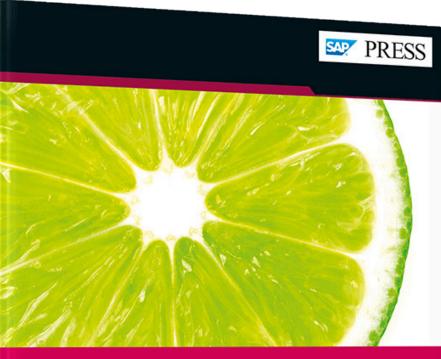




9



Profitability Analysis with SAP S/4HANA[®]

Configure margin analysis and costing-based CO-PA in SAP S/4HANA

- > Perform profitability planning with your data
- Run key profitability reports using SAP Fiori and SAP GUI

2nd edition, updated and expanded

Kathrin Schmalzing



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discusses the creation and derivation of characteristics, which are identical for costing-based profitability analysis and margin analysis. In this reading sample, the author guides you through creating characteristics, with special considerations for SAP tables, value maintenance, existing values, and assigning those characteristics to operating concerns.



Kathrin Schmalzing

Profitability Analysis with SAP S/4HANA

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Chapter 3 **Configuring Characteristics**

Characteristics define on which level you can analyze your data. Both costing-based profitability analysis and margin analysis use characteristics to structure reporting.

Characteristics are required to define the basic structure of costing-based Characteristics: profitability analysis and margin analysis. You should put some time into defining characteristics and thinking about strategic goals when you set up your characteristics. It isn't easy to change characteristics after you're productive with costing-based profitability analysis or margin analysis. You can't delete characteristics that have postings at all. In addition, you're limited to 60 characteristics that you can assign to your operating concern. There are some fixed characteristics that are assigned to every operating concern by default. The 60 characteristics can be assigned in addition to the fixed characteristics.

All characteristics in margin analysis are available in the Universal Journal. Storing The characteristics in costing-based analysis are stored in the separate characteristics table CE4xxxx. The xxxx can be replaced with the technical name of your operating concern.

characteristics

Types of fixed characteristics

basic structure of

profitability analysis

The fixed characteristics in SAP standard can be accessed from the data Fixed characteristics structure that you can display via the operating concern. To see the data structure, use Transaction KEAO to display the operating concern Z100, and (Display Data Structure) in the **Data structure** then click on \rightarrow Display section (see Figure 3.1). By choosing More • Extras • Display fixed fields, you can display the fixed fields that are assigned to every operating concern by default.

The fixed fields are divided into three categories:

Charact.

In this tab, you'll find characteristics for the organizational structure, such as company code, profit center, and so on, as well as characteristics for the main master data, such as customer, vendor, article, and so on.

Techn. fields

In this tab, you'll find the document numbers and all characteristics related to the period, such as fiscal year, posting period, and so on.

- Acctg. Amounts
 - In this tab, you'll find all the quantity fields and amount fields.

The fixed fields have more relevancy for costing-based profitability analysis as all those fields are available in the Universal Journal by default and will be updated in margin analysis after the operating concern is activated. Before you assign characteristics to your operating concern, you should check the fixed fields to see which ones are assigned to your operating concern by default. Figure 3.2 shows an extract of the characteristics that are fixed fields. We won't list all the fixed fields here, but you now know how to display them.

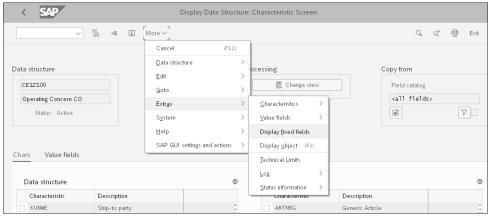


Figure 3.1 Display Fixed Fields

d fields of data s	structure						
aract. Tech	n. fields Acctg amounts	;					
Field name	Description	Use	DTyp	Length	Orig.Table	Data element	
ARTNR	Product	F	CHAR	40	MARA	ARTNR	Ŷ
BUKRS	Company Code	F	CHAR	4		BUKRS	
IOPA_KOSTL	Cost center	F	CHAR	10		COPA_KOSTL	
FKART	Billing Type	F	CHAR	4		FKART	
FKBER	Functional Area	F	CHAR	16		FKBER	
SBER	Business Area	F	CHAR	4		GSBER	
KAUFN	Sales Order	F	CHAR	10		KDAUF	
KDPOS	Sales ord. item	F	NUMC	6		KDPOS	
KNDNR	Customer	F	CHAR	10	KNA1	KUNDE_PA	
KOKRS	CO Area	F	CHAR	4		KOKRS	
KSTRG	Cost Object	F	CHAR	12		KSTRG	
LIEFNR	Delivery	F	CHAR	10		VBELN_VL	
LIEFPOS	Item	F	NUMC	6		POSNR_VL	

Figure 3.2 Fixed Fields of an Operating Concern

In addition to the fixed fields, you can assign characteristics from a list of already available characteristics in the client to the operating concern. You also can create customer-specific characteristics and assign them to the operating concern. The following types of customer-specifics characteristics are available in profitability analysis:

Types of customer-specific characteristics

- Creating characteristics from SAP tables
 You can copy characteristics from existing SAP standard tables.
- Creating characteristics with your own value maintenance You can create your own values for your user-defined characteristic.
- Creating characteristics without value maintenance
 You can assign values to characteristics that don't have specific values.
 These characteristics are often created for technical reasons.
- Creating characteristics with reference to existing values You copy an existing characteristic, including its values.

In this chapter, we'll give you step-by-step instructions on how to create the different types of characteristics and give meaningful examples for when to create each type of characteristic. Next you'll learn how to create characteristic derivations and how to analyze them. Finally, we'll show you how to realign characteristics when you, for example, decide to add a new characteristic to your operating concern and want to derive that characteristic for all existing documents.

3.1 Characteristics

In this section, we'll introduce the various forms of user-defined characteristics. We'll show how you can create user-specific characteristics and add them to the operating concern.

3.1.1 Create, Change, and Update Characteristics

Transaction KEA5 can be used to create, change, and display characteristics. You can access Transaction KEA5 by following the configuration path: **Controlling** • **Profitability Analysis** • **Structures** • **Define Operating Concern** • **Maintain Characteristics**.

Create/change/display characteristics: Transaction KEA5

Figure 3.3 shows the selection screen to create/change or display characteristics transactions. The screen is divided into two sections. In the **Choose Characteristics** area, you have the following different functions for changing/displaying a characteristic:

- All Characteristics All characteristics that have been created in the system are displayed/ available in change mode.
- Chars from operating concern Only the characteristics of a predefined operating concern are displayed/available in change mode.
- Characteristics that are not used in operating concerns Characteristics that aren't used in any operating concern existing in the system are displayed/available in change mode.
- Create new In the Create Characteristic area of the screen, you can create a new characcharacteristics teristic. We explain how to create the different types of customer-specific characteristics in Section 3.1.2 and the following.
- In this example, we'll execute Transaction KEA5 to view all characteristics Change characteristics that are assigned to operating concern Z100 in change mode. Therefore, select Chars from operating concern Z100, and then click on Change

< SAP	Edit Characteristics: Start
✓ Value fields 1 More ✓	
Choose Characteristics	
 All Characteristics Chars from operating concern Characteristics that are not used in operating concerns 	
Create Characteristic	
Char.:	

Figure 3.3 Selection Screen to Create/Change and Display Characteristics

Characteristics of the operating concern

In Figure 3.4, you see an overview of all characteristics assigned to operating concern Z100. You can change the name of the customer-specific characteristics in change mode. Otherwise, no changes to characteristics are possible. You recognize customer-specific characteristics by their technical name because they must start with WW. In Figure 3.4, no customer-specific characteristics have been assigned to the operating concern yet, but the following information about the characteristics is available:

Char.

The technical name of the characteristic. Customer-specific characteristics start with WW.

- Description The description of the characteristic.
- Short text The short text of the characteristic.
- DTyp

Whether the characteristic is a numeric characteristic (NUMC) or whether other characters are permitted as values (CHAR).

Lgth.

The lengths of the characteristic values.

Origin Table

For all noncustomer-specific characteristics, the origin table columns from which table they are originating.

Origin field d

Texts

The origin field if the characteristic is created with reference to an existing characteristic.

< SA		Change Characteristics: Overview													
	\sim	Q	64	Ð	ŶĿ	*/* //*	[=] 66		± :	≡		%	i	Mo	pre 🗸
Char.		Descri	ption				Short te	×t	DTyp	Lgth.	Origir	n Table			Origin field d
KUNWE		Ship-to	party				Ship-To	5	CHAR	10	PAPA	RTNER			KUNWE
LAND1	-	Country	у				Country	/	CHAR	3	KNA1				LAND1
MATKL		Materia	al Grou	р			Matl Gr	oup	CHAR	9	MARA				MATKL

Figure 3.4 List of Characteristics Assigned to the Operating Concern

Let's look at the characteristic's details. Double-click on one of the charac-Details of teristics, and you'll be forwarded to the detailed view. For example, Figure 3.5 shows the details of Characteristic LAND1 (Land).

characteristics

Characteristic

detail screen

The detail screen is divided into several sections:

Define the description/name of the characteristic.

ABAP Dictionary

Displays the technical name of the characteristic.

Origin

Contains the origin table and origin field if the characteristic has been created with reference to an existing SAP table.

Further Properties

Provides information on whether the characteristic is already active.

Validation

Shows which characteristic type the characteristic has and if the characteristic has a check table that is storing its values. You'll learn more about the different characteristic types in Section 3.1.2 and following.

< SAP	Change Char. LAND1
✓ ▲ ⁶ / ₂ ³ / ₂ ³ / ₂ ³ / ₂ ³ / ₂	🕅 😽 K < > > I 🗂 Display compound 🖬 More 🥆
Characteristic: LAND1	Further Development
	Further Properties
Description: Country	Status: A active
Short text: Country	Display opt.: Not assigned
Heading: Cty	
ABAP Dictionary	Validation
Data element: LAND1_GP	O No check
Domain: LAND1	○ Fixed values
Data type/length: CHAR 3 ConvR.:	Check table: T005
	Text table: T005T
Origin	Text field: LANDX
Origin table: KNA1	Long text field:
Origin field: LAND1	

Figure 3.5 Details of a Characteristic

3.1.2 Creating a Characteristic from an SAP Table

Create a characteris- T tic from a SAP table: K Transaction KEA5 S

To create a characteristic with reference to an SAP table, go to Transaction KEA5 or follow the configuration path: **Controlling • Profitability Analysis • Structures • Define Operating Concern • Maintain Characteristics**.

You create a new characteristic by clicking on Create/Change in the **Create Characteristic** section of the screen shown in Figure 3.6.

< SAP	Edit Characteristics: Start
✓ Value fields I More ✓	
Choose Characteristics	
○ Chars from operating concern ○ Characteristics that are not used in operating concerns 6∂ Display	
Create Characteristic	
Char: []]] / Create/Change	

Figure 3.6 Create Characteristic

In the popup shown in Figure 3.7, choose the type of characteristic to create a (e.g., **Transfer from SAP table**). With the F4 Help, you can display all the reference tables that are available for transferring a characteristic, as shown in Table 3.1. You need to know the technical name and table from which you want to transfer the characteristic.

Create a characteristic from an SAP table

Table	Description	Overview of reference tables
KNA1	General Data in Customer Master	
KNB1	Customer Master (Company Code)	
KNVV	Customer Master Sales Data	
MARA	General Material Data	
MARC	Plant Data for Material	
MVKE	Sales Data for Material	
PACPROJECT	Characteristics from cProjects That Can Be Used in CO-PA	
PACRMIPM	Characteristics from CRM IPM That Can Be Used in CO-PA	
PACRMSLS	Characteristics from CRM Sales That Can Be Used in CO-PA	
PACRMSRV	Characteristics from CRM Services That Can Be Used in CO-PA	
PAPARTNER	SD Partners That Can Be Used in CO-PA	
Table 3.1 Overvi	iew of SAP Tables	

Table	Description
PARETAIL	Retail Fields That Can Be Used in CO-PA
PRPS	WBS (Work Breakdown Structure) Element Master Data
T001W	Plants/Branches
VBAK	Sales Document: Header Data
VBAP	Sales Document: Item Data
VBKD	Sales Document: Business Data
VIAUFKST	Generated Table for View VIAUFKST
WTY_COPA	Warranty Processing: Characteristics for CO-PA

Table 3.1 Overview of SAP Tables (Cont.)

Choosing a reference table After you select the table, confirm the selection by pressing Enter. (In the example shown in Figure 3.7, table **KNVV – Customer Master Sales Data** has been selected as the reference table.)

< SAP		Edit Characteristics: Start
↓ Value fields i] More∨	
Choose Characteristics		
 All Characteristics 		
○ Chars =	Create Char.: As	signment
🔿 Chara		
Transfer from SAP table		
60 Table Fields		
Create Cha		
		Allowed reference tables (1) 20 Entries found
User defined	= ^	Autowed reference tables (1) 20 Entries found
New Characteristic	Restriction	S
Char.:		
	VXQ	
With own value maintena	nc Table Name	Short Description
 Without value maint. 	CI_COBL	Coding block customer include
 With reference to existin 	KNA1	General Data in Customer Master
	KNB1	Customer Master (Company Code)
	KNVV	Customer Master Sales Data
	MARA	General Material Data
	MARC	Plant Data for Material
	MVKE	Sales Data for Material
	PACPROJECT	Characteristics from cProjects That Can Be Used in CO-PA
	PACRMIPM	Characteristics from CRM IPM That Can Be Used in CO-PA

Figure 3.7 Choose the Reference Table for the Characteristic

In Figure 3.8, you see all fields that are available in table KNVV (Customer Master Sales Data). The characteristics that are grayed out can't be transferred to the operating concern. They may already be transferred, they may be part of the fixed fields, or a transfer is technically not possible. All characteristics with white background can be transferred. Select the checkbox next to INCO1 – Incoterms, and then press Enter.

	Field	Orig.name	Description	Data element	Cat.	Length	
1	KONDA	KONDA	CustPrice Group	KONDA	CHAR	2	0
]	PLTYP	PLTYP	Price List Tp.	PLTYP	CHAR	2	
	AWAHR	AWAHR	Order Probab.	AWAHR	NUMC	3	h
/	INCO1	INCO1	Incoterms	INCO1	CHAR	3	F
	INCO2	INCO2	Incoterms 2	INCO2	CHAR	28	
	LIFSD	LIFSD	DelBlckSalesAr.	LIFSD_V	CHAR	2	
	AUTLF	AUTLF	Complete Dlv.	AUTLF	CHAR	1	
	ANTLF	ANTLF	Max.Part.Deliv.	ANTLF	DEC	1	
	KZTLF	KZTLF	Part.dlv./item	KZTLF	CHAR	1	
	KZAZU	KZAZU	Order Combinat.	KZAZU_D	CHAR	1	
]	CHSPL	CHSPL	Batch split	CHSPL	CHAR	1	
]	LPRIO	LPRIO	Delivery Prior.	LPRIO	NUMC	2	
	EIKTO	EIKTO	Acct at cust.	EIKTO	CHAR	12	
]	VSBED	VSBED	Shp.Cond.	VSBED	CHAR	2	0

Figure 3.8 Choose the Characteristic for Transfer

In Figure 3.9, you see the details of **Characteristic INCO1 – Incoterms**. Deta Because it was created from a reference field, you can't make any changes to the details. Activate the characteristic by clicking \geq (Activate), and save the characteristic with Save or Ctr1+S.

Details of the characteristic

To make the characteristic available in costing-based profitability analysis and margin analysis, you have to assign it to the operating concern. We explain how to assign characteristics to the operating concern in Section 3.1.6.

Assignment to an operating concern

<	SAP							Create Char. INC	01			
	~		6j)	5 1	þ 🎢	[=] 60	1	Display compound	i	Mo	re 🗸	
	Characteristic:	INCO1										
Texts						Furth	er Prop	perties				
	Description:	ncoterms						Status: do(es) not exi	ist		
	Short text:	ncoterms					Dis	play opt.: 📃 🔍 ta	ssigned			
	Heading:	ncoT										
ABAP Die	ctionary					Valid	ation					
	Data element:	INC01				0	lo chec	k				
	Domain:	INCO1				() F	ixed va	lues				
	Data type/length:	CHAR	3	B ConvF	R.:			Check table:	TINC			
	Data type/length:	CHAR	:	B ConvF	R.: 🗌	•		Check table: Text table:				
Origin	Data type/length:	CHAR	3	ConvF	R.: []	•						
Origin		CHAR table: K		ConvF	£.: □	•		Text table:	TINCT			

Figure 3.9 Details of the Characteristic

3.1.3 Creating Characteristics with Your Own Value Maintenance

Characteristic with your own value maintenance

To create a characteristic with your own value maintenance, go to Transaction KEA5 or follow the configuration path: **Controlling • Profitability Ana**lysis • Structures • Define Operating Concern • Maintain Characteristics.

In Figure 3.10, for example, create a new characteristic by clicking on Create/Change in the **Create Characteristic** section.

Choose the characteristic type In the screen that appears, choose to create a **User defined** characteristic (see Figure 3.11) because you don't want to reference any existing SAP table with the characteristic. Next, enter the technical name "WWCON" (remember, user-defined characteristics must start with WW) and the description "Continent" for this example. The objective is to create a characteristic with your own value maintenance that will assign every country to a continent using a derivation you'll create in Section 3.2.1. We're assuming that the sales districts are divided by continents, and to create a margin contribution report by continent, you can assign every country to a continent to facilitate reporting. Choose **With own value maintenance** and press [Enter].

< SAP	Edit Characteristics: Start
✓ Value fields 👔 More ∨	
Choose Characteristics	
All Characteristics Chars from operating concern Characteristics that are not used in operating concerns	
6ð Display 🖉 Change	
Create Characteristic	
Char.: []]_]	

Figure 3.10 Create Characteristics

≡	Create Char.: Assignment	×
0	Transfer from SAP table	
	Table Fields	
	Table:	
۲	User defined New Characteristic	
	Char.: WWCON Continent	
	With own value maintenance	
	 Without value maint. 	
	○ With reference to existing values	
	Data element:	
	4	×

Figure 3.11 Creating Characteristics with Your Own Value Maintenance

3.1 Characteristics

MaintainingIn Figure 3.12, you maintain the details of the characteristic WWCON – Con-details of thetinent in the following fields:

characteristic

Short text

Enter a short text for characteristic WWCON ("Continent" for this example).

Heading

Enter a heading for characteristic WWCON ("Continent" for this example). The **Heading** is displayed in the column name when you maintain values for characteristic WWCON.

Data type/length

Define if the values for characteristic WWCON are numeric or a mix of letters and numbers (in this example, **NUMC** for numeric data type and a field length of **4**).

Generating
check tablesActivate your characteristic with \nearrow (Activate), and you'll see the popup
shown in Figure 3.13. The system asks if you want to generate the check

tables automatically or manually. Choose Automatic

< SAP	Create Char. WWCON
V 🖬 😚 🗗 泷	🖏 🖞 🗟 Display compound Assign Check Table
Characteristic: WMCON	Further Properties
Description: Continent	Status: do(es) not exist
Short text: Continent	Display opt.: Not assigned
Heading: Continent	
ABAP Dictionary	Validation
Data element:	🔿 No check
Domain:	○ Fixed values
Data type/length: NUMC 4 ConvR.:	Check table: T25**
	Text table: T25**
Origin	Text field:
Origin table:	Long text field:
Origin field:	

Figure 3.12 Maintaining the Details of the Characteristic

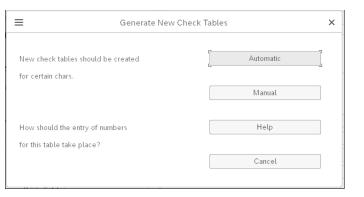


Figure 3.13 Generating New Check Tables for Characteristics with Value Maintenance

After confirming, the system will generate the check tables in the background and enter their technical names in the **Validation** section in the characteristic details of **WWCON** (see Figure 3.14).

< SAP						C	Chang	ge Char. W	WCON					
	4	6) [z	9 <u>1</u> 2	}:	69	1	6	Display co	mpound	i	More \checkmark			
Characteristic:	WWCON													
exts					Furth	er Prop	erties	5						
Description:	Continent						Sta	tus: A acti	ve					
Short text:	Continent				Display opt.: Not assigned									
Heading:	Continent													
rieading:	Continent													
	Continent				Valida	ation								
						ation	k							
BAP Dictionary Data element		WCON			0 N									
BAP Dictionary Data element	RKEG_W	WCON WCON	ConvR.: [0 N	lo checl	lues	Check table	e: [tt2504					
BAP Dictionary Data element Domain	RKEG_W	WCON WCON	ConvR.: [0 N 0 F	lo checl	lues		e: [it 2 504 e: T2 5A4					
BAP Dictionary Data element Domair Data type/length	RKEG_W	WCON WCON	ConvR.: [0 N 0 F	lo checl	lues	Text table	L					
BAP Dictionary Data element Domair Data type/length Drigin	RKEG_W	WCON WCON	ConvR.: [0 N 0 F	lo checl	lues	Text table	t T25A4					

Figure 3.14 Details of the Characteristic with Generated Check Tables

Save the characteristic with Save or Ctrl+S. The next step is to assign Save characteristic the characteristic to the operating concern, which you'll do in Section 3.1.6. After the characteristic is assigned to the operating concern, you can

3 Configuring Characteristics

maintain values for characteristic WWCON. You learn how to maintain characteristic values in Section 3.1.7.

3.1.4 Creating Characteristics without Value Maintenance

Create characteristics without value maintenance

To create a characteristic without value maintenance, go to Transaction KEA5 or follow the configuration path: Controlling • Profitability Analysis • Structures • Define Operating Concern • Maintain Characteristics.

You create a new characteristic by clicking on	🖉 Create/Change	in
the Create Characteristic section shown in Figu	re 3.15.	

< SAP	Edit Characteristics: Star
✓ Value fields 👔 More ✓	
Choose Characteristics	
 All Characteristics Chars from operating concern Characteristics that are not used in operating concerns 6à Display Change 	
Create Characteristic	
Char.:	

Figure 3.15 Create the Characteristic

Create a characteristic without value maintenance

In Figure 3.16, choose User defined and then press [Enter] to create a characteristic without value maintenance, meaning there is no check table for the values of the characteristic.

There will be no set of allowed values or texts assigned to the characteristic. Consequently, there will be no validity check taking place when postings occur on that characteristic. Enter the technical name "WW999" (must start with WW) and the description "Intern/Domestic". The objective is to create a characteristic without your own value maintenance. The characteristic for this example will define whether a sale is international or domestic. You'll assign that characteristic to a characteristic derivation that you'll create in Section 3.2.3 to all sales transactions. In Figure 3.16, in the New Characteristic section, choose Without value maint. and press [Enter].

nsfer from SAP table	
le Fields	
Table:	
er defined	
N Characteristic	
Char.: WW999	
) With own value maintenance) Without value maint.	
Data element:	
	Table: Table: r defined w Characteristic Char.: ww999 Intern/Domestic With own value maintenance With own value maint.) With reference to existing values

Figure 3.16 Creating Characteristics without Value Maintenance

In Figure 3.17, enter the details of characteristic WW999 as follows: Short Maintain details of text ("Intern/Dom") and Heading ("Intern/Domestic"). In the ABAP Dictionary section, enter Data type "CHAR" (alphanumeric) and a data length of "1", which means values or text in characteristic WW999 can be moved with a length of two.

the characteristic

< SAP	
✓ ▲ ⅔ ⅓ ½	* 🗒 🖞 🗐 🗓 More 🗸
Characteristic: WW999	
Texts	Further Properties
Description: Intern/Domestic	Status: A active
Short text: Intern/Dom	Display opt.: Not assigned
Heading: Intern/Domestic	
ABAP Dictionary	Validation
Data element: RKEG_WW999	No check
Domain: CHAR2	○ Fixed values
Data type/length: CHAR 2 ConvR.:	Check table:
Origin	
Origin table:	
Origin field:	

Figure 3.17 Maintain Details of the Characteristic without Value Maintenance

Activate and save Activate the characteristic with 🥻 (Activate) and save your settings with characteristic Save or Ctrl+S. For the characteristic to be available in costing-based profitability analysis and margin analysis, you have to assign it to the operating concern, which you'll learn about in Section 3.1.6.

> To enable the derivation of the characteristic just created, you have to create a derivation rule to let the system know which documents have to be assigned to this characteristic and which criteria have to be met beforehand. You'll learn how to derive characteristic WWIAD to documents in Section 3.2.3.

3.1.5 Creating Characteristics with Reference to Existing Values

Characteristic with reference to existing values To create a characteristic with reference to existing values, we go to Transaction KEA5 or follow the configuration path: Controlling • Profitability Analysis • Structures • Define Operating Concern • Maintain Characteristics.

You create a new characteristic by clicking on 🖉 Create/Change in the Create Characteristic section, as seen in Figure 3.18.

< SAP	Edit Characteristics: Star
→ Value fields 🚺 More ∽	
Choose Characteristics	
All Characteristics Chars from operating concern Characteristics that are not used in operating concerns	
6ð Display 🖉 Change	
Create Characteristic	
Char.: []_]]]	

Figure 3.18 Create the Characteristic

Create a characteristic for country of ship-to

For this example, create a User defined characteristic with reference to an existing characteristic (see Figure 3.19), which means that the characteristic takes on the same values as the reference characteristic. Enter the technical name "WWLAN" and the description "Land of Ship-to". The objective is to create a characteristic with reference to the country key. In addition to the country of the sold-to customer, you can derive the country of the ship-to customer. It doesn't make sense to create a characteristic and maintain all the values manually, so you create a characteristic with reference to existing values. You'll assign that characteristic with a characteristic derivation that you'll create later in Section 3.2.1 to all sales transactions.

Next, choose With reference to existing values in the New Characteristic section, and enter "BELAND" as the **Data element** to reference. To find the correct data element to reference, you can use [F4] help in the Data element field. Confirm the selection by pressing Enter

E Create Char.: Assignment	nt ×
 Transfer from SAP table 	
Table Fields	
Table:	
User defined	
New Characteristic	
Char.: [wwLAN] Q Land	of Ship-to
○ With own value maintenance	
 Without value maint. 	
With reference to existing values	
Data element: BELA	AND
	≪ ≫

Figure 3.19 Create the Characteristic with Reference to Existing Values

Figure 3.20 shows the details of characteristic **WWLAN**. There are no fields for you to maintain because all attributes are copied from the reference characteristic **BELAND**. Even the **Description** is copied from the reference field and changed to **Dest. Country** (Destination Country).

Maintain details of the characteristic

Activate the characteristic with 🧱 (Activate), and save your entries with Activate and save Save or Ctrl+S.

the characteristic

In the next section, you'll learn how to assign the characteristic to the operating concern to make it available for use in costing-based profitability analysis and margin analysis.

<	SAP								Chang	e Cha	ar. WV	VLAN		
	\sim	<u></u>	6j)	Ð	Ŷ	** /*	[II] 60	1<	<	>	>I	1	Display compound	i
-	Characteristic: 🕻	M/ LAN						_						
Texts							Furth	er Pro	perties					
	Description:	Dest. Co	ountry						Statu	is: A	activ	е		
	Short text:	Dest. Ct	ry					Di	isplay op	t.:	Nota	assigne	d	
	Heading: [DstC												
ABAP Dict	ionary						Valid	ation						
	Data element:	BELAN	D				0	lo che	ck					
	Domain:	LAND1					⊖ F	ixed v	alues					
	Data type/length:	CHAR		3 Co	onvR.:		۲		C	Check	table:	т005		
										Text	table:	т005	Т	
Origin										Tex	t field:	LAND	×	
	Origin	table:							Lor	ng tex	t field:	LAND	×50	
	Origin	field:												

Figure 3.20 Maintain Details of the User-Defined Characteristic

3.1.6 Assigning Characteristics to the Operating Concern

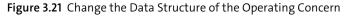
Assigning characteristics to the operating concern

By using Transaction KEAO or by following the configuration path **Control**ling • Profitability Analysis • Structures • Define Operating Concern • Maintain Operating Concern, you can assign the characteristics to the operating concern and make them available for use in costing-based profitability analysis and margin analysis.

In the screen shown in Figure 3.21, you can assign the characteristics just created to operating concern Z100. Enter the operating concern to which you want to assign your characteristics in the **Operating Concern** field and click on *(Display/Change)* to change the data structure. After you do this, you can assign new Characteristics to the **Data Structure**.

Changing the data structure Click on Change, and you'll be able to add the characteristics to the data structure. In the **Transfer from** section, select all the characteristics created in this chapter, that is, **WWCON – Continent**, **WWIAD – Intern/Domestic**, and **WWLAN – Dest. Country** (see Figure 3.22). With (Transfer Fields), you can move those characteristics to the **Data structure** section to assign them to the operating concern.

< SAP	Maint	tain Operating Concern
	Actions Data structure	<u>前</u> More∨
* Operating Concern: [Z100] Status: 00=	미 Operating Concern CO-PA	
Data Structure Attributes Envir	ronment	
ĉŷ)		
Description:	Operating Concern CO-PA	
Type of Profitability Analysis		
✓ Costing-based✓ Account-based		
Data structure		
\rightarrow Change	Status: 00	



< SAP						Ed	it Data	a Struc	ture:	Cha	ract	eristi	c Scre	een											
~	₫Ŀ	*/*	[=] 60	→≣	±	Ŧ	ž		*	Ĩ	Ì	Q	1	i	Μ	ore 🗸					Q	Q+	Ē	E	×it
Data structure CE12100 Operating Concern CO Status: Active Chars Value fields)									Proce	essir	-	Chang	e view						eld ca all f		5>		∇	
Data structure									0		T	rans	fer fro	m											0
Characteristic	De	escripti	on									Char	racteris	stic		De	scripti	on							
KUNWE	Sh	ip-to p	arty						\$		\checkmark	WWC	ON			Co	ntinen	t							¢
LAND1	Co	untry							L (/		WWC	US			Cu	stome	r							
MATKL	Ma	aterial	Group							<		WMD				Dr	op Shi	р							
									Π.	>	\checkmark	WVI.	AD			Int	ern/Do	mest	c						
												WWL.				De	st. Co	untry							
												WWP	RJ			WE	3S Ele	ment							
												WWR				Re	gion								н.
												WWR					gion								^
									~			WWR	EG			Re	gion								Ç

Figure 3.22 Transfer Characteristics to the Data Structure

Activate Next, activate the data structure with \nearrow (Activate). At the bottom of the screen shown in Figure 3.23, you can see that the data structure was successfully activated, and the characteristics in the **Data structure** section changed their color to blue. Now save your changes with Save or Ctrl+S.

< SAP					Edit	: Data	Struc	ture: (Charac	teristi	ic Scre	en							
~	° ×	(=) 60	→≣	±	Ŧ	žΞ		%	Î	୍	۵	i	М	lore∨		Q	Q ⁺	Ē	E×it
Data structure CE12100 Operating Concern CO Status: Active								Ρ	rocess	-	Change	view			C	em catalog fielc		2	7
Chars Value fields Data structure								0		Trans	sfer froi	n							0
Characteristic	Descript	ion								Cha	racteris	ic		Description	1				
KUNWE	Ship-to j	party						\$		WWC	ION			Continent					\$
LAND1	Country							l c	7	WWC	US			Customer					
MATKL	Material	Group								WWD				Drop Ship					
BZIRK	Sales Di	strict								[wwi	[AD			Intern/Dom	estic				
WWCON	Continer	t								WWL	.AN			Dest. Count	try				
WWIAD	Intern/D	omestic								WWP	PRJ			WBS Eleme	ent				
WWLAN	Dest. Co	untry								WWR	RE1			Region					
										WWR	RE2			Region					
								Ŷ		WWR	REG			Region					Ŷ
All objects for structure	CE17100 as	tivata d																Save	Cancel
All objects for structure	CEIZIOU ac	livated																Save	Cancel

Figure 3.23 Activate the Data Structure

Now go back to the operating concern by clicking \leq (Back) or pressing F3. You might get a popup that asks if you want to generate the environment of the operating concern. Confirm the popup by pressing Enter. If not, then follow Figure 3.24 and go to the Environment tab of the operating concern. Activate the Cross-client part and Client-specific part manually with \gtrsim (Activate).

The costing-based profitability analysis and margin analysis can only be used when the operating concern is fully generated and has a green status.

< SAP	Maintain Operating Concern
	tions 🗋 Data structure 👼 More 🗸
* Operating Concern: <mark>[Z100]</mark> のp Status: ●00	erating Concern CO-PA
Data Structure Attributes Environmer	it
Cross-client part	
Status: •00	
Client-specific part	
Status: •00	

Figure 3.24 Generating the Environment of the Operating Concern

3.1.7 Maintaining Characteristic Values

For the WWCON – Continent characteristic with own value maintenance we created in Section 3.1.3, you now need to assign values to it via Transaction KES1 or the configuration path Controlling • Profitability Analysis • Master Data • Characteristic Values • Maintain Characteristic Values.

Maintain characteristic values

Figure 3.25 provides an overview of all characteristics with your own value maintenance that are assigned to the operating concern. In this example, only the WWCON – Continent characteristic with own value maintenance. Double-click on **Continent** to maintain values for characteristic WWCON.

<	SAP					
		~ 注	ĕ	Technical Names On/Off	All Characteristics On/Off	More \checkmark
Oper at	ing concern	: Z100 Op	eratin	g Concern CO-PA		
	user-defin	ed charact	erist	ics		
- T						
L	Contin	ient				

Figure 3.25 Maintain User-Defined Characteristics

In Figure 3.26, you can maintain values with New Entries or F5. In the **Continent** column, you specify the technical name of the characteristic, and in the **Descriptn** (Description) column, you maintain the description for the

Creating user-defined characteristic values created characteristics. In this example, create the characteristic value **0001** – North America in Figure 3.25. Save the changes with Save or Ctrl+S.

Deriving characteristics

g Now you need to create a characteristic derivation that the characteristic
 s values get derived from in the document. You'll learn in how to create a characteristic derivation for characteristic WWCON – Continent in Section 3.2.1.

< SA	
	✓ ⊖ ž= ž= Hore
Values for Ch	aracteristic "Continent "
Continent	Descriptn
0001	North America
0002	South America
0003	Europe
0003	Europe Asia
1	

Figure 3.26 Maintain Values for the Characteristic

3.2 Characteristics Derivations

Types of characteristic derivation You've already learned about the different characteristic types, but for the system to be able to derive the characteristics when the profitability segment is created, you need to create a characteristic derivation. The SAP system provides the following types of characteristic derivation, which are explained further in this section:

Derivation rule

The derivation rule is used most in profitability analysis because it enables you to derive characteristic values on the basis of various combinations of characteristics. Section 3.2.1 explains how to create characteristic derivations for your user-defined characteristic WWCON - Continent.

Table lookup

The table lookup enables you to access tables, for example, of master data, that are included in the document and to derive characteristics from these tables. Section 3.2.2 explains how to create a table lookup for the characteristic derivation of the country of the ship-to party for your user-defined characteristic WWLAN.

Move

With moves, you assign a specific value to the characteristic. Section 3.2.3

explains how to create a characteristic derivation for your user-defined characteristic WWIAD.

Clear

With clears, you can reset characteristics. Characteristic values might have to be reset for technical reasons before another value is assigned to the characteristic. Section 3.2.4 covers creating derivations to clear fields.

Enhancement

Enhancements enable you to create characteristic derivations via user exits. This is useful for the creation of complex characteristic derivations when the SAP standard reaches its limits. Section 3.2.5 covers derivations with enhancements.

In the next subsections, you'll learn how to create characteristic derivations for the user-defined characteristics created earlier in this chapter. You'll also learn how to test your derivations and how to execute a derivation analysis.

3.2.1 Creating Characteristic Derivations with Derivation Rules

The characteristic derivation with derivation rules is the first and most used derivation. For this example, you'll create a derivation rule for the user-defined characteristic WWCON – Continent. To create a characteristic derivation with derivation rule, go to Transaction KEDR or follow the configuration path **KEDR Controlling** • **Profitability Analysis** • **Master Data** • **Define Characteristic Derivation**.

Characteristic derivation with derivation rule

To create a characteristic derivation, click on 5 (Display <-> Change) to switch to the change mode of the characteristic derivation. You'll then see the possibility to create a new characteristic derivation with (Create Step) or F5. In Figure 3.27, choose **Derivation rule** and press Enter.

In Figure 3.28, define **Step Description** as "Derivation WWCON – Continent" **Def** before defining the rules for the derivation. The screen is divided into two sections:

Defining rule definitions

Source Fields

Define the fields that are required to derive the user-defined characteristic. You can enter multiple fields. In this example, where characteristic **Continent** is supposed to be derived, maintain characteristic **WWLAN** (**Country of Destination of Goods**) as the source field. When the source field is filled, the target field will be derived.

Target Fields

Define the fields that will be filled with characteristic values. In the

rule

Maintain condition in the derivation

example in Figure 3.28, maintain the user-defined characteristic with your own value maintenance **WWCON** (**Continent**).

< S	P										
	\sim	6 <i>}</i> j	Q	٦	Ŵ	7	\$ \approx	i	4	₽	More 🗸
Characteristic [Derivation										
Steps in Lo	gical Order										
	С	reate S	tep			×					
Clea					-						
					ø	≈					

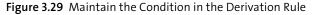
Figure 3.27 Create Derivation Rule

< SAP				
	~ 6j	⊖ ±	i 🗄 Haintain Rule Value	es More
Derivati	on rule:			
	cription: Derivati	ion of WWC(DN - Continent	
finition C	ondition 🗸	Attributes		
	onuluon v	Aunduces		
Source Field				
Origin	Name	Deta	Name	
CO-PA	WWLAN	Deta	Country of Destination of Goods	
	OOLAN		Country of Desunation of Goods	
			-	
			_	
\sim				
Target Fields	5			
Origin	Name	Deta	Name	
СО-РА	WWCON	Q.	Continent	

Figure 3.28 Maintain Definition in the Derivation Rule

Navigate to the **Condition** tab in Figure 3.29. Here, you can define additional conditions that have to be met to trigger the derivation. You can define the billing type and a specific value here, for example. In this case, characteristic WWCON – Continent would only be derived for this specific billing type. In the example in Figure 3.29, you don't need to add any further conditions for a successful characteristic derivation for characteristic WWCON – Continent that has the characteristic WWLAN – Country of Destination of Goods filled.

SAP < 与 🗉 ≔ Maintain Rule Values More∨ ~ 6ĝ Θ Derivation rule: Step Description: Derivation of WWCON - Continent Definition Condition ✓ Attributes Only Execute If All Conditions Listed Below Are Met Origin Name Deta... Description Op... Value Description đ



Navigate to the **Attributes** tab in Figure 3.30. Here, you can maintain the following settings: in the

Maintain attributes in the derivation rule

Issue error message if no value found

If this setting is enabled, the system issues an error message when a document is created that contains the source field but for which characteristic WWCON – Continent can't be derived. You should consider carefully whether to select this checkbox or not because its selection disrupts the process. You have the possibility to re-derive characteristics or correct falsely derived characteristics with the realignment of characteristics. You learn how to use the realignment in Section 3.2.11.

Maintain entries using validity date

If this setting is enabled, you can maintain the derivation of the characteristic values using a validity date. This is useful to obtain some kind of history if characteristic values change frequently. • Optimize access, no from-to values can then be maintained

To improve the performance, you can optimize accesses to the characteristic derivation by not maintaining from-to values. For example, if you maintain a value from customer 1 to customer 2000, the system includes all 2,000 customers in the characteristic derivation check. This might take some time; consequently, you can improve the performance by preventing interval maintenance. Set this attribute to optimize the access in Figure 3.30.

User-defined step ID (optional, see F1 help)

In this field, you can enter a step ID, which makes sense if you use user exits. In addition, the step ID enables you to directly navigate to the rule maintenance in the initial screen.

< SAP	
₫ ⊖ 🌾 ∨	$oxed{i}$ $oxed{i}$ Maintain Rule Values More \sim
Derivation rule:	
Step Description: Derivation of WWCON -	Continent
Definition Condition 🗸 Attributes	
 Issue error message if no value found 	
🗌 🛱 Maintain entries using validity date	
☑	en be maintained
	User-defined step ID (optional, see F1 help):

Figure 3.30 Maintain Attributes in Derivation rule

Save your settings with Save or Ctrl+S. To maintain rule values, click on \coloneqq Maintain Rule Values.

Transporting rule entries

In Figure 3.31, in the **Country of Destination of Goods** column, select the source values for the source characteristic WWLAN, and select the target values from the **Continent** column for the target characteristic WWCON. The example shows the rule that when the country of destination is **US** (USA), the continent **0001** (North America) will be derived. Save your rules with **Save** or **Ctrl**+S.

You can add rule entries to a transport request with $iggedingled{bmatrix}$ (Transport) and transport them to the target system. However, if the target system is a production system, you can maintain rule entries directly in the target system via Transaction KEDR. This makes sense because derivation rules often use master data that isn't available in the source system.

	< SAP												
[\sim	6j)	Ē\$	ž=				\oplus	Θ	=	Ŧ	🛃 On / Off
Del	rivation rule	De	erivatio	on of W	WCON	l - Cont	tinent						
Dei V	No value filter a	active						Goods	Name	As	Contir	nent	Continent Name
		active			intry of		tinent ation of	Goods	Name	As =	Contin 1	nent	Continent Name North America
	No value filter a Country of Destina	active		Cou	intry of			Goods	Name			nent	
	No value filter a Country of Destina US	active		Cou US Car	intry of A			Goods	Name	=	1	nent	North America

Figure 3.31 Maintain the Derivation Rule

Going back to the overview of the derivation rules with F3 or (Back), Test derivation rule you can test your derivation rule with (Test) or F8. In Figure 3.32, you see an overview of all characteristics that are assigned to the operating concern (custom-specific and fixed). For this example, you enter "US" in the **Dest. Country** field, as this is the source field for the derivation rule, and then click on **Derivation** to test the derivation rule.

=	Test: Characteristic Deriv	ation			×
✓ ^C Entry aids > ^C Central entry aids ✓ ^C My entry aids	Test: Characteristic Deriv Characteristic Division WBS Element Cost center Cost Object	Char. value	Text	t	¢
	Profit Center Partner PC Service Doc. Type Service Doc. Item Ship-to party Country Material Group				
	Sales District Continent Dest. Country	US]]] ØBack	Derivation	Derivation date	Çancel

Figure 3.32 Test the Derivation Rule

In Figure 3.33, you can see the result of the derivation rule test. The system Display result of the derived Continent 1 – North America for the Dest. Country US, which derivation rule test matches with the rule maintained earlier in Figure 3.31.

≡	Test: Characteristic	Derivation		×
	al constructions	Ohan and an	Tut	Ĵ
✓ ☐ Entry aids > ☐ Central entry aids ✓ ☐ My entry aids	Characteristic Division WBS Element Cost center Cost Object Profit Center	Char. value	Text	
	Partner PC Service Doc. Type Service Document Ship-to party Country Material Group Sales District			
<u>الله</u>	Continent Dest. Country	1 US	North America USA	\$
		≪ Continue Undo der	ivation Analyze derivation	🕅 Cancel

Figure 3.33 Display the Result Test Derivation Rule

3.2.2 Creating Characteristic Derivations with Table Lookup

Characteristic derivation with table lookup

The characteristic derivation with table lookup allows you to access characteristics that are available in standard SAP tables but can't get created as a user-defined characteristic from an SAP table, like the one created in Section 3.1.2. The characteristic to derive with the derivation with table lookup should be part of the upstream process; it isn't possible to derive a characteristic that is totally unrelated to the business process. In this example, you'll create a characteristic derivation with table lookup for the country of the ship-to customer. In practice, the sold-to customer is often in a different country than the ship-to customer, which means you might be interested to know where the goods are shipped to, as this is most likely the market in which they will be sold. A characteristic for the country of destination for goods was created in Section 3.1.5, which will be used in the characteristic derivation with table lookup. To create a characteristic derivation with table lookup, go to Transaction KEDR or follow the configuration path: Controlling • Profitability Analysis • Master Data • Define Characteristic Derivation.

Selecting the type of characteristic derivation

						_								
			\sim	6 j	$\mathcal{Q}_{\mathbf{v}}$	1	Ŵ	7	5	\approx	i	4	₿	More 🗸
Cha	aracteris	stic Der	ivation											
S	teps in	Logic	al Order:											
	Step	Main	Step Type			De	scriptio	n						
	18	:=	Derivation r	ule		De	rivation	of WW	CON -	Contin	ent			
			=		Cre	eate Si	tep			×				
			 Derivation 	on rul	e									
			Table lo	okup		٦								
			L	errah		_								
			O Move											
			🔵 Clear											
			 Enhance 	ment										

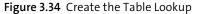


Figure 3.35 shows a popup that asks you to enter a table name. This is the table in which the characteristic you want to derive is stored. In this case, this is the ship-to country.

Choosing the table name for the table lookup

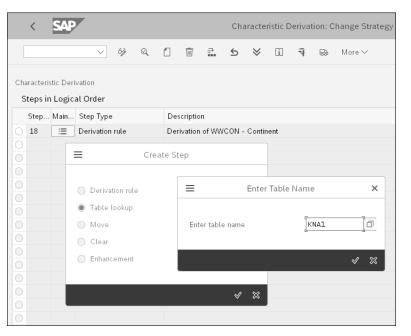


Figure 3.35 Choose the Table for Table Lookup

The country of a customer is stored in table KNA1 (General Data in Customer Master). That is why you select **KNA1** as the table for the creation of the characteristic derivation with table lookup earlier in Figure 3.7 Confirm your selection with Enter.

Defining the source and target fields for table lookup Next you maintain a name for the characteristic derivation. In Figure 3.36, choose **Derivation of WWLAN – Country of Dest**. The definition of the characteristic derivation with table lookup is divided into two sections:

Source Fields for Table Lookup

The source fields for the table lookup are the fields required to derive our Country of Destination. In Figure 3.36, the **KNA1 – KUNNR – Customer Number** is entered by default. This is the customer number the system will read from table KNA1. The system is instructed to read the KNA1 – KUNNR with the entry of the KUNWE field, which is the ship-to party characteristic you assigned to the operating concern.

Assignment of Table Fields to Target Fields

In the target fields, you tell the system which field to derive from the customer number. In Figure 3.36, the country of the customer needs to be derived. In this example, the of the ship-to country is entered in the **WWLAN – Country of Destination of Goods** user-defined characteristic from Section 3.1.5.

< 5	AP			Characteris	stic Deriv	/ation:	Change Tabl	e Lookup)		
	~ 6j		₅ i Mor	re 🗸							
Step Definition	Description: [Deriv	ation of W	Data in Customer M WLAN - Country of s]				
Origin	ields for Table Lo Field Name	Name				Assi	Origin	Field N	lame	Deta	Name
KNA1	KUNNR	Custo	mer Number			=	СО-РА	KUNWE		Q	Ship-to party
Assignm	ent of Table Field	s to Tars	zet Fields								
Origin	Field name	-	Name	Assi	Origin		Field name	Deta	Name		
KNA1	LAND1		Country Key	=	CO-PA		WWLAN		Countr	y of Dest	ination of Goods
				=							

Figure 3.36 Define Source and Target Fields for the Table Lookup

Basically, in one sentence, the table lookup is saying: take the ship-to customer and check in table KNA1 for the country of the ship-to customer, and transfer the entry to WWLAN – Country of Destination of Goods.

Figure 3.37 shows the next tab, **Condition**, in which you can maintain conditions/rules for which the characteristic derivation will be executed. For this example, no conditions need to be maintained because the characteristic derivation needs to be executed for any document that is being transferred to costing-based profitability analysis and margin analysis. Maintain conditions for the table lookup

4	< SA	P				Cha	racteristic Der	ivation: Change Table Lookup				
		~ 6	\$ Q	\$	i	More∨						
	Table lookup: KNA1 General Data in Customer Master Step Description: Derivation of WWLAN - Country of Dest.											
Defir	iition	Condition	Attribut	es								
С	Only Execute If All Conditions Listed Below Are Met											
	Origin	Name	Deta	Descript	tion	Op	Value	Description				
0												

Figure 3.37 Maintain Conditions for the Characteristic Derivation

Figure 3.38 shows the **Attributes** tab with the **Issue error message if no value found** checkbox. If you select this checkbox, all documents that are transferred to costing-based profitability analysis/margin analysis where no characteristic value can be derived for WWLAN won't be transferred, and you'll receive an error message.

Maintain attributes for the table lookup

< SAP				Chara	cteristic [)erivation:	Change
~	64 Q	\$	i	More \checkmark			
Table lookup: KN Step Description: De]
Definition Condition	Attributes						
① ① Issue error message if no value found							



For this example, leave the checkbox empty so you can execute a realignment if some characteristics are missing or not derived correctly. In Section 3.2.11, you'll see how to create and execute the realignment for characteristics.

Now let's test the characteristic derivation in Transaction KEDR with (Test) or F8. In Figure 3.39, enter the Customer number "1000000" – Plant 1US and the sales area data (i.e., enter "ZOO1" for Sales Org. and "Z1" for both Distr. Channel and Division) as the partner roles for the customer are maintained depending on the sales area, and the system needs to know in which sales area it has to check for the ship-to information.

 ✓ ☐ Entry aids > ☐ Central entry aids ✓ ☐ My entry aids 	Characteristic Customer Product Billing Type Sales Order Sales ord. item Order	Char. value	Text Plant 1 US	< >
	Billing Type Sales Order Sales ord. item			
	Company Code Plant Business Area	2100	ERP Systems Inc	
	Functional Area Segment Sales Org. Distr. Channel Division WBS Element	Z001 Z1 Z1	Sales Org Dis.Chnl. Division	< >

Figure 3.39 Testing the Characteristic Derivation with Table Lookup

After you enter all the source data, execute the test of the derivation with Derivation. In Figure 3.40, scroll down to characteristic Dest. Country to see that IN for India has been derived. This is also the country of the ship-to customer that is assigned to customer 1000000. This is evidence that the characteristic derivation with table lookup is working!

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_	configuring characteristics	

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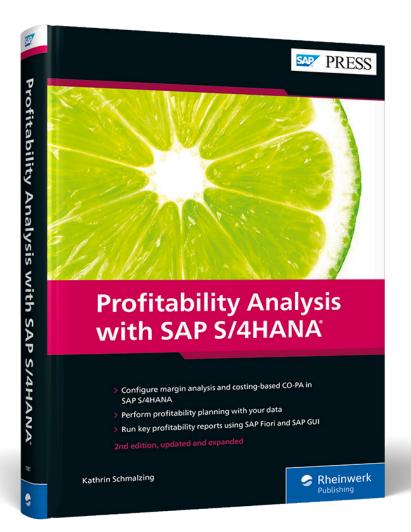
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