Marco Sisfontes-Monge

Controlling-Profitability Analysis with SAP®
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Welcome to the world of Profitability Analysis with SAP. This chapter describes the basic objectives and contents of this book, chapter by chapter.

1 Introduction and Overview

We’ll start this book with a story. A long time ago, a young engineer was looking for a job right out of school. After studying hard and getting good grades, he had a job offer in hand from a worldwide technology company, to work in the process improvement division (Six Sigma). His future, highly lucrative job was simple—use the latest mathematical and software tools to improve assembly, materials costs, and anything else required to make the best product that money can buy.

The high-tech company was one of the best and biggest technology companies in the world. The human resources manager who interviewed the young engineer assured rapid growth within the company, a close working relationship with the production manager, and that he was the final candidate after many interview rounds. Everything sounded like a dream, and the best part was that a close friend of his was working at the same company and could help him with his training.

Before making a decision, the young engineer also requested a tour of the company to have a look at the systems and processes. He saw the different production lines, packaging, and robotic and manual assemblies scheduled to work 24 hours a day, 7 days a week. One department team had saved over 1.4 million USD improving material usage and flow, making it the most profitable and productive center for the entire corporation, worldwide. Highly impressed with what he saw, and knowing that the name of the company by itself was a boost to his career, the young engineer considered taking the position right away. What more could a young gun want than to join a well-known and profitable company?

However, before accepting the job, the young engineer did one more thing. He went online and checked the company's performance on the New York Stock
Introduction and Overview

Exchange, and what he found was disturbing. The overall corporation inventory turnover was excessively low in comparison with that of the industry, the operating profit was in the red in the last two quarters in comparison to competitors, the yearly demand forecasts were cut in half one week before, and the stock price had gone down more than 30% in less than two months prior to his investigation.

To make things worse, an Asian invention that had been disclosed two weeks before was negatively affecting the demand for the company’s main product, and that completely changed the way new technology was provided to the consumer. After reading several news reports about this, the young engineer realized that this invention was threatening almost 40% of the company’s product line because it affected the main components of the company’s final product. This analysis took a little while, but it was enough to make the young engineer think twice about taking the job and to call the following Monday and kindly decline the offer. He instead decided to join a consulting firm using software that he had never heard of before.

The next month, the young engineer received a call from his friend who had worked at the company, to let him know that he, along with nearly 70% of the workforce of the facility, had been laid off (including the HR manager who had interviewed him). Only one person, the production manager, was left in the department where he was supposed to work. The high-tech equipment was sold as scrap to junk yards or shipped overseas for adaptation to new technology for use in another country. Four additional facilities and research centers around the globe were closed.

After this reality check, the young engineer completely understood that there is more to making a company profitable than massive production, the best technology, and the best qualified individuals. At this point, nobody was interested in the best facility in the world, with the best financial indicators just one month ago, and with the best and most qualified labor force of a technology that was now obsolete. What the young engineer also realized was that profitability, growth, and financial performance were highly interrelated.

Many years have passed since this close encounter with a potentially bitter experience, but from that day forward, and before appearing in front of any client, the engineer always makes sure to completely understand a company’s situation—its financials, ethics, shareholder and clients’ opinions, and the latest financial news, in order to have a clear picture of the situations he will face. In addition, these
analyses can play an important role in deciding whether to ultimately take on a project, regardless of what a company’s reputation is and how wonderful of a place it seems to be.

Hopefully, this short story has drawn your attention to some considerations behind profitability analysis and the vision toward the development and implementation of a profitability system. Profitability analysis requires not only financial transactions that measure a company’s success, such as revenues or sales, but also strategic decisions that make the products or services of a company attractive in the marketplace to satisfy the changing demands of customers and keep up with the competition.

1.1 The Purpose of This Book

It is a pleasure to once again be able to partner with SAP PRESS to provide enhancements to the first edition of this publication (first released in 2007) and to provide additional content on the demanding world of SAP Finance.

In this edition, we’ve worked hard to provide more comprehensive coverage on the following topics:

1. Assessment and distribution in order to support the CO-PA planning process.
2. Expanded coverage on the process of transferring data from the Sales and Distribution component, and validation procedures available within SAP ECC to guarantee that the data was transferred without errors.
3. Moving billing documents into CO-PA using specific criteria to guarantee that the correct information is transferred. We also explore the prerequisites required to perform the transfer.
4. Orders and WBS elements settlements to profitability segments.
5. Greater detail is provided on the theory and background of the Order Manager and settlement of WBS elements to profitability segments.
6. We’ve revised our discussion on how to make direct postings to the Financial Accounting (FI) and Materials Management (MM) components to better understand the relationship between assignment lines and value fields in SAP CO-PA.
7. We’ve included a completely new chapter that describes the relationship between SAP CO-PA, SAP NetWeaver BW Business Content, and SAP Business-
Introduction and Overview

Objects, including a brief overview of the functionality of SAP BusinessObjects Planning and Consolidation (SAP BPC). Also included in this chapter is a quick overview of SAP HANA and in-memory computing as part of the new enhancements created by SAP to improve system performance and reduce processing time in implementations with large data volumes.

This book will clarify functional and/or technical questions related to implementing CO-PA in your SAP system that could be followed by any beginner, intermediate, or advanced user. This book is not meant to make you a consultant and/or world expert, but to give you a quick start and reference guide of design, structures, functionality, terminology, procedures, and an overall understanding of the role of SAP CO-PA in the SAP ECC environment.

Also, because CO-PA can be considered an integrator within the SAP Controlling (CO) component, a certain minimum level of expertise in other SAP components is required to fully understand CO-PA’s potential. SAP Controlling Profitability Analysis (CO-PA) interacts with nearly all the components of SAP ECC. This means that when you need to transfer data from one particular component (say, FI, Sales and Distribution (SD), or MM), a functional and technical knowledge of that specific component is also required so the information from source to target (CO-PA) is configured, transferred, and validated accordingly.

The same logic applies for SAP NetWeaver Business Warehouse (BW) projects when extracting data from SAP ECC into the SAP NetWeaver BW reporting environment because the project requires an understanding of how the data needs to be transferred, the specifics of the component, and the relationships for each SAP ECC field required to be transferred with the extractor and destination fields in the target. For example, when extracting data from the SAP General Ledger, SAP provides a number of pre-defined extractors for SAP NetWeaver BW such as 0FI_GL_10 and 0FI_GL14, and SAP FI consultants are often required to provide the confirmation that the information is correct. The same situation occurs with SAP CO-PA: when performing transfers from MM, SD, FI, and other components, it’s necessary to understand the component where the data resides to confirm and validate the required structures to configure in SAP CO-PA to receive the data accordingly.

Note

We recommend taking advantage of other resources when working with other SAP components. For some ideas, take a look at the following resources, available at www.sap-press.com:
This may seem like a lot of information at once for beginners, but with a little extra work, it’s possible to master the basic elements required for a successful CO-PA implementation or to just explore the capabilities of the system. In this book, please note that not every element of the component will be explained. Rather, we’ll explore the most important functionalities.

The purpose of this book is to explain CO-PA configuration and techniques with a technical, theoretical, but also hands-on approach. CO-PA is a widely used component in the industry that can simplify the data extraction processes and fulfill reporting requirements. It supports the implementation of a revenue, cost, and expense analysis toward the calculation of measures such as net revenue, contribution margins, cost of goods sold, costs of goods manufactured, and operating profit.

**Note**

The activities performed or explained in this book use the standard SAP IMG help environment. Therefore, if you get lost or want more information, you can quickly complement your learning process using IMG Help information. Additional places to look for help include [http://help.sap.com](http://help.sap.com) and [http://sdn.sap.com](http://sdn.sap.com).

### 1.2 How This Book Is Organized

As we mentioned, this book has been structured following the IMG CO-PA menus. However, depending on the level of implementation of CO-PA within the SAP system in your organization, you might not need to use all of the CO-PA submenus. Also, because costing-based CO-PA is the more complex implementation model, it has been given priority in the discussion and revision of the associated elements; however, most of the functionalities used with this model can be applied with account-based CO-PA as well. For this reason, we can say that if you
implement costing-based CO-PA you’re getting account-based CO-PA for free. Here’s a quick overview of what you’ll do and learn while reading this book:

- Gain a basic understanding of CO-PA concepts in **Chapter 2**. This should be useful, especially for beginners who require additional clarification of concepts behind Profitability Analysis with SAP.
- Work with Business Content and get an overview of the functionalities and configuration components of CO-PA in **Chapter 3**.
- Explore the configuration settings to define the basic CO-PA components in **Chapters 4 and 5**.
- Configure a planning application using the CO-PA planning framework in **Chapters 6 and 7**.
- Get an overview of how to transfer actual data from other SAP components such as Financials (FI), Sales and Distribution (SD), Materials Management (MM); projects; WBS elements; and others in **Chapter 8**.
- Create reports within the CO-PA environment using the CO-PA Information System menu in **Chapters 9 and 10**.
- Review briefly the general configuration modifications required to change from a CO-PA costing-based analysis to an account-based analysis in **Chapter 11**.
- Review some useful tips and tricks in **Chapter 12** to improve your reporting and system performance.
- Receive a quick overview in **Chapter 13** of the SAP BusinessObjects suite and integration points with SAP NetWeaver BW, a quick overview of the main SAP BusinessObjects tools along with an extensive explanation on SAP BPC, a tool similar to SAP CO-PA that exists in the SAP NetWeaver Business Intelligence (BI) environment. Finally, SAP HANA and in-memory computing is evaluated as another component part of the new updates for high performance and reporting in SAP CO-PA and SAP ECC.
- Review what you’ve learned in this book in **Chapter 14**.

Each chapter of the book has been written independently, meaning that you should be able to work with it without the need to move back and forth between chapters. However, there are references between chapters to complement your learning, in case an important concept requires additional clarification that
depends on concepts discussed in other chapters. In order to speed up the learning process, SAP-delivered Business Content (CO-PA templates) is used and populated with actual and plan data to get you started with CO-PA tools in no time.

Note that it is not our intention to provide a complete overview of all of the capabilities and configuration steps required to use CO-PA. This component is quite sophisticated, and some of the functions that CO-PA performs are very difficult to replicate with alternative components such as SAP NetWeaver BW, BI, SAP NetWeaver BI Integrated Planning (IP), Business Planning and Simulation (BPS), and others. Only the most significant components are reviewed in this book; however, readers are given pointers to additional documentation, components, transaction codes, and procedures that can support the functionalities reviewed. So, without further delay, welcome to the CO-PA environment!

1.3 Summary

The CO-PA component of your SAP system’s CO component is a powerful application with extensive functionality. Although you might not require every single component that we’ll review, by reading this book you’ll get a broad overview of almost all of the menus available in CO-PA. This will allow you to quickly identify what functionalities you can use and which ones you won’t need, which you should make sure to do.

Looking ahead, in Chapter 2 we’ll briefly review some general and basic components to consider before initiating your work in CO-PA, as well as the financial and accounting terms to expect during your implementation. It’s important to clearly understand the difference, for example, between variable and fixed costs, and what types of documents are available inside the SAP system to accomplish the consolidation.

Chapter 2 will also briefly provide an overview of another key element related to Profitability Analysis in the enterprise: Economic Value Added (EVA). This indicator is often used as the final financial number that many corporate financial officers (CFOs) require that your CO-PA reports deliver.
Costing-based CO-PA is considered the most intensive and common application of Profitability Analysis. However, when you configure costing-based CO-PA, you’re also creating an account-based environment at no additional charge.

4 Configuring Costing-Based CO-PA

The most popular type of Profitability Analysis is costing-based CO-PA. It's easy to configure and provides a reasonable level of detail without having to worry about account or cost elements in the system, and it gives meaningful information to decision makers. In this chapter, we’ll explore the creation and configuration of a CO-PA costing-based operating concern in detail, as well as the major options required to set it up. In addition, we’ll activate all of the account-based CO-PA options along the way so you can review them when we explore account-based CO-PA in more detail in Chapter 11.

4.1 General CO-PA Overview

In general, CO-PA is a component that allows the analysis and combination of different types of documents, such as:

- Invoices from the SD component
- Direct journal entries from FI
- Cost center assessments from CO
- Settlement of production orders from Production Planning (PP)
- Quantity flows from Materials Management (MM)
- Work Breakdown Structure (WBS) elements from Project System (PS), among others

All of this documentation carries information related to customers, billing information, dates, products, variances, cost allocations, and hierarchies, and allows the creation of up to 30 additional user-defined characteristics and up to 120
additional value fields (key figures) to complement the different analyses. Moreover, the creation of CO-PA documents for each line item, sales order, cost assessment, and production order allows creating profitability segments or market segments that identify the data with specific characteristics.

**Note**

Profitability segments allow CO-PA to perform transactions between controlling objects, such as cost centers or production orders, and the profitability segments. However, once the values have been allocated inside CO-PA, the revenue and cost elements require special processing procedures to be allocated outside this environment.

As you can see in Figure 4.1, the role of CO-PA is to consolidate and access information coming from different areas of the SAP ERP ECC 6.0 system, based on the documents previously discussed. The value flow shown in Figure 4.1 describes the availability of key financial data coming from either Financial Accounting (FI) or Controlling (CO) components, which are the two key elements for any posting inside an SAP system. At the end you can see what management wants to visualize in terms of how each transaction affects financials, while thinking ahead to the balance sheet and the income statement reports.

*Figure 4.1* CO-PA Value Flow Business Process Model
Costing-Based CO-PA versus Account-Based CO-PA

Part of the decisions required to work with CO-PA is how to configure and control how your data flows, which is done using one of two models: costing-based or account-based. Each model allows posting information at different stages of the sales cycle, and the type of information displayed differs slightly. In simple terms, the two basic CO-PA approaches are:

- **Costing-based**: Uses value fields and does not use general ledger (G/L) accounts to perform any type of reconciliation with FI or cost-element accounting. Advantages of costing-based CO-PA include:
  - Contribution margin can be calculated, automatically accessing the standard cost estimates of the product valuation approaches.
  - Variance categories can be mapped to value fields.
  - Flexible reporting capabilities are available for analysis of several characteristics.
  - Standard cost estimate is used to show a split by cost component of the bills information extracted from the product costing component.

- **Account-based**: Is directly related to G/L account posting and for this reason makes it more exact and requires summarization levels to facilitate data consolidation. The advantage of account-based Profitability Analysis is that it is permanently reconciled with financial accounting. However, the fact that it uses accounts to get values makes it less powerful. No contribution margin planning can be done because it cannot access the standard cost estimate in account-based CO-PA and no variance analysis is readily available.

The main difference between the two CO-PA methods, however, is how and when postings are performed inside the system. Table 4.1 provides a description...
of these specific differences and how their transactions are posted into the financial and controlling systems, dealing with three major issues:

1. Passing an invoice to accounting updates the revenue, discount, freight, and cost of sales value fields.
2. Settling production order variance updates the variance fields that are related to the cost of goods sold (COGS) cost components.
3. Assessing cost center updates to the cost center variance fields.

<table>
<thead>
<tr>
<th>Account-Based</th>
<th>Costing-Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice information and financial postings are performed at the same time when calculating the cost of sales.</td>
<td>Cost of sales captured at the time of invoice but the financial posting is done at the time of delivery, meaning there is a time lag between these two transactions.</td>
</tr>
<tr>
<td>The cost of sales is no longer exactly matched with the revenue that is posted at the time of invoicing.</td>
<td>The cost component detail for variances is available for production order settlement and production cost collector hierarchy.</td>
</tr>
<tr>
<td>The details of the COGS components are not available.</td>
<td>Cost elements and G/L accounts are not available.</td>
</tr>
<tr>
<td>The cost of sales is not captured when invoicing a customer because it was already done when doing the financial entry.</td>
<td>Reconciliation using value fields and high-level characteristics (such as region, business area, and others).</td>
</tr>
<tr>
<td>Revenue is posted into CO-PA during billing.</td>
<td>The postings are recorded in a CO-PA document.</td>
</tr>
<tr>
<td>Production variances (order settlement and cost collector hierarchy) are not available, but variance is captured via one cost element.</td>
<td>Costing-based CO-PA uses a cost-of-sales approach, where the standard cost of sales is not recognized until a product is sold.</td>
</tr>
<tr>
<td>It is more detailed than costing-based because it discloses the different G/L accounts and cost elements.</td>
<td></td>
</tr>
<tr>
<td>The postings are recorded in a standard controlling document.</td>
<td></td>
</tr>
</tbody>
</table>

*Table 4.1 Comparison between Account-Based and Costing-Based CO-PA*
If R/3 or SAP ERP ECC 6.0 don’t give you the type of information that you want, you can use SAP NetWeaver Business Intelligence (BI). If you want to customize something beyond that, remember the following when using ABAP or another programming language:

- Customization affects system performance, and future system upgrades directly affect it.
- Modifications to the standard system functionalities centralize power in the hands of a few people who might not be around all of the time.
- The lack of documentation generally available during and after a major system customization provides more room for the people who built the system to, under negative circumstances, possibly halt the system.
- Customizations mostly add costs rather than value; consultants love to bill you for a new system and the periodic maintenance, but the SAP system has enough tools to avoid major customizations. Limit yourself to what the system provides and you’ll find that you are able to access the information that you need without major customizations.

- Limit the use of ABAP for the following:
  - Major “your boat is sinking” type of scenarios in SAP and other GUI components.
  - Simple queries using an ABAP query with table joins or direct access.
  - Interacting in the SAP NetWeaver BI 7.0 environment on the web.

Do not use ABAP for:

- Major customizations that modify default SAP objects.
- Creating applications that can be easily delivered with alternative methods, such as FOX code and Formula Editor (available in SAP NetWeaver BI 7.0 and CO-PA Report Painter).

---

**Note**

If both costing-based and account-based CO-PA are activated, when the settlement to CO-PA takes place, a posting is made to both types of CO-PA. The account-based CO-PA posting is recorded in a standard controlling document and the costing-based CO-PA posting is recorded in a CO-PA document.
Try to maximize the usage of available standard SAP extractors. SAP Net-Weaver BW generic data extraction can be very handy when exporting information outside SAP ERP ECC 6.0 if the capabilities of CO-PA Report Painter or CO-PA Planning are not enough.

With all these practices and tips in mind, we’re now ready to start our discussion of extracting information from R/3 or SAP ERP ECC 6.0 using costing-based CO-PA.

4.3 Creating Characteristics and Value Fields

The following is a general rule in SAP Controlling:

*Company codes are assigned to controlling areas, and controlling areas are assigned to operating concerns.*

A *controlling area* is the highest level of aggregation that covers the activities of Cost Center Accounting, Product Costing, Profitability Analysis, and Profit Center Accounting. An *operating concern* is the highest node in Profitability Analysis that limits the activities and elements that can be accessed and modified inside SAP ERP ECC 6.0 or R/3 and is limited by characteristics and value fields. Figure 4.2 provides an overview of the major components that are part of the STRUCTURES menu of the IMG (Transaction SPRO) as part of the PROFITABILITY ANALYSIS menu. This is part of the main Profitability Analysis menu that you’ll be using to create characteristics and value fields, which provide the backbone of the operating concern.

![Figure 4.2 CO-PA Structures Menu](image)
The individual configurable items include the following:

- **Maintain Characteristics**
  Create, modify, or change all available characteristics. Some of the CO-PA characteristics required for reconciliation usually include company code, business area, and cost element. When working with reports, additional characteristics (such as high-level material groups) may also be used or defined as user-defined elements that are part of a derivation rule based on current SAP information to derive new values.

- **Maintain Value Fields**
  Create, modify, or change all available value fields. You can choose to either store or extract data as amount or quantity. For example, the value Sales can be stored with a unit of measure such as U.S. dollars or Euros as a quantity, but Inventory can simply be stored as “100,” regardless of unit value as an amount or vice versa.

- **Maintain Operating Concern**
  Create, modify, or change operating concerns. This is where you establish the link between characteristics and value fields to create your operating concern and control the information displayed in reports or planned in CO-PA.

- **Define Profitability Segment Characteristics**
  These elements are additional “partitions” or pieces of your operating concern and are defined via characteristics. You select which characteristics are available for the information system and later on in planning. The remaining characteristics are considered line items and won’t be used to generate any type of classification inside the operating concern.

- **Set Operating Concern**
  Determines which operating concern is current in the system, and is affected by any operations, reports, extractions, derivations, and so on. The current operating concern carries the information defined inside the system, such as reports and planning layouts. For example, if operating concern A has report X attached, and operating concern B has report XX attached, only X or XX is available to perform the operations over the respective operating concern and the respective data. For this reason, it’s important to know in which operating concern you’re working, and that operating concern is current in the system until you exit the system or run this option again to change into another current operating concern.
Let's review and learn how to create the structures that define the basic behavior of the information inside CO-PA and that control the access and display of information—namely characteristics and value fields.

**Characteristics**

To access the characteristics definition:

1. Follow this IMG path (or use Transaction SPRO): CONTROLLING • PROFITABILITY ANALYSIS • STRUCTURES • DEFINE OPERATING CONCERN • MAINTAIN CHARACTERISTICS.
2. Double-click on the EXECUTE icon (clock with the checkmark), next to MAINTAIN CHARACTERISTICS.
3. You'll see the screen displayed in Figure 4.3. You can now click on CREATE/CHANGE, DISPLAY, or CHANGE, depending on what you want to do.

4. Click on CREATE/CHANGE. The message CAUTION YOU ARE PROCESSING CROSS-CLIENT DATA STRUCTURES appears.
5. Click on the checkmark icon to accept the message.
6. Review the screen that appears, as shown in Figure 4.4. It displays all of the characteristics available in the system you can allocate to an operating concern. User-defined characteristics are displayed in white and can be modified. SAP standard characteristics extracted from specific SAP tables are grayed out.
Creating Characteristics and Value Fields

and can’t be modified. For example, BONUS is an SAP default characteristic coming from the origin table MVKE, and EFORM is a user-defined characteristic.

As discussed in the previous step, SAP default characteristics are clearly identified with their original SAP tables that store the transactional information and data fields. However, you can also create your own characteristics that you will either populate with data or use for different calculations or planning applications later on in the process. To create a user-defined characteristic, follow these steps:

1. Click on the Create icon located at the top of the screen shown in Figure 4.4.
2. Select the User defined radio button, as shown in Figure 4.5.
3. In the NEW CHARACTERISTIC section, configure two input boxes. The first box contains the field name or unique identifier of the characteristic and must begin with “WW,” followed by a standard SAP nomenclature to make the system identify these types of characteristics. The second box contains a description. For example, in Figure 4.5, WW007 is a user-defined characteristic. Its name is identifier 007 and the description is JAMES BOND.

4. After configuring the identifier and description, click on the checkmark icon and the screen shown in Figure 4.6 appears. The system now requires the definition of DATA TYPE/LENGTH. Specify “CHAR” to indicate that 007 is alphanumeric and specify “10” for the character length.

5. Click on the SAVE icon to save your changes.

6. Click on the checkmark icon to create the characteristic from scratch, and click on Yes, despite the warnings.

7. Click on AUTOMATIC, and then click on the SAVE icon. At the end of this process your screen will look like Figure 4.6. (The system copies the description information from the initial screen shown in Figure 4.5 into the DESCRIPTION and HEADING boxes in the TEXTS section.)

8. To complete the process, click on the ACTIVATION icon, which is located at the top of the screen as shown in Figure 4.6.

![Figure 4.6 Creating a User-Defined Characteristic in CO-PA](image-url)
Creating Characteristics and Value Fields

This user-defined characteristic is now available for use by different operating concerns.

**Note**

When creating a user-defined characteristic, a data class can be defined to describe the data format at the user interface. If a table field, structure field, or a data element is used in an ABAP program, the data class is converted to a format used by the ABAP processor. For this reason, when a table is created inside the SAP system, the data class of a table field is converted into a data format of the database system used.

**Value Fields**

In simple terms, value fields do not store descriptions of data but their results. You can access the information contained in value fields in one of two ways:

- Click on the **VALUE FIELDS** button, shown earlier in Figure 4.3.
- Follow the IMG path **PROFITABILITY ANALYSIS • STRUCTURES • DEFINE OPERATING CONCERN • MAINTAIN VALUE FIELDS**.

As a result, the screen shown in Figure 4.7 appears.

![Edit Value Fields: Start Screen](image)

*Figure 4.7 Accessing the Edit Value Fields: Start Screen*
To create a new value field, follow this procedure:

1. Click on **Create/Change**.

2. Click on the checkmark icon in the dialog box with the message **Caution you are processing cross-client data structures**, and an input box called **Create Val. fld: Assignment** appears, as shown in Figure 4.7.

3. Select either **Amount** or **Quantity**, depending on your requirements. We selected **Amount** for our example.

4. You now need to configure the technical name and a description in the two **Value Field** input boxes, as shown in Figure 4.7. The first input box describes the technical name that must start with “VV”, followed by xxxx (“VVxxxx”). VV are the initial required letters for the system to identify this field as a value field and xxxx is the name of the value field, which must be either four or five characters long. The second input box is where you enter a description. For our example, we entered “VVTES” in the first box and “test1” in the second box.

5. Click on the checkmark icon to access the change value field screen (**Change Val. fld VVTES**) as shown in Figure 4.8.

6. You can now define an aggregation method or leave **Summation (SUM)** as the default depending on the behavior of the value field during posting.

7. Click on **Save**.

![Figure 4.8 Accessing the Change Val. fld VVTES Screen](image)
Creating Characteristics and Value Fields

8. Create additional value fields by clicking on the Change/modify icon.
9. Click on New Entries.
10. Type the technical name in the Value Field column, then provide a Description and Short Text. For our example, use the information for the value fields VV01, VV012, and VV12, as shown in Figure 4.9.
11. Specify for each value field whether it is an Amount or a Qty. (Amount value fields generally carry information, such as currency, and quantity fields carry data with units of measure, such as kilograms or number of produced units.) Once created, the value fields, as shown in Figure 4.9, are ready for use by any operating concern.

Like with characteristics, grayed out and white boxes are used to differentiate default SAP value fields from user-defined value fields. Notice that for the default SAP value fields, the radio buttons in the Amount and Qty (Quantity) columns are also grayed out, meaning you can’t change them.

Note

A time-based aggregation rule determines how a key figure is calculated when the reference field is a characteristic with a time dimension with three options:

- Aggregate or Average (AVG) value operation
- Summation (SUM) operation
- Last value (LAS)

The aggregation rule selected depends on the type of value field defined and its real-life behavior. For example, Revenue is a SUM value field because you want that to be added all of the time. Employees during a time period can be a SUM or an AVG depending on whether our calculations require total employees or average number of employees. Inventory price can be considered a LAS value field because you may only be interested in having the latest value of the price. We recommend that you review the SAP documentation to fully understand this functionality.

Tips & Tricks

The aggregation rules “Last value” and “Average” are only useful for representing statistical and noncumulative values in value fields. Also, the reference period is always the period of a fiscal year. If your data is planned in weeks, the value fields cannot use the aggregation rules AVG or LAS.
In the next section we’ll explore how to create an operating concern, using value fields and characteristics together to build a common structure that lets you extract or receive information.

**Note**

An exception exists to the rule that the fields of SAP-defined value fields display in gray: As shown in Figure 4.9, the value field VRPRS is an SAP-defined value field; however, it is possible to change its description and short text. Therefore, the **DESCRIPTION** and **SHORT TEXT** fields for this value field display in white.

### 4.4 Maintaining an Operating Concern

An SAP system requires operating concerns in CO to connect or interact with other structures inside R/3 or SAP ERP ECC 6.0 or external systems, such as SAP NetWeaver BI-IP, SAP SEM-BPS, or SAP BW-BPS.

#### 4.4.1 Accessing and Creating Operating Concerns

To access existing and create new operating concerns, follow these steps:
1. Follow the IMG path **CONTROLLING • PROFITABILITY ANALYSIS • STRUCTURES • DEFINE OPERATING CONCERN • MAINTAIN OPERATING CONCERN**.

2. Click on the Execute icon to display the screen shown in Figure 4.10.

![Figure 4.10 Maintain Operating Concern](image)

3. Here you can select any operating concern available in your system. For our example, we selected the S.GO operating concern template. Notice that once you select an operating concern you can check the **Status** of its configuration to give you an idea if the data structures were correctly defined.

4. Review the different options available, especially those on the **Data Structure** and **Environment** tabs. Also, notice that the operating concern requires defining a type of Profitability Analysis: costing-based, account-based, or both.

5. If necessary, select the **Data Structure** tab shown in Figure 4.10, and click on the change/modify icon (a pencil with glasses), and the message **Caution! You are changing/deleting cross-client settings** will appear.
6. Click on the checkmark icon to acknowledge the message.

7. Notice that the button located at the lower bottom of the screen in the DATA STRUCTURE tab has changed from DISPLAY in Figure 4.10 to ACTIVATE in Figure 4.11.

8. Click on ACTIVATE to access the configuration of the operating concern displayed in Figure 4.12.

9. Notice that an operating concern structure contains the CHARS (characteristics) and VALUE FIELDS tabs, as shown in Figure 4.12. You can see here how an operating concern is a collection of predefined objects that you want to have access to from the SAP tables or to store user-defined values. With predefined CO-PA-activated templates, such as S.GO, you're not allowed to make any modifications to the Business Content delivered with R/3. It's only possible to modify the contents of the characteristics and VALUE FIELDS tabs on a brand-new operating concern.

Figure 4.11 Operating Concern in Change Mode
Now let’s create an operating concern from scratch for a company called Jon Dirr Inc., a manufacturer of automotive parts, which is interested in implementing the CO-PA component using both costing-based and account-based CO-PA:

1. Return to the screen shown earlier in Figure 4.11 to start creating an operating concern.
2. Position your cursor in the OPERATING CONCERN input box and type the technical name “JDIR” in the field, as shown in Figure 4.13. In the DESCRIPTION field, type “Jon Dirr Inc.”

![Data Structure for an Operating Concern](image1)

**Figure 4.12** Data Structure for an Operating Concern

![Creating a New Operating Concern](image2)

**Figure 4.13** Creating a New Operating Concern
3. Select both Costing-based and Account-based checkboxes in the Type of Profitability Analysis section, which allows you to navigate between them later on in the process. We’re doing this for our example because Jon Dirr Inc. does not know exactly how it generates revenue and exactly how it is profitable because the results and analysis are based on the final corporate P&L statements each quarter. While each of its plants around the world has its own SAP system, they have not yet been integrated.

4. Click on the standard Create icon (the white page icon). A screen similar to the one shown earlier in Figure 4.12 displays.

5. To include a characteristic or value field in the operating concern, select either the Chars or Value fields tab, then select a line in the Transfer from area and click on the left arrow to move it to the Data structure area.

6. To remove a value field or characteristics from the operating concern, reverse the procedure by selecting a line in the Data structure area and clicking on the right-arrow to move it to the Transfer from area.

7. When you’re done, save and activate your structure using the Save and Activate icons. Once completed, a green checkmark will appear at the bottom of your screen to notify you that the update was completed successfully.

At this stage, several tables are created automatically, carrying the name of the operating concern (xxxx reflects the name of the operating concern). For example, if CE1xxxx is created from the SG operating concern, the new table name will carry the information CE1SG. The CO-PA tables generated when you save and activate the operating concern are quite important when performing reporting or extraction operations. Table 4.2 shows the most important tables for costing-based CO-PA and Table 4.3 shows the most important tables for account-based CO-PA.

<table>
<thead>
<tr>
<th>Table name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE1xxxx</td>
<td>Actual data, costing-based CO-PA</td>
</tr>
<tr>
<td>CE2xxxx</td>
<td>Plan data, costing-based CO-PA</td>
</tr>
<tr>
<td>CE3xxxx</td>
<td>Segment level, CO-PA</td>
</tr>
<tr>
<td>CE4xxxx</td>
<td>Characteristics table, and also similar to dimension table in SAP NetWeaver BI</td>
</tr>
</tbody>
</table>

Table 4.2 Important Tables for Costing-Based CO-PA
Creating User-Defined Value Fields and Characteristics Within an Operating Concern

It is also possible to create user-defined value fields and characteristics within an operating concern. To do this:

1. Follow the menu path Profitability Analysis • Structures • Define Operating Concern • Maintain Operating Concern.
2. Select the Chars or Value Fields tab, depending on what type of component you want to create.
3. Select the Create icon (showing a white page), as shown in Figure 4.14. 
4. Type the default "VV" or "WW" initial name, depending on whether it is a value field or a characteristic, and type a description.
5. Click on the Save icon.
6. Activate your new value field or characteristic by clicking on the Activate icon.

<table>
<thead>
<tr>
<th>Table name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE1xxxx_ACCT</td>
<td>Account assignment information, new for release R/3 4.5</td>
</tr>
<tr>
<td>KB1xxxx</td>
<td>Summarization levels, costing-based CO-PA</td>
</tr>
<tr>
<td>TKEBL</td>
<td>Currency of operating concern, costing-based CO-PA</td>
</tr>
<tr>
<td>COIX_DATA</td>
<td>Report Data Only converted in costing-based CO-PA</td>
</tr>
<tr>
<td>TKEBZ</td>
<td>Exceptions for reports</td>
</tr>
</tbody>
</table>

Table 4.2 Important Tables for Costing-Based CO-PA (Cont.)

<table>
<thead>
<tr>
<th>Table name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COEJ</td>
<td>Actual/plan line items (by year)</td>
</tr>
<tr>
<td>COEP</td>
<td>Actual/plan line items</td>
</tr>
<tr>
<td>COSS</td>
<td>Totals records</td>
</tr>
<tr>
<td>COSP</td>
<td>Totals records, account-based CO-PA</td>
</tr>
</tbody>
</table>

Table 4.3 Important Tables for Account-Based CO-PA
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