code currency.

Figure 2.34 shows all line items that we posted while creating the examples in Chapter 6. You'll see that we created invoices (record type F), sales orders (record type A), direct postings to FI (record type B), and production variances (record type C). You'll also notice that although the lines for the invoices and sales orders contain most of the dimensions, there are blank entries for the direct postings from FI and production variances, because these could only be assigned to the material-related dimensions and not to the customer-related dimensions.

Figure 2.33 CO-PA Line Items Selection Screen

CTY	Recor.	Period/year	Doc. no.	CrCy	Created by	CoCd	Plant	Custom	Product	Inv. qty	Cty	Sales Order	SOr	Unit	Revenue	Material Input	Production Labor fx	Production Labor var	Produc. machine fx
10	B	002.2014	800015730	EUR	D002766	1000	1000		100-100	0					0,00	0,00	0,00	0,00	0,00
10	B	002.2014	800015731	EUR	D002766	1000	1000		P-100	0					0,00	0,00	0,00	0,00	0,00
10	A	002.2014	3001100850	MXN	D002766	6000	6000	6666	ACT-DCD-30	0	MX	16069	6000		18.000,00	0,00	0,00	0,00	0,00
10	A	002.2014	3001100851	MXN	D002766	6000	6000	6666	ACT-DCD	0	MX	16070	6000		150,00	0,00	0,00	0,00	0,00
10	A	002.2014	3001100852	MXN	D002766	6000	6000	6666	ACT-DCD	0	MX	16071	6000		150,00	0,00	0,00	0,00	0,00
10	C	002.2014	700019580	MXN	D002766	6000	6000		ACT-DCD	0					0,00	0,00	0,00	0,00	0,00
10	F	002.2014	100071433	MXN	D002766	6000	6000	6666	ACT-DCD	5	MX	16071	6000		150,00	82,50	3,59	2,03	11,09
				MXN		6000									18.450,00				
				EUR											**	0,00			
				MXN															18.450,00

Figure 2.34 Line Item Report Showing CO-PA Documents

The structure of the operating concern and with it of the CO-PA tables is the business of the implementation team. Figure 2.35 illustrates one approach to designing the relationships among the entities for Profitability Reporting.

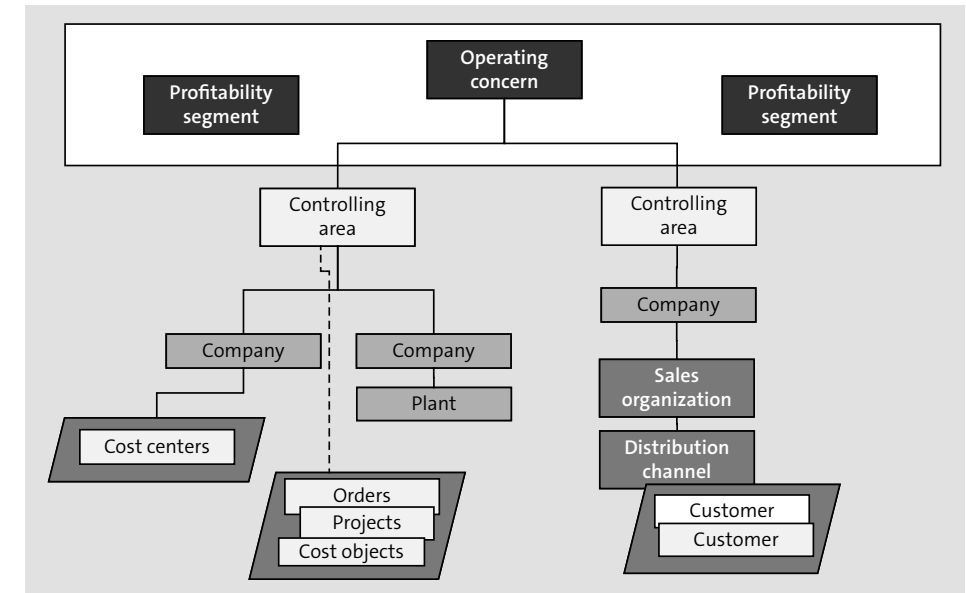


Figure 2.35 Organizational Structures in CO-PA

Note

The implementation team determines all other fields when they configure your system. Because the focus is on sales reporting, most organizations have the product, customer, and sales region dimensions and other dimensions that can be derived from these entities (product group, customer group, division, sales office, etc.). You'll find details of the recommended size of the operating concern (generally the maximum number of characteristics is 50 and the maximum number of value fields is 120, but this can be extended) in SAP Note 1029391.

The combination of dimensions is known as the *profitability segment*. You can display the profitability segment for any of the line items in Figure 2.34 by selecting a line and clicking on the **Profitability Segment** button; you'll see the report shown in Figure 2.36. We've picked a line item that refers to a sales order, so most of the dimensions (material-based and customer-based) are filled. You'll notice additional dimensions, such as those for WBS elements, that are not filled. We would see entries here if the costs for a WBS element had been settled.

Display Actual Line Items: List

Standard layout | Master data | Profitability segment | FI/CO documents... | Entry / operating concern currency

Plan/Act. Indicator 0
Created by D002766
Currency type 10
Number of line items 7
Mode of access Read as posted
Op. concern currency EUR

Assignment to a Profitability Segment

Characteristic	Char. value	Text
Customer	6666	Industrias Pacificas
Product	ACT-DCD-30	DEMO CD
Billing Type	F2	Invoice (F2)
Sales Order	16069	
Sales Ord. Item		
Order		
Company Code	6000	BestRun México S.A d
CO Area	6000	CO Mexico
Plant	6000	Mexico City
Business Area	7000	Electronic Products
Sales Org.	6000	Mexico City
Distr. Channel	10	Final customer sales
Division	15	Electronic Parts
WBS Element		
Cost Object		

CTY	Recor.	Period/year	Doc. no.	Ordy	Created by	CoCd	Plant	Custom.	Product	Inv. qty	Cty	Sales Order	SOr.	Unit:Σ	Revenue
10	B	002.2014	800015730	EUR	D002766	1000	1000		100-100	0					0,00
10	B	002.2014	800015731	EUR	D002766		1000		P-100	0					0,00
				EUR			1000								0,00
10	A	002.2014	300100850	MXN	D002766	6000	6000	6666	ACT-DCD-30	0	MX	16069	6000		18.000,00
10	A	002.2014	300100851	MXN	D002766	6000	6666	ACT-DCD	0	MX	16070	6000			150,00
10	A	002.2014	300100852	MXN	D002766	6000	6666	ACT-DCD	0	MX	16071	6000			150,00
10	C	002.2014	700019580	MXN	D002766	6000			ACT-DCD	0					0,00
10	F	002.2014	100071433	MXN	D002766	6000	6666	ACT-DCD	5	MX	16071	6000			150,00
				MXN			6000								18.450,00
				EUR											0,00
				MXN											18.450,00

Figure 2.36 Line Item Report Showing Profitability Segment

This assignment of costs at the appropriate level of detail is essential to an understanding of CO-PA. We can fill customer-based and material-based dimensions when we capture the sales order or the invoice, we can fill material-based dimensions in purchasing and production; for overhead, we have to make our own decisions about whether to fully load the products and customers or to assign the costs at a higher level. We'll return to this process when we look at how to create *assessment cycles* in Chapter 7.

If you are new to Controlling, use the line item report to draw up your own list of the characteristics used in your organization and to understand which are derived from the product, which are derived from the customer, and which are derived from the sales organization. Then look in turn at the different record types to understand which characteristics are filled from the invoice, which are filled during settlement, and which are filled as the result of an allocation.

Because the assignments within this schema are fairly dynamic, with the assignments to sales organizations, distribution channels, divisions, and so on changing on a regular basis, CO-PA reports allow you to report either on the dimensions as posted (see Figure 2.33) or according to the current structure (i.e., following a realignment).

There are two types of fact tables, depending on whether you use account-based CO-PA or costing-based CO-PA or both. You'll find a full description of the difference between the two approaches in SAP Note 69384, but some key points are summarized here:

- Costing-based CO-PA assigns all postings to *value fields* that capture the individual elements of a contribution margin (sales, cost of goods sold, general overhead,

etc.). This approach provides the ability to break down account-level information into further detail, such as fixed and variable costs for the same cost element, and separate the components of the standard cost into different value fields.

In costing-based CO-PA, the value fields are determined during implementation, so some teams break out the price conditions for the sales deductions into many separate value fields, whereas others lump them into one field. Most implementations distinguish between fixed and variable costs for their product cost estimate, but some implementations keep a lot of detail from their cost components, and others lump the cost components together. The same variability applies to allocations, order settlement, and the settlement of production variances and to the transfer of cost components from the Material Ledger.

- Account-based CO-PA records data to a cost element that represents the account used to post the data originally. This makes it much easier to reconcile the cost elements and the accounts by company code, business area, and so on. But you should be aware that low-level characteristics such as customers and products are generally summarized and therefore not captured in the General Ledger, so they won't be available for reconciliation.

In account-based CO-PA all allocations and settlements are posted under the secondary cost elements created to document the value flows in CO. We'll look at secondary cost elements in detail in Chapter 3.

The characteristics apply to both costing-based and account-based CO-PA. However, different fact tables are used. The transaction or fact tables for costing-based CO-PA are delivered with a placeholder for the operating concern (CE1XXXX) and are generated on-site. The transaction tables for account-based CO-PA are the same as those used for cost centers, orders, projects, and so on. If you use both approaches in the same operating concern, be careful to check which approach you select when calling reports or running transactions, because the results can look dramatically different. Figure 2.37 shows a line item report for account-based CO-PA. Again, we've selected the profitability segment, but you can see that the columns are completely different. This is because instead of assigning costs to value fields we're looking at them by account/cost element.

If you are using only costing-based CO-PA and not account-based CO-PA, you may still discover records that appear to be posting to account-based CO-PA. These postings are made under a cost element but are assigned to what is known as a *reconciliation object* (object type REO) rather than genuine CO-PA characteristics. As the name

implies, they are used for reconciliation purposes rather than for genuine profitability analysis and simply ensure that when a cost center allocates its costs to multiple lines in costing-based CO-PA, the credits and debits balance in CO.

Display Actual Line Items: List

Plan/Act. Indicator 0
 Period/year 012.2013
 Company Code F010
 Number of line items 1.460
 Mode of access Read acc. to current structure

Standard layout | Master data | Profitability segment | FI/CO documents...

Assignment to a Profitability Segment

Period/year	Doc. no.	Item	Created on	CoCd	Cost Elem.	Curr.	Value	Trans	Obj.	Occur	Val/COArea	Crcy	CACur	Z
012.2013	7	000001	06.11.2013	F010	841800	EUR	478.871,00		478.871,00	EUR	478.871,00	EUR		
012.2013	104	000002	11.11.2013	F010	841700	JPY	944.960		8.704,50	EUR	8.704,50	EUR		
012.2013	114	000002	11.11.2013	F010	841700	JPY	780.792		7.192,26	EUR	7.192,26	EUR		
012.2013	140	000001	11.11.2013	F010	841120	EUR	287.688,00		287.688,00	EUR	287.688,00	EUR		
012.2013	175	000001	11.11.2013	F010	841750	USD	394.729,00		236.837,40	EUR	236.837,40	EUR		
012.2013	192	000001	11.11.2013	F010	841080	JPY	122.192		1.125,57	EUR	1.125,57	EUR		
012.2013	192	000002	11.11.2013	F010	890000	JPY	8.886		81,85	EUR	81,85	EUR		
012.2013	192	000003	11.11.2013	F010	892000	JPY	55.762		513,65	EUR	513,65	EUR		
012.2013	200	000001	11.11.2013	F010	841910	GBP	902.458,00		1.432.473,02	EUR	1.432.473,02	EUR		
012.2013	200	000002	11.11.2013	F010	841800	GBP	330.657,00		524.852,38	EUR	524.852,38	EUR		
012.2013	244	000002	11.11.2013	F010	841000	USD	437.426,00		262.455,60	EUR	262.455,60	EUR		
012.2013	280	000002	11.11.2013	F010	841680	USD	826.500,00		495.900,00	EUR	495.900,00	EUR		
012.2013	300	000003	11.11.2013	F010	841100	JPY	826.112		7.609,73	EUR	7.609,73	EUR		
012.2013	343	000001	11.11.2013	F010	800001	MXN	519.844,00		56.627,89	EUR	56.627,89	EUR		
012.2013	381	000001	11.11.2013	F010	890002	GBP	27.439,00		43.553,97	EUR	43.553,97	EUR		
012.2013	404	000003	11.11.2013	F010	841850	USD	104.840,00		62.904,00	EUR	62.904,00	EUR		
012.2013	414	000001	11.11.2013	F010	890001	MXN	792.549,00		86.334,31	EUR	86.334,31	EUR		
012.2013	437	000003	11.11.2013	F010	841800	EUR	2.747,00		2.747,00	EUR	2.747,00	EUR		
012.2013	438	000001	11.11.2013	F010	841120	EUR	32.423,00		32.423,00	EUR	32.423,00	EUR		
012.2013	460	000003	11.11.2013	F010	841099	USD	605.506,00		363.303,60	EUR	363.303,60	EUR		
012.2013	510	000001	11.11.2013	F010	841580	GBP	69.633,00		110.528,57	EUR	110.528,57	EUR		
012.2013	510	000003	11.11.2013	F010	890002	GBP	174.436,00		276.882,54	EUR	276.882,54	EUR		
012.2013	538	000001	11.11.2013	F010	893020	USD	202.795,00		121.677,00	EUR	121.677,00	EUR		
012.2013	538	000002	11.11.2013	F010	841070	USD	146.400,00		87.840,00	EUR	87.840,00	EUR		
012.2013	551	000003	11.11.2013	F010	841580	MXN	203.152,00		22.129,85	EUR	22.129,85	EUR		
012.2013	552	000001	11.11.2013	F010	894025	JPY	220.761		2.033,54	EUR	2.033,54	EUR		
012.2013	557	000001	11.11.2013	F010	841700	EUR	673.825,00		673.825,00	EUR	673.825,00	EUR		

Assignment to a Profitability Segment

Characteristic	Char. value	Text
Sales Org.		
Distr. Channel		
Division		
WBS Element		
Cost Object		
Profit Center	PC_05	Financial Services
Partner PC		
Industry		
Sales district		
Customer group	69	Customer group 69
Sales office		
Sales employee		
Material Group	85	Material group 85
Sales group		
Main material group		

Continue Cancel

Figure 2.37 Line Item Report for Account-Based CO-PA

The only reports that are standard in CO-PA are the actual line items (Transaction KE24) and the plan line items (Transaction KE25). If the underlying tables are different at every site, so are the drill-down reports. Creating reports is part of the implementation effort for Profitability Analysis, because Transaction KE30 (Execute Report) only shows data if you've properly configured your operating concern and built the appropriate reports first. The drill-down potential of CO-PA is almost unlimited, with organizations slicing and dicing their data by customer, by product, by distribution channel, and so on to try to understand where and with whom they are making or losing money. Many also move the entire operating concern to SAP BW for analysis. We'll return to this in Chapter 8. Others are starting to use SAP HANA (see Chapter 13) to explore their CO-PA data. If your organization is making a move to SAP S/4HANA (see Chapter 14), you'll need to understand what it means to move to account-based CO-PA even as costing-based CO-PA continues to run.

2.8 Summary

In this chapter, you learned about the line item reports for Cost Center Accounting, Internal Orders, Cost Object Controlling, and Profitability Analysis and looked at how to compare the actual costs captured in these line items with planned costs, budgets, and target costs as appropriate. We also looked at some tree reports for Product Cost Planning and Material Ledger/Actual Costing and saw how an operating concern is defined for Profitability Analysis.

As we work through the chapters that follow, we'll refer to any reports that support the process, so you'll find the master data reports in Chapter 3 and the line items for planning in Chapter 5. All reports shown in Chapter 1 through Chapter 7 are based on reporting capabilities inherent in the SAP ERP system and don't require an additional data warehouse.

We'll return to the subject of reporting in Chapter 8 to look at SAP BW and the case for moving data to a dedicated data warehouse. There, we'll also discuss some of the newer options made possible using the SAP BusinessObjects tools and specifically how to use a generic function in SAP List Viewer to call SAP Crystal Reports. We'll make another visit in Chapter 13 when we look at how to work with reports in SAP HANA. But first, we'll look at the master data that needs to be in place before you can run any of these reports.

Contents

Preface	17
1 Introduction	27
1.1 Basic Controlling Functions	31
1.1.1 Goals of Controlling	32
1.1.2 Cost Accounting in the United States	34
1.1.3 Standard Costs and Actual Costs	35
1.1.4 Investment and Project Controlling	35
1.1.5 Lean Accounting	36
1.2 Essential Record-Keeping Functions	37
1.2.1 Record Keeping by Cost Center	39
1.2.2 Record-Keeping by Order	41
1.2.3 Record-Keeping by Project	43
1.3 Managing Close and Valuation Processes	43
1.3.1 Valuation of Goods Movements	44
1.3.2 Work in Process	44
1.3.3 Scrap	45
1.3.4 Work in Process for Projects	45
1.4 Preparing Budgets and Planning	46
1.4.1 Driver-Based Cost Planning	46
1.4.2 Driver-Based Cost Planning among Cost Centers	48
1.4.3 Budgeting	49
1.5 Process Analysis and Internal Controls	50
1.5.1 Master Data Controls	51
1.5.2 Workflow	51
1.5.3 Process Controls	51
1.6 Summary	52

2	Reporting	53
2.1	Cost Center Line Items	54
2.1.1	Classic Cost Center Line Item Report	54
2.1.2	Simplified Cost Center Line Item Report	63
2.1.3	Totals Records for Cost Centers	65
2.2	Order Line Items	67
2.3	Product Costs: Itemization	71
2.4	Classic Reports for Product Cost Reporting	72
2.5	Product Costs: Cost Objects	76
2.5.1	Product Cost by Order	77
2.5.2	Product Cost by Period	80
2.5.3	Product Costs by Sales Order	82
2.6	Material Ledger/Actual Costing	84
2.7	Profitability Analysis Reports	88
2.8	Summary	95

3 Master Data Owned by Controlling **97**

3.1	How to Set Up Cost Centers	98
3.1.1	Responsibility for a Cost Center	100
3.1.2	Embedding the Cost Center Design in SAP ERP	105
3.1.3	Ensuring that Cost Center Expenses Are Handled Correctly	106
3.1.4	Cost Center Hierarchies	109
3.1.5	Reporting of Cost Center Master Data	115
3.2	Internal Orders	118
3.2.1	Internal Orders and Cost Centers	122
3.2.2	Settlement Rules for Internal Orders	122
3.2.3	Statistical Internal Orders	124
3.2.4	Order Groups	125
3.2.5	Reporting Order Master Data	126
3.3	Statistical Key Figures	128

3.4	Activity Types	131
3.4.1	Direct and Indirect Activity Allocations	134
3.4.2	Settings for Activity Price Calculation	136
3.4.3	Activity Type Groups	137
3.4.4	Reporting Activity Type Master Data	137
3.5	Secondary Cost Elements	138
3.5.1	Cost Element Groups	141
3.5.2	Reporting on Cost Element Master Data	143
3.6	Product Cost Collectors	144
3.7	Cost Object Hierarchies	146
3.8	Maintenance Issues	148
3.8.1	Time-Dependent Fields	149
3.8.2	Creating Hierarchies for a Specific Time Frame	150
3.8.3	Status Management	153
3.9	Change Requests for a SOX-Compliant Master Data Process	153
3.10	Summary	156

4 Master Data for Which Controlling Is a Stakeholder **159**

4.1	Material Masters	161
4.1.1	Basic View	162
4.1.2	Accounting View	164
4.1.3	Costing Views	167
4.1.4	MRP Views	170
4.1.5	Sales View	170
4.1.6	Batches	171
4.2	Customer Masters	172
4.3	Bills of Material	174
4.3.1	Quantity Definition	177
4.3.2	Coproducts and Byproducts	178
4.3.3	Recursive BOMs	181
4.3.4	Configurable BOMs	181

4.4	Routing	184
4.4.1	Types of Routing	185
4.4.2	Operation Values	187
4.4.3	Operation-Level Costing	189
4.5	Work Centers and Resources	190
4.6	Procurement Alternatives and Mixed Costing	192
4.6.1	Internal Processing	192
4.6.2	External Procurement	193
4.6.3	Plant-to-Plant Transfer	194
4.6.4	Subcontracting	194
4.6.5	Mixing Ratios	195
4.7	Projects	196
4.7.1	Work Breakdown Structure Elements	196
4.7.2	Networks and Network Activities	198
4.8	Investment Programs	199
4.9	Primary Cost Elements and Profit and Loss Accounts	202
4.9.1	Chart of Accounts	203
4.9.2	Controlling and the Financial Accounts	206
4.10	Setting Prices for Product Costing	209
4.10.1	Setting Standard Costs for Raw Materials	210
4.10.2	Balance Sheet Valuation	213
4.10.3	Calculating Actual Costs	214
4.10.4	Cross-Company Costing	214
4.11	Summary	216
5	Planning and Budgeting	217
5.1	Complete Sales Plan in a Manufacturing Environment	219
5.1.1	Sales and Operations Planning	221
5.1.2	Cost Center Planning	229
5.1.3	Calculating Standard Costs for Products to Be Manufactured	256
5.1.4	Profitability Planning	271

5.2	Planning and Budgeting for Investment Programs	273
5.2.1	Investment Program	273
5.2.2	Overall Plan	274
5.2.3	Cost Element Planning	276
5.2.4	Budgeting	279
5.2.5	Displaying and Changing a Budget	282
5.3	Summary	285
6	Actual Postings	287
6.1	Integrated Process Flows: Buy, Make, and Sell	287
6.1.1	Procure to Pay	288
6.1.2	Plan to Manufacture	298
6.1.3	Order to Cash	311
6.2	Distribution of Usage Variances	320
6.2.1	Capturing Physical Inventory Documents	321
6.2.2	Distribution of Usage Variances	322
6.2.3	Distribution of Activities	324
6.3	Integrated Process Flows: Other Logistics Scenarios	326
6.3.1	Product Cost by Order	326
6.3.2	Product Cost by Period	332
6.3.3	Product Cost by Sales Order	336
6.3.4	Project Controlling	341
6.3.5	Controlling for Maintenance and Service Orders	347
6.4	Corrections or Adjustment Postings	350
6.4.1	Reposting Line Items	351
6.4.2	Correcting an Activity Allocation	354
6.4.3	Reposting Values	355
6.5	Cross-Company Postings	357
6.6	Summary	362

7	Period Close	363
7.1	Allocations	364
7.1.1	Before the Start of the Period Close	366
7.1.2	Allocations between Cost Centers	368
7.1.3	Allocations to Profitability Analysis	384
7.1.4	Target Costs and Variances on Cost Centers	388
7.2	Calculations and Settlement	396
7.2.1	Overhead Calculation	399
7.2.2	Work in Process	401
7.2.3	Target Costs and Variances in Production	404
7.2.4	Settlement	410
7.2.5	Product Cost by Sales Order	412
7.3	Multilevel Actual Costing in the Material Ledger	414
7.3.1	Types of Costing Runs	415
7.3.2	Periodic Costing Run	416
7.3.3	Alternative Valuation Run	421
7.4	CO-PA Processes	428
7.4.1	Revaluation	428
7.4.2	Top-Down Distribution	429
7.5	Summary	433
8	Reporting in SAP BW and SAP BusinessObjects	435
8.1	Reporting on Large Data Volumes in SAP ERP	436
8.1.1	Using Extracts to Accelerate Cost Center and Internal Order Reports	436
8.1.2	Using Summarization Levels to Accelerate CO-PA Reports	441
8.1.3	Using Summarization in Product Cost Reports	442
8.1.4	Using Summarization Hierarchies for CO-PC Reporting	443
8.2	How to Decide Whether You Need SAP BW for Reporting	445
8.2.1	Performance Concerns	445
8.2.2	Multidimensionality	451
8.2.3	Navigation Attributes	455

8.2.4	Inclusion of Non-SAP Data	459
8.2.5	Building Queries	461
8.3	Cost Center Reporting in SAP BW	464
8.3.1	Reporting Using Virtual and Physical InfoProviders	465
8.3.2	Transient InfoProviders and Operational DataProviders	468
8.4	Reporting with SAP BusinessObjects Tools	471
8.4.1	SAP Analysis for Microsoft Office	471
8.4.2	SAP Crystal Reports for Controlling	474
8.4.3	SAP BusinessObjects Dashboards for Controlling	477
8.4.4	SAP BusinessObjects Explorer for CO-PA Reporting	478
8.5	Summary	480
9	Master Data in a Multisystem/Shared Service Environment	481
9.1	Change Requests in SAP ERP	484
9.2	New Solutions for Handling Master Data in a Multisystem Environment	490
9.2.1	Data Modeling in SAP Master Data Governance for Financials	491
9.2.2	Roles for SAP Master Data Governance	495
9.2.3	Editions in SAP Master Data Governance for Financials	497
9.3	Governance Requirements for Master Data	503
9.3.1	Creating a Change Request for a Single Object	503
9.3.2	Workflow Steps for a Change Request	508
9.4	Creating Change Requests in a Shared Service Center	509
9.5	Summary	512
10	Planning Using SAP BW Technologies	513
10.1	Planning Applications in SAP ERP	515
10.2	Planning Applications in SAP BW	519

10.2.1	Multidimensional Database Layer in SAP BW	521
10.2.2	Virtual InfoProviders in SAP ERP	524
10.2.3	Aggregation Levels and Planning Functions	526
10.2.4	Data Entry Screens	530
10.3	Summary	536

11 Allocations Using SAP Profitability and Cost Management 537

11.1	Template Allocations in SAP ERP	540
11.2	Allocations in SAP PCM	549
11.2.1	Mapping the Costing Model in SAP PCM with SAP ERP	551
11.2.2	Dimensions of the Costing Model	552
11.2.3	Assignments in the Costing Model	558
11.2.4	Loading Data into the Model	560
11.3	Customer Value Analysis Using SAP PCM	561
11.4	Summary	565

12 Period Close Using the SAP Financial Closing Cockpit 567

12.1	New Options for Accelerating the Period Close	568
12.1.1	Orchestrating Your Closing Tasks	570
12.1.2	Executing Your Close Tasks	574
12.1.3	Automating Closing Transactions	577
12.1.4	Creating Program Variants for Your Close Tasks	580
12.1.5	Scheduling Tasks	583
12.1.6	Using Workflows in the Close	587
12.1.7	Handling Costing Runs in Your Close	593
12.1.8	Handling Organizational Units in the SAP Financial Closing Cockpit	594
12.1.9	Closing Cockpit and SAP Financial Closing Cockpit	598

12.2	Closing Tasks in Multiple Systems	600
12.3	Transparency within the Close	604
12.4	Summary	607

13 Controlling with New Technologies 609

13.1	Controlling with SAP HANA	612
13.1.1	Profitability Analysis (CO-PA)	612
13.1.2	Product Cost Controlling (CO-PC)	619
13.1.3	Overhead Management (CO-OM)	626
13.1.4	Investment Management (IM)	630
13.1.5	SAP HANA Live	632
13.2	SAP Fiori Applications	636
13.2.1	Search Models and Fact Sheets	637
13.2.2	My Spend and My Unusual Items	641
13.2.3	Net Margin Results and Profit Analysis	645
13.3	Summary	651

14 SAP S/4HANA and Controlling 653

14.1	The Universal Journal	654
14.1.1	Merging Accounts and Cost Elements	658
14.1.2	Cost Centers, Orders and Projects	662
14.1.3	Profit Centers, Functional Areas, and Segments	664
14.1.4	Profitability Analysis (CO-PA)	665
14.2	The Material Ledger	673
14.2.1	Inventory Valuation in the Universal Journal	673
14.2.2	Compulsory Use of Material Ledger for Inventory Valuation	675
14.2.3	Using the Material Ledger for Transfer Prices and Group Valuation	677
14.2.4	Architectural Changes in Actual Costing	680

14.3 Profitability Analysis	681
14.3.1 Derivation of CO-PA Characteristics during Cost Assignment	682
14.3.2 Revenue Recognition for Professional Services	685
14.3.3 Cross-Company Resource-Related Billing for Professional Services ...	689
14.3.4 New Approaches in Cost Object Controlling	691
14.4 Reporting in SAP Fiori	693
14.4.1 Multidimensional Reporting	695
14.4.2 Accounts and Key Figures	696
14.4.3 Hierarchies	698
14.5 Planning	700
14.5.1 Simplified Planning Model for Financial Planning	700
14.5.2 Functional Expenses and Sales Costs	706
14.5.3 Commitments and Budgeting	711
14.6 Summary and Postscript	712
The Author	715
Index	717

Index

A

Access method, in queries	466	Activity-based costing	
Account assignment		<i>introduction</i>	30, 538
<i>in purchase order</i>	289	Activity-dependent planning	240
<i>in the Universal Journal</i>	663	Activity-independent cost planning	237
<i>purchase for project</i>	341	Actual costing, in SAP S/4HANA	673
Account assignment elements, for project	198	Actual costs	35
Account, link to cost element	27	<i>business requirements</i>	84
Account-based CO-PA	93	<i>for production orders</i>	307
Account-based Profitability Analysis, in		<i>material master</i>	214
SAP S/4HANA	665	Actual postings	22, 287
Accounting document		Allocation	364
<i>for goods receipt from purchasing</i>	293	<i>cross-company</i>	206
<i>for incoming invoice</i>	295	<i>real-time integration of CO and</i>	
Accounting principle, in alternative		<i>Financial Accounting</i>	371
valuation run	423	<i>using SAP PCM</i>	537
Accounting view		Allocation cycles	
<i>of material master</i>	164	<i>overview</i>	369
Active availability control	50	<i>performance of read interfaces</i>	615
<i>for project</i>	341	Allocation template, in business process ...	546
Active budgeting	50	Alternative cost center hierarchies	112
Activities		Alternative valuation run	415, 416
<i>as basis for price calculation</i>	136	<i>costing steps</i>	421
<i>dimension in SAP PCM</i>	554	<i>link to Schedule Manager</i>	593
<i>in SAP PCM</i>	540	Annual budget	219
Activity allocation, to project	345	Annual operating plan (AOP)	219
Activity price calculation	253, 393	Apportionment structure	
<i>analysis of</i>	394	<i>for co-products</i>	179
<i>approaches</i>	136	<i>in process order</i>	327
<i>settings in activity type</i>	136	Appropriation requests	201
Activity quantity, as basis for planning	220	Approval	
Activity type	131	<i>for change requests</i>	508
<i>activity unit</i>	134	<i>workflow</i>	51
<i>in Material Ledger</i>	419	Approval year	
<i>in work center/resource</i>	190	<i>for investment program</i>	200
<i>SAP Fiori factsheet</i>	639	<i>in investment planning</i>	282
<i>use in allocations</i>	365	Arm's-length trading	358
Activity type groups	137	Assessment	
<i>in planning</i>	232	<i>in SAP S/4HANA</i>	684
Activity/output prices		<i>profitability analysis in the</i>	
<i>planning</i>	231, 232	<i>Universal Journal</i>	671
		Assessment cost elements	373
		<i>use of</i>	376

- Assessment cycles 110, 368, 371
accelerating data selection 615
cyclical relationships 377
using SAP HANA 613
- Asset Accounting 105
link with Cost Center Accounting 105
- Assets, period close tasks 367
- Auditing, CO-PA reporting 453
- Authorization checks 627
- Auxiliary cost component split 264
- B**
- Backflushing
distribution of usage variances 320
for production orders 302
- Background processing, for period-close activities 576
- Balance sheet valuation
price fields 167
tax and commercial prices 213
- Basic view, of material master 162
- Batches 171
- Bill of material (BOM) 174
cyclical structures 181
in production order 299
long-term planning 229
material usage 71
recursive 181
usage 175
- Billing document, for sales order 317
- Billing elements 197
- Billing, prior to period close 366
- Bottom-up planning 275
- Budget change 51
change request 283, 485
- Budget planning, for investment programs 274
- Budget transfer change request 283, 485
- Budgeting 21, 46
value flow 49
- Business area, in cost center 107
- Business function
CO_ALLOCATIONS 347
FIN_ACC_LOCAL_CLOSE 569
- Business function (Cont.)
FIN_CO_COGM 214, 368, 393, 425
FIN_GL_REORG_1 106
FIN_MDM_ACC 492
FIN_MDM_ORG 491
FIN_MDM_SOA_CU 501
FIN_MDM_SOA_ORG 502
FIN_REP_SIMPL_1 65
FIN_SSC_ISS_1 511
LOG_EAM_OLC 189
LOG_MM_SIT 358
LOG_PP_PROD_ORDER_SPLIT 329
- Business process 537
in allocations 545
master data 540
- Byproducts in BOM 178
- C**
- Calculation views, in SAP HANA Live 634
- Capacity
as basis for price calculation 136
in cost center planning 231
of cost center 192
of work center 192
- Capital investment projects, planning of 273
- Change documents for master data 148
- Change request 153
action box 487
approval of 508
configuration 484
for budget 283
form settings 487
master data governance 503
notification type 486
SAP Shared Service Framework 510
scenarios 484
- Characteristics for profitability analysis 313
- Chart of accounts 203
data model for SAP MDGF 492
link with primary cost elements 202
master data governance 483, 490
- Closing hierarchy, in SAP Financial
 Closing cockpit 594

- Collective processing, during period
 close 567
- Column store, database structure 610
- Commitment 46
for project 343
- Commitments, in SAP S/4HANA 711
- Company code, in cost center 106
- Compatibility view for cost reporting 657
- Compatibility views 694
- Completed contract, valuation 413
- Conditions for purchasing 289
- Configurable BOM 181
classification 183
- Configurable material 181
manufacture of 337
- Confirmation, for production orders 306
- Control key for operation 187
- Controlling 20
- Controlling document, for production order 304
- CO-PA Accelerator 612
- Coproducts 169
in BOM 178
in process orders 326
settlement rules 179
- Corporate Investment Management
 planning 521
- Cost and activity input planning,
 planning layouts 516
- Cost center 32
approval processes 37
as account assignment 37
change request 484
difference from order 98
finding cost centers in allocation cycles 370
groups 112
hierarchies 109
link to work center 190
master data 98
master data governance 491
operational 100
output measure 32
outputs 40
planning 229
purchasing costs 37
- Cost center (Cont.)
responsibility for 32
responsible managers 100
SAP Fiori fact sheet 639
supporting 100
typical expenses 39
validity period 150
- Cost Center Accounting 28
actual postings 350
creating cost centers 98
line items 54
period close activities 365
planning 229
- Cost center hierarchy, preparing for
 change 150
- Cost center line item 308
layouts for reporting 59
simplified reporting 63
- Cost component split
in Product Cost Planning 264
manual change to 419
- Cost components
for activity prices 255
introduction 71
- Cost Element Accounting 27
master data 138
- Cost element category
for primary cost element 205
for secondary cost elements 661
in General Ledger account 658
- Cost element group 141
in planning 236
- Cost element master data, reports 143
- Cost elements 27, 138
examples 27
for goods issues and receipts 304
for recording WIP 402
in activity types 134
in primary cost component split 255
in product costing 71
in Profitability Analysis 93
link to cost components 265
link to SAP PCM 553
master data governance 491
planning 276
primary 27

Cost elements (Cont.)	Customer, master data governance	492
<i>secondary</i>	Cycle run groups for allocations	378
Cost Object Controlling	D	
<i>master data</i>	Dashboard reports	477
<i>MRP class</i>	Data modeling, master data governance	491
<i>period close activities</i>	Data provisioning in SAP BW	464
<i>production orders</i>	Data warehousing	445
Cost object hierarchy	DataSources	23
<i>options at period close</i>	<i>for Controlling</i>	446
Cost objects	Default account assignments, in	
<i>dimension in SAP PCM</i>	Universal Journal	660
<i>in SAP PCM</i>	Dependencies in period close	573
Cost of goods manufactured	Depreciation	367
Cost of goods sold	Depreciation expenses, cost center	
<i>in the Universal Journal</i>	assignment	39
<i>splitting in SAP S/4HANA</i>	Derivation	
Cost planning	<i>CO-PA characteristics from projects</i>	682
Costed multilevel BOM, report	<i>from master data in Universal Journal</i>	664
Costing lot size	<i>in Profitability Analysis</i>	312, 665
<i>impact of scrap</i>	Determine delta postings, in alternative	
<i>in material master</i>	valuation run	422
Costing run	Direct access using SAP BW	449
<i>actual costing in SAP S/4HANA</i>	Direct activity allocation	131
<i>in Material Ledger</i>	<i>category of activity type</i>	134
Costing sheet, in production order	<i>correction of</i>	354
Costing variant, in Product Cost	Distribution cycles	369, 379
Planning	Distribution of activities	324
..... 259	Distribution rules, settlement rules	123
Costing version, in Product Cost	Division, in material master	164
Planning	Document type, for CO postings in	
..... 260	Universal Journal	661
Costing view of material master	Drilldown reporting	
Costing-based CO-PA	<i>in Cost Object Controlling</i>	442
Costing-based Profitability Analysis,	<i>in Material Ledger</i>	621
in SAP S/4HANA	<i>in Product Cost Controlling</i>	619
..... 668	<i>in Profitability Analysis</i>	441
Country chart of accounts	<i>unassigned data</i>	466
Cross-company costing	Driver-based planning	46
Cross-company postings	Drivers	
..... 357	<i>for cost centers</i>	33
<i>allocations</i>	<i>for products</i>	33
..... 106, 206	Dynamic selections, using SAP HANA	610
Cumulation, in Material Ledger		
..... 421		
Currencies, for reporting		
..... 63		
Customer account		
..... 173		
Customer invoice		
..... 317		
Customer master		
..... 172		
<i>reconciliation account</i>		
..... 315		
Customer value analysis,		
using SAP PCM		
..... 561		

E	G
Edition	General Ledger
<i>how to create</i>	<i>Cost Center Accounting</i>
..... 500 107
<i>master data governance</i>	<i>link to Cost Center Accounting</i>
..... 494 106
<i>overview of</i>	<i>link with internal orders</i>
..... 501 122
Enterprise extension	<i>number of posting lines</i>
EA_FIN 655
..... 320, 417, 419	Goods movements, real-time valuation
Entity types, use in SAP MDG 44
..... 493	Goods receipt for purchasing
Environment, use in templates 290
..... 547	Grenzplankostenrechnung (GPK)
Equipment, link with Cost Center 31
Accounting	Group chart of accounts
..... 106 203
Equivalence numbers	Group costing, use of costing versions
<i>for co-products</i> 260
..... 180, 327	Group valuation
Event-based revenue recognition	<i>for intercompany trade</i>
..... 685 360
Executable programs, for period-close	<i>in Material Ledger</i>
transactions 677
..... 577	<i>in material master</i>
Expenses, to be capitalized 215
..... 42	H
Extension ledger in SAP S/4HANA	Hans-Georg Plaut
..... 664 31
Extracts	Hierarchy area, for cost centers
..... 436 109
F	I
Fact sheet, in SAP Fiori	Incoming invoice, from vendor
..... 639 293
Factory calendar, in SAP Financial	Incoming sales orders in SAP S/4HANA
Closing cockpit 711
..... 597	Indirect activity allocation
FIFO (first-in, first-out) 132
..... 167	<i>category of activity type</i>
Financial planning, using SAP HANA 135
..... 700	<i>cycles</i>
Financial statement version, as reporting 369, 381
hierarchy	<i>for energy</i>
..... 698 134
Fixed assets depreciation	<i>in planning</i>
..... 367 246
Fixed costs	InfoArea, in SAP BW
..... 32, 393 447
Flow definition, for period-close	InfoObjects, in SAP BW
activities 456
..... 588	InfoPackages, for data extraction
Formatted reports using SAP Crystal 446
Reports	InfoProviders
..... 475 23
Form-based planning	<i>for corporate Investment</i>
..... 237 521
Formula key, in work center/resource	<i>Management</i>
..... 190 519
Free planning	<i>for planning</i>
..... 237 519
Functional area in cost center	<i>in SAP BW</i>
..... 107 447
Future standard price	Information system
<i>in material master</i>	<i>product cost by order</i>
..... 267 77, 81, 83
<i>marking/releasing</i>	<i>product cost planning</i>
..... 268 72
	InfoSet queries
 469
	Input price variances
	<i>for production orders</i>
 406
	<i>on cost centers</i>
 392

Input quantity variances	Joint production	169
<i>for production orders</i>	<i>product cost by order</i>	326
<i>on cost centers</i>		392
Intercompany margins, resource-related	L	
billing	Layouts, how to change	60
Intercompany profits, in group	Lean accounting	30, 36
valuation	<i>value streams</i>	105
Intercompany trading	Legal valuation	
Internal order line items	<i>in material master</i>	214
<i>delivered layouts</i>	<i>intercompany goods movement</i>	358
Internal orders	LIFO (last-in, first-out)	167
<i>change request</i>	Line item reporting, using SAP HANA	626
<i>master data</i>	Line items in SAP PCM	552
<i>planning</i>	List report	58
<i>settlement rules</i>	Long-term planning	228
<i>statistical</i>	Lot size	
<i>status management</i>	<i>for costing</i>	262
Internal service request	<i>for production order</i>	298
International Financial Reporting	Lot size variances, for production orders	407
Standards (IFRS)		
19	M	
Inventory	Main cost component split	264
41	Maintenance orders, operation level	
Inventory counts	costing	347
<i>handling of variances</i>	Make-to-order production	336
<i>recording of</i>	Manager Self-Service	
321	<i>internal orders for cost centers</i>	122
Inventory valuation	<i>user responsible for cost center</i>	101
44	Marking cost estimates	267
<i>in SAP S/4HANA</i>	Master data	21
<i>scrap</i>	<i>controls</i>	51
45	Master data reporting, cost centers	115
<i>work in process</i>	Master recipe	185
44	Material account, use of valuation class	164
Investment Management	Material group	
35	<i>for sales order item</i>	312
orders	<i>in material master</i>	162
35	Material Ledger	84, 417
<i>planning</i>	<i>activation of</i>	165
273	<i>cross-company trading</i>	214
<i>projects</i>	<i>drilldown reporting</i>	619
35	<i>impact on material master</i>	675
<i>using SAP HANA</i>	<i>in SAP S/4HANA</i>	673
630	<i>performance</i>	291, 419
Investment program		
36, 199, 273		
<i>planning</i>		
273, 279		
Item category, in BOM		
175		
Itemization		
<i>delivered layouts</i>		
75		
<i>reporting options</i>		
75		
J		
Job log		
<i>for period-close activities</i>		
584		
<i>in web application for Closing Cockpit</i>		
600		

Material Ledger (Cont.)	Operating concern (Cont.)	
<i>period close activities</i>	<i>link with cost objects in SAP PCM</i>	556
414	Operating rate, for cost center	393
Material master	Operation account assignment	347
161	Operation values	187
<i>master data governance</i>	Operation, in Universal Journal	692
493	Operational chart of accounts	203
<i>selection list for costing</i>	Operational cost centers	99
261	Operation-level costing	189, 348
<i>views</i>	Operations, BOM items for WIP	
161	calculation	404
Material origin	Order confirmation	38
168	Order groups	125
Material price analysis, using SAP HANA	Order items, for coproducts	327
621	Order lot size	298
Material types, in material master	Order master data, reporting options	126
161	Order networks	177
Material usage, for production orders	Order settlement	42
302	Order split	330
Mixed costing	Order to cash	311
192	Orders, typical expenses	41
Mixed price variances, for production	Organization types, in SAP Financial	
orders	Closing cockpit	595
407	Origin group, material master	168
Mixing ratios	Original budget, for projects	280
<i>for product costing</i>	Outbound delivery, for sales order	315
195	Output measure	
<i>use of</i>	<i>for cost centers</i>	32
265	<i>for planning</i>	33
Model builder, in SAP PCM	<i>for products</i>	32
551	<i>for work center</i>	190
Moving average price	Output parameters, for extracts	439
164	Output price variances	
<i>in combination with Material Ledger</i>	<i>for production orders</i>	407
167	<i>on cost centers</i>	393
MRP variances, source of	Output side variances, on cost centers	393
298	Output, of planning	220
Multidimensional reporting	Outsourced manufacturing, with CO	
<i>in Cost Center Accounting</i>	production order	77, 330
454	Overall plan, investment planning	274
<i>in SAP BW</i>	Overhead calculation	
451	<i>for production orders</i>	399
Multilevel price determination	<i>using SAP HANA</i>	630
416	Overhead group, in material master	169
My Spend	Overhead key, in production order	398
46		
<i>Active Budget Control</i>		
46		
<i>SAP Fiori</i>		
641		
My Unusual Items, SAP Fiori		
645		
N		
Navigation attributes, in SAP BW		
455		
Networks		
198		
<i>for projects</i>		
43		
O		
Object CPT2		
549		
Offset, timing of period close		
576		
OLAP engine, use in planning		
520		
One-off costs, template allocation		
301		
On-the-fly aggregation, using SAP HANA		
610		
Operating concern		
88		
<i>dimensions used for planning</i>		
223		
<i>in SAP BW</i>		
450		
<i>in the Universal Journal</i>		
665		

P	
P&L accounts, link to CO	204
Parameters, for closing activities	582
Partners	
<i>cost component split</i>	72
<i>in an allocation</i>	62
Passive budgeting	50
Payroll costs, cost center assignment	40
Percentage of completion	45
<i>valuation</i>	413
Period close	22, 44
<i>automation of</i>	577
<i>process controls</i>	52
<i>use of SAP Financial Closing cockpit</i>	567
Periodic costing run	415
<i>costing steps</i>	416
<i>link to Schedule Manager</i>	593
<i>underlying data</i>	291
Periodic unit price	
<i>goods receipts for purchases</i>	291
<i>in costing run</i>	415
<i>in Material Ledger</i>	167
Person responsible, for cost center	100
Physical InfoProviders, in SAP BW	466
Physical inventory	
<i>distribution of differences</i>	322
<i>document</i>	321
<i>handling of variances</i>	320
Plan integration, for internal orders	250
Plan quantities, inclusion in template	543
Plan reconciliation	231
Plan to manufacture	298
Plan version, how to look	273
Planned scrap	
<i>in BOM</i>	177
<i>settings in material master</i>	170
Planner profile in planning applications	515
Planning	46
<i>driver-based</i>	46
<i>options</i>	18
<i>process controls</i>	51
<i>steps involved</i>	47
<i>supply and demand</i>	49
Planning area, for planning applications	516
Planning elements, for project	198
<i>Planning layouts, for cost center</i>	
<i>planning</i>	236
<i>Planning scenario, for sales and</i>	
<i>operations plan</i>	228
<i>Post closing, in Material Ledger</i>	417
<i>Preliminary cost estimate, for</i>	
<i>production order</i>	300
<i>Price conditions</i>	
<i>for intercompany sales</i>	214
<i>for purchasing</i>	289
<i>in purchasing info record</i>	212
<i>Price control, in material master</i>	164
<i>Primary cost component split</i>	72
<i>for product costs</i>	264
<i>in planning</i>	255
<i>use of</i>	191
<i>Primary cost distribution</i>	379
<i>Primary cost elements</i>	27, 138, 202
<i>account type</i>	658
<i>in distribution cycles</i>	379
<i>Primary cost posting, reporting options</i>	61
<i>Primary cost postings, in Universal</i>	
<i>Journal</i>	656
<i>Primary database</i>	612
<i>Prior year rates</i>	346
<i>Process controls</i>	
<i>period close</i>	52
<i>planning</i>	51
<i>price calculation in Material Ledger</i>	418
<i>Process costs, in product costing</i>	542
<i>Procure to pay</i>	288
<i>Procurement alternative, product cost</i>	
<i>collector</i>	334
<i>Procurement alternatives</i>	192
<i>Material Ledger reports</i>	623
<i>Product cost by order</i>	77, 326
<i>period close activities</i>	396
<i>Product cost by period</i>	80, 332, 404
<i>Product cost by sales order</i>	82
<i>period close activities</i>	412
<i>Product cost collector</i>	80, 144
<i>product cost by period</i>	332
<i>variance calculation</i>	409
<i>Product Cost Controlling</i>	30
<i>Product Cost Planning</i>	256
<i>procurement alternatives</i>	265

<i>Product costing</i>	17
<i>reporting options</i>	71
<i>Product hierarchy</i>	
<i>for sales order item</i>	312
<i>in material master</i>	162
<i>Product roll-up, via BOM</i>	175
<i>Production alternatives</i>	144
<i>Production campaigns, reporting options</i>	77
<i>Production order</i>	298, 330
<i>outsourced manufacturing</i>	77
<i>reporting options</i>	76
<i>settlement</i>	309
<i>Production plan</i>	228
<i>Production quantity, as basis for</i>	
<i>planning</i>	220
<i>Production variances</i>	
<i>calculation of</i>	405
<i>in SAP S/4HANA</i>	670
<i>sources of</i>	307
<i>Production version</i>	
<i>in material master</i>	169
<i>product cost collector</i>	145, 333
<i>reporting options</i>	80
<i>Profit and loss planning, using SAP HANA</i>	702
<i>Profit center</i>	
<i>cost center</i>	108
<i>in material master</i>	169
<i>in purchase order</i>	290
<i>Profitability Analysis</i>	88
<i>allocations to</i>	384
<i>billing document</i>	317
<i>direct posting from FI</i>	296
<i>period close activities</i>	428
<i>planning</i>	221, 271
<i>sales order entry</i>	311, 312, 340
<i>SAP BW content</i>	450
<i>settlement to</i>	411
<i>Profitability Analysis in the Universal</i>	
<i>Journal</i>	665
<i>Profitability planning</i>	271, 518
<i>Program variant</i>	
<i>generation of</i>	584
<i>in period close</i>	579
<i>in workflows</i>	591
<i>Project change request</i>	484
<i>Project controlling</i>	341
<i>Project definition</i>	196
<i>Project line items</i>	345
<i>Project size</i>	198
<i>Project stock, account assignment</i>	164
<i>Projects</i>	43, 196
<i>Proportional costs</i>	32
<i>Purchase order, purchase to stock</i>	288
<i>Purchase price variances, in procure-to-pay</i>	
<i>process</i>	289
<i>Purchasing info record</i>	211
<i>in purchase order</i>	288
<i>use of conditions in costing</i>	212
Q	
<i>Quantity structure</i>	
<i>in Material Ledger</i>	87
<i>link to BOM</i>	175
<i>Queries</i>	
<i>for planning</i>	530
<i>for Profitability Analysis</i>	462
<i>for SAP BusinessObjects tools</i>	471
<i>in SAP BW</i>	448
R	
<i>Rate routing</i>	185
<i>Realignment, for project-related</i>	
<i>characteristics</i>	684
<i>Realignments, in SAP S/4HANA</i>	666
<i>Real-time finance</i>	682
<i>Receiver rule</i>	
<i>allocations to Profitability Analysis</i>	385
<i>assessment cycle</i>	372
<i>Receivers</i>	62, 111
<i>Reconciliation accounts, impact of</i>	
<i>Universal Journal</i>	661
<i>Reconciliation ledger</i>	106
<i>Record types, in Profitability Analysis</i>	88
<i>Recursive BOMs</i>	181
<i>Reference order</i>	118
<i>Release</i>	
<i>of cost estimates</i>	268
<i>production order</i>	302
<i>Remote tasks, for period-close activities</i>	602
<i>Replicated data, in SAP BW</i>	449

Report Writer reports, using SAP HANA 629
 Report Writer, use of extracts 436
 Reporting 20, 53
 Reposting cycles 369, 380
 Reposting line items 351
 Reposting values 355
 Requirements type, in sales order 337
 Resource drivers, in SAP PCM 558
 Resource-related billing, in
 SAP S/4HANA 690
 Resources
 in process industry 190
 in SAP PCM 540
 supply and demand 34
 Resource-usage variances
 for production orders 407
 on cost centers 392
 Responsibility accounting 29
 Responsible centers, in SAP PCM 553
 Responsible cost center internal order 122
 Results analysis 45
 cost elements 402
 revenue-based 45
 Results analysis key, in production
 order 398
 Results analysis version, use of 401
 Revaluation
 at actual prices 395
 in Profitability Analysis 428
 of consumption 417
 Revenue elements, account type 658
 Rework
 confirmation of 306
 for production order 329
 Routing
 in production order 300
 long-term planning 229
 manufacturing steps 71
 work in process calculation 404
 Row store, database structure 610
 Run schedule headers 335
 product cost collector 144

S

Sales and operations planning 221
 transfer from CO-PA 227
 Sales order 311
 Sales order controlling, period close
 activities 412
 Sales order costing, reporting options 84
 Sales order stock 82, 337
 account assignment 164
 unvaluated 413
 valuated 413
 Sales planning 223
 Sales quantity, as basis for planning 220
 SAP BEx queries
 for planning 520
 reporting 467
 SAP BusinessObjects 23
 SAP BW 23, 446
 Material Ledger extractors 625
 SAP BW extractor, Universal Journal 694
 SAP Catch Weight Management
 equivalence numbers for co-product 180
 multiple units of measure 162
 SAP Central Processing by Redwood 600
 SAP Crystal Reports
 in SAP List Viewer 476
 link to query 474
 SAP ERP 19
 SAP Financial Closing cockpit 24, 569
 in period close 568
 scheduling extracts for reporting 439
 web application 598
 SAP Fiori 611
 SAP HANA Live 611
 for operational reporting 632
 SAP HANA, impact on Controlling 609
 SAP List Viewer 58
 layouts 59
 SAP Crystal Reports 476
 tree report 74
 SAP Master Data Governance 23
 SAP Master Data Governance for
 Financials 483, 490
 SAP Profitability and Cost Management 24
 options for loading data 550

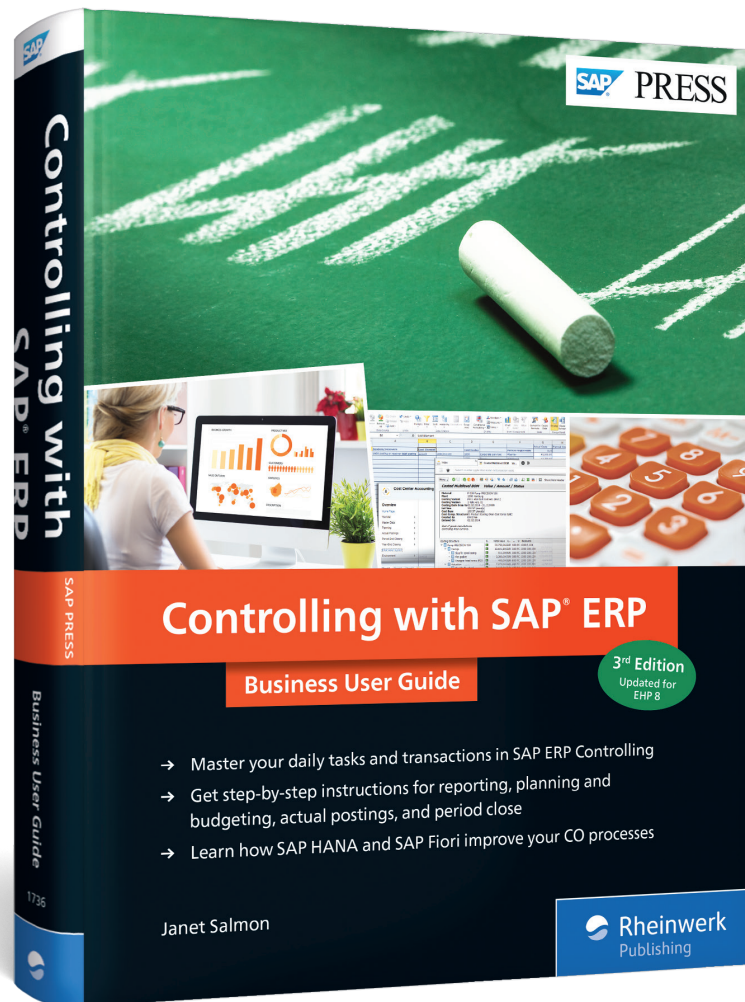
SAP SEM 23
 SAP Shared Service Framework 483
 Sarbanes-Oxley Act (SOX) 50
 master data compliance 154
 Schedule Manager
 for planning 222
 in period close 568
 scheduling extracts for reporting 439
 Schedule Manager Monitor, use of 587
 Scheduled activity 231
 in long-term planning 229
 transfer from SOP/LTP 234
 Scheduling, for period-close activities 583
 Scrap 45
 calculation of 410
 confirmation of 306
 Search models using SAP HANA 637
 Secondary cost element 27, 138
 account type 660
 use 140
 Secondary cost postings, in Universal
 Journal 656
 Secondary database, SAP HANA as a
 sidecar 611
 Secondary postings, reporting options 62
 Segments, within allocation cycles 371
 Selection list, for costing run 260
 Selection variants, internal orders 120
 Semantic tags, for reporting 696
 Sender rule
 for assessment cycle 372
 for indirect activity allocation cycles 382
 Senders 62, 111
 Service orders, operation level costing 347
 Settlement 410
 in SAP S/4HANA 667, 683
 Settlement rule
 automatic generation 123
 for production order 339
 internal orders 122
 Shared service center 510
 Simplified Reporting
 cost center line item 63
 cost centers 115
 order master data 126
 Single source of truth, Universal Journal 656

Single-/multilevel price determination 416
 in Material Ledger 167
 Source structure, in joint production 179
 Special procurement key, in material
 master 170
 Split valuation, for batches 172
 Splitting
 cost center costs 245
 production orders 329
 Spoilage 45
 in BOM 177
 Spool list
 for period-close activities 585
 *in web application for SAP Financial
 Closing cockpit* 600
 Stakeholder 21
 Standard cost center hierarchies 109
 Standard cost estimate, in material
 master 165
 Standard costs 33
 for raw materials 210
 use of costing run 257
 variances 33
 Standard price 164
 marking/releasing 268
 Standard routing 185
 Standard settings, in planning 217
 Standard values, in operation 187
 Star schema, for multidimensional
 reporting 452
 Statistical account assignments, in the
 Universal Journal 663
 Statistical costs, in the Universal Journal .. 668
 Statistical internal orders 124
 Statistical key figure 128
 groups 131
 use in assessment cycles 373
 Status management
 for an internal order 153
 for internal orders 153
 for orders and product cost collectors ... 153
 Stock
 in transit 357
 transfer order 357
 unrestricted use 290
 Stock revaluation, release of standard
 costs 266

Structure explosion, in Product Cost		Time recording	
Planning	262	<i>by order</i>	38, 42
Substitutions		<i>by project</i>	38
<i>in the Universal Journal</i>	662	<i>for event-based revenue recognition</i>	685
<i>of profit centers</i>	664	<i>for intercompany billing</i>	689
Summarization hierarchy, on-the-fly		<i>to project</i>	344
aggregation	444	Time sheet, data entry	344
Summarization levels		Time-dependent data, Asset Accounting	106
<i>changes with SAP HANA</i>	614	Time-dependent fields, for cost centers	149
<i>in Cost Object Controlling</i>	442	Top-down distribution	
<i>in Profitability Analysis</i>	441	<i>performance of data selection</i>	616
Supplier, master data governance	492	<i>Profitability Analysis in the Universal</i>	
Supporting cost center		<i>Journal</i>	672
<i>indirect activity allocation cycles</i>	381	<i>using SAP HANA</i>	615
<i>use of</i>	379	Top-down planning, for investments	274
Supporting cost centers	99	Totals record, Cost Center Accounting	65
<i>cost center planning</i>	242	Totals records, in SAP S/4HANA	664
T		Transaction-based price determination,	
Table		in Material Ledger	167, 675
CE1	612	Transactions	18
CE4	612	C203	185
CKMLPP	624	CA03	185
COEP	626	CA23	185
CPT1	547	CAT2	344
FCML_CCS_REP	623	CAT5	344
FCML_MAT	623	CJ13	345
FCML_REP	623	CJ14N	626
MLCD	621	CJ20N	197
MLIT	621	CJ30	281
MLPP	621	CJ40	274
Target costs		CJ13N	626
<i>for product cost collector</i>	334	CJR2	276, 516
<i>for production orders</i>	404	CK40N	257
<i>version</i>	405	CK91N	192
Task list, for period close	574	CK94	195
Template		CKM3N	85
<i>as part of period close</i>	547	CKMATCON	261
<i>definition</i>	547	CKMATDUV	322
<i>display in product costing</i>	542	CKMCCD	419
<i>for period close</i>	573	CKMDUVACT	324
<i>instead of overhead calculation</i>	400	CKMDUVREC	324
Time dependency		CKMLCP	416
<i>in BOM</i>	175	CKMLCPAVR	421
<i>in cost center</i>	149	CKMLQS	85, 306
		CLOCOC	571
		CLOCOT	574

Transactions (Cont.)		Transactions (Cont.)	
CO01	298	KKS2	405
CO15	302	KKS6	409
CO8B	329	KLO1	132
CON2	395	KLI3	137
COR1	326	KLH1	137
CPT1	547	KOO4	118
CRO3	190	KOB1	68
CRC3	190	KOBIN	626
CS03	175	KOB2N	626
FS00	204, 658	KOBPN	626
HDBC	620	KOH1	126
IM_AVCHANA	630	KPO4	515
IM32	280	KPO6	236, 515
IM34	200, 279	KP26	231, 232, 515
IM52	280	KPF6	250, 516
KA01	138	KPSI	235, 244
KA06	138	KSO1	99
KA23	143	KSB1	56
KAH2	142	KSBIN	626
KALC	106	KSB5N	626
KB11N	355	KSBPN	626
KB21N	345	KSBT	394
KB61	351	KSC2	382
KB65	354	KSC5	382
KE1P	616	KSH1	112
KE24	312	KSII	393, 424
KE27	429	KSPI	252
KE28	430	KSPP	234
KE28L	616	KSS4	245
KEDZ	615	KSU2	111, 371
KEG5	615	KSU5	374
KEHC	612	KSV2	379
KEPM	221, 272, 518	KSV5	379
KEU2	384	ME13	211
KEU5	387, 615	ME21N	289
KG12	399	MIO1	321
KK01	129	MIO4	321
KK87	411	MIO7	322
KKAS	403	MIGO	290
KKAX	402	MIRO	293
KKBC_ORD	402	MMO3	162
KKF6N	145	MSO1	229
KKMLO	619, 621	OKEON	109
KKOO	619	RKIL	383
KKPHIE	147	RKIU	376

Transactions (Cont.)		Variation, in Report Writer reports	439
<i>RKIV</i>	379	Vendor master	215
<i>RKPI</i>	519	Version	219
<i>RKU3</i>	354	<i>for sales and operations plan</i>	228
<i>RSA3</i>	446	<i>purpose of</i>	219
<i>RSPLAN</i>	528	<i>use in period close</i>	368
<i>XDO1</i>	173	Views, in SAP BW queries	466
<i>XKO1</i>	215	Virtual data model	654
Transfer control, in Product Cost Planning	260	<i>product cost controlling</i>	691
Transient InfoProviders, for reporting	468	Virtual InfoProvider	
Travel expenses, cost center assignment	39	<i>for CO-PA</i>	616
Trial balance, in SAP Fiori	655	<i>for planning</i>	524
		<i>how to create</i>	616–618
		<i>in SAP BW</i>	466
		<i>Material Ledger</i>	624
U			
Unit of measure		W	
<i>for material master</i>	162	WBS element	196
<i>Profitability Analysis</i>	163	<i>change request</i>	484
Universal Journal	653	Web queries, for planning	520
<i>number of posting lines</i>	656	Weighted average price, in Material	
<i>table ACDOCA</i>	655	Ledger	165, 167
User exit, COOMKS01	102	Where-used lists, for cost centers	116
User responsible, for cost center	101	Wolfgang Kilger	17
		Work Breakdown Structure (WBS)	22, 43, 196
		Work centers	190
		<i>in production order</i>	300
		<i>in Universal Journal</i>	692
		<i>link with Cost Center Accounting</i>	106
		Work in process	
		<i>account determination</i>	209
		<i>calculation of</i>	401
		<i>for product cost collectors</i>	403
		<i>introduction</i>	44
		Work lists, for period-close activities	588
		Work orders, reporting options	76
		Workflow	
		<i>approvals</i>	51
		<i>period-close activities</i>	587
		Working time, recording of	344
		Z	
		Zero-based planning	223



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