

## Reading Sample

This sample chapter provides a detailed look at the planning functionality within SAP Analytics Cloud. It begins by walking the reader through creating a new planning model that will be used throughout the chapter to demonstrate individual planning functionalities. Next, it covers those functionalities and how they influence the planning process. Specific topics include versions, allocations, grid pages, value driver trees, and data actions.



**"Planning"**



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## Chapter 6

# Planning

*Another component of SAP Analytics Cloud is the planning engine, which provides various tools and functionalities to establish full planning processes. In this chapter, you'll learn more about planning in SAP Analytics Cloud, and we'll walk through an example for you to better understand each functionality.*

An almost impossible (or at least quite hard) task is to correctly estimate how a business will develop and to then meet this forecast exactly, and thus, planning is especially important for businesses. However, as this field is rather complex, planning is often perceived as its own science. In many businesses, the controller is responsible for ensuring that budgets, goals, and long-term strategies are maintained correctly and ideally are met by the business. To support a tabular planning process with visual and intuitive functionalities, SAP Analytics Cloud offers a full-fledged planning component to establish planning processes and track their execution.

In this chapter, we'll take a detailed look at the planning component in SAP Analytics Cloud. We'll show you a selection of important functionalities through examples and cover how they influence the planning process. Then, you'll perform selected basic planning tasks to make you familiar with the toolset. But first, you'll create a new planning model, which we'll then use to walk through the exercises.

### Requirements to Complete This Chapter

We'll create a new planning model in this chapter and work within the story. For our examples, you must be familiar with the contents of Chapter 4, Section 4.2.3, Section 4.3, and Section 4.5.

Also be aware that the planning functionality requires an extra license in SAP Analytics Cloud that isn't included in the business intelligence license.

## 6.1 Planning in SAP Analytics Cloud

The area of planning is often seen as its own world. Challenges and tasks are mostly resolved by a small group of employees in a company, like

controllers or other financial workers. These users have high expectations for planning solutions, which are often complex and go above simple data entry.

**Planning models** Planning in SAP Analytics Cloud either requires a planning model (see Chapter 4, Section 4.2.3) or a model based on a live connection to embedded SAP Business Planning and Consolidation (SAP BPC; see Chapter 2, Section 2.1). Planning models can only be created by users who carry the necessary license and must be created as planning models from the beginning. Note that you cannot convert an analytical model into a planning model after the model is created.

In the following sections, we'll go over several prominent planning tools and functionalities and describe how they're integrated with a story.

6.1.1 Data Entry and Version Management

**Data entry** The grid shown in Figure 6.1 displays an account dimension with a hierarchy of key figures across a date dimension. This normal table chart was created within a story and shows data from a planning model.

Operating Income							
⚙							
Measures		SignedData					
Version		Actual					
Date		(all)					
		2022		2023			

Figure 6.1 Table with Plan Data

Not only can the data in a planning model be analyzed, it can also be directly modified within a table in a story. These changes would be directly applied to the data in the model.

This task is performed by clicking on the value in the table that you want to change. Then, simply type in a new value or add or subtract a value, as shown in Figure 6.2.

Operating Income		
⚙		
Measures		SignedData
Version		Actual
Date		(all)
		>
		2022
OP_Accounts		
▼ Finance		
▼ Operating Income		
		-18,234.72 Million
		-12,034.29 Million
▼ Gross Profit		
		-14,538.65 Million
		-1 Million

Figure 6.2 Entering Data into Tables

Now that you've seen how data is entered, note that this feature isn't restricted to previously created versions. Another important feature of the planning component is version management, which is directly integrated into a story and can be accessed quickly. Not only can you edit existing versions (if you have the necessary rights); you can also create private versions, as shown in Figure 6.3. In this process, you can have multiple options, which include changing the currency or selecting a category for the new version.

You can also indicate if the new version should copy all the data from another version or be created blank. You can also specify a scope to copy only a selection of data.

Initially, private versions are only visible to their creators who alone can modify, without fear of interference from other users. However, a private version can also be shared with selected colleagues so that they can support you in the process. You can also differentiate between read and write access.

Private versions

As shown in Figure 6.4, the new version will appear in the table, like every other version of the model, and can be modified the same way. Once all activities in the version are completed, this version can be published and converted into a public version. A full workflow can be established to govern this process, including a validation step that requires the version to be checked first before it is published. We'll describe this in more detail in Section 6.3.1.

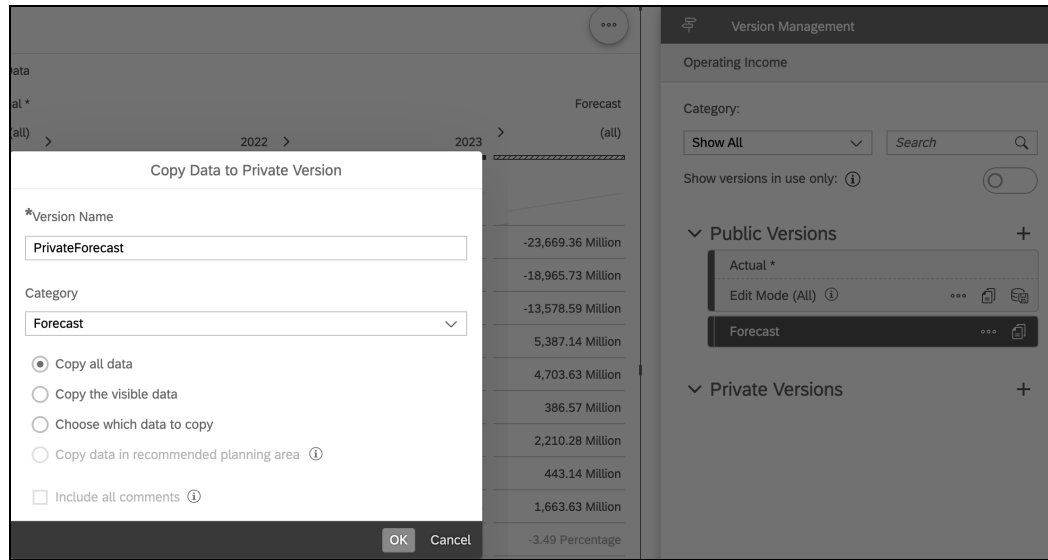


Figure 6.3 Creating Private Versions

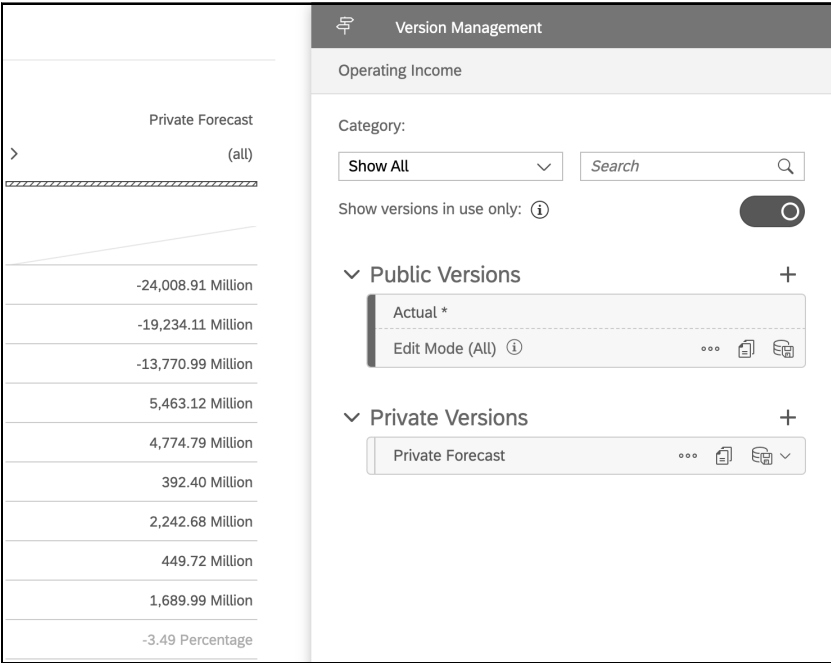


Figure 6.4 New Private Version

6.1.2 Planning within Stories

**Distribution** Within a story, several functionalities support users during planning processes. With the *distribution* functionality, you can, for example, distribute

values from a hierarchy node to its children and assign weights to determine how the value is spread. Before opening the interface, you must first select the value you want to distribute. This process is described in detail in Section 6.3.2.

Figure 6.5 shows how the **-6,718,911,705.11** value is distributed proportionally across all quarters of a year. The weights can be used to specify how much of the total value is assigned to each quarter without changing it. The weights can be entered as either absolute values or as ratios (e.g., “1, 1, 1, 1” for an equal distribution).

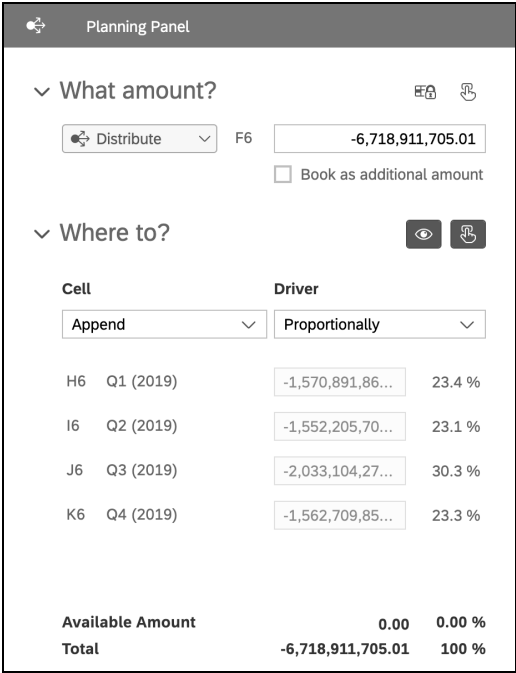


Figure 6.5 Spreading Values

Values are usually distributed across a hierarchy (in our case, the **Date** hierarchy of the following year) and can be performed at every level of the hierarchy.

Another common workflow in planning scenarios is increasing or decreasing the overall outlook. The interface also allows you to enter a number and assign it to each dimension member based on a weight or absolute values. Again, you must select the target hierarchy that you want to increase in the table.

Figure 6.6 shows an example in which we want to add the **-500,000** value to the operating income for both years. While 10% of this total is assigned

Assigning

to 2018, the other 90% is assigned to 2019. The dialog box shows clearly how your assignments will look once finished.

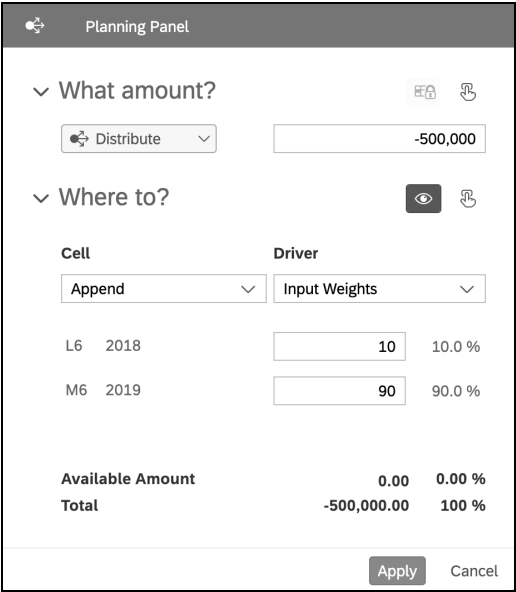


Figure 6.6 Assigning Values

6.1.3 Planning Tools

Value driver trees

In addition to the planning tools available within a story, which are presented in detail in Section 6.3, additional tools are available for planning and simulation workflows that make these processes easier and faster. The value driver tree is one such tool. Like a chart, a value driver tree can be embedded as an object in a story.

Figure 6.7 shows an excerpt of a value driver tree. In general, this tool allows you to split a key figure down into its individual components. In this case, the value driver tree displays the **Profit** measure and some of its components. The tree can become rather big and complex, you can use your mouse to zoom in and out of and navigate through it. The window in the bottom left shows the current position of the tree and which part is covered by the view.

Simulation

However, value driver trees do not just display dependencies. You can also run simulations and access a broad set of functionalities. Simply click on a value in one of the drivers and change it (by either using absolute values or a percentage), as shown in Figure 6.8.

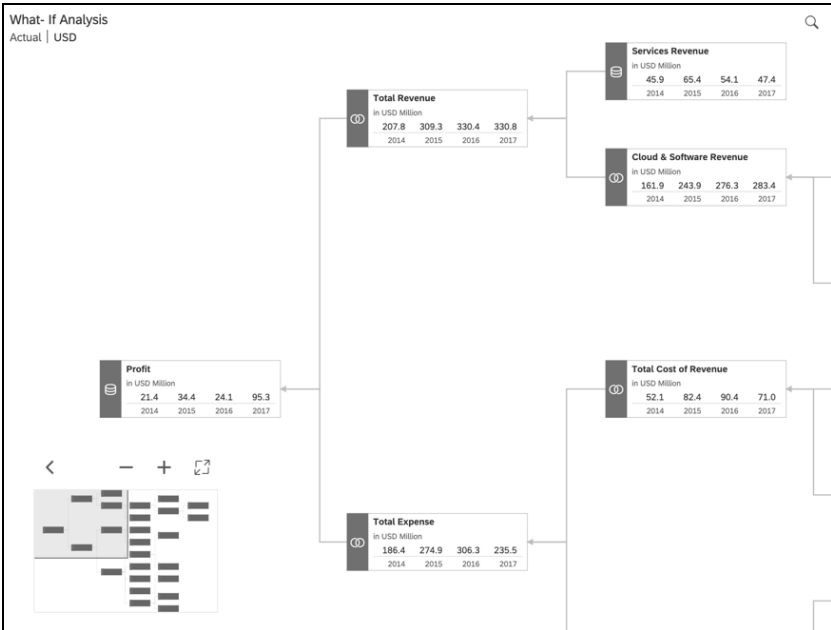


Figure 6.7 Excerpt of a Value Driver Tree

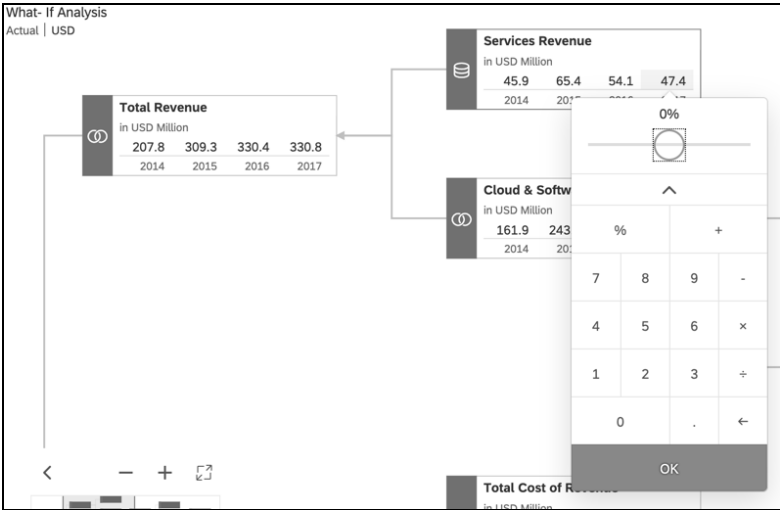


Figure 6.8 Changing Individual Values

If a value has been modified, it will be colored yellow, as shown in Figure 6.9. In addition, you can implement calculation rules in a value driver tree that influence how a change in one value affects other values along the tree. The value driver tree therefore provides instant feedback on proposed changes or their impacts on estimations. All values that change because of the modified entry will be marked in yellow as well.

Calculation rules



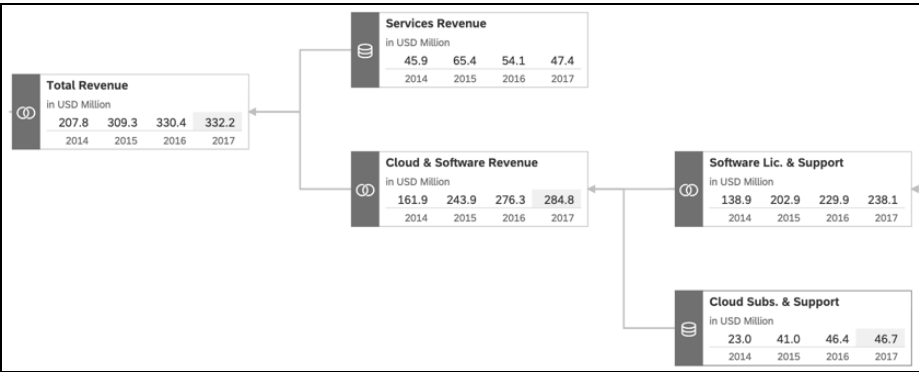


Figure 6.9 Values Marked after Modification

Because planning processes are often rather complex and usually involve multiple people, SAP Analytics Cloud provides an embedded calendar that is directly accessible from the main menu. This calendar allows you to create specific tasks, as shown in Figure 6.10, which can have start and end dates. You can also assign these tasks to specific users and enrich them with additional information, related processes, validation steps, reminders, and notes.

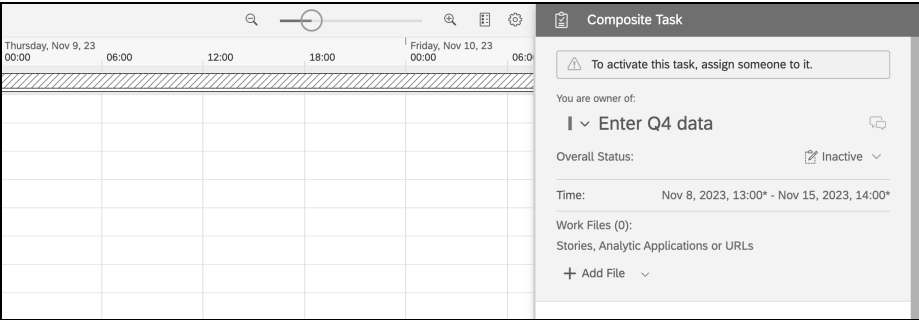


Figure 6.10 Tasks in Calendar

The functionalities we described in this section only reflect a small portion of the available functionalities. We tried to show how planning tools are tightly integrated in SAP Analytics Cloud. In the next section, we'll create a new planning model. Afterwards, we'll walk you through a selection of planning functionalities.

6.2 Creating and Setting Up a Planning Model

Planning workflows can only be established when using planning models as data sources. For a better understanding of various model types, consult Chapter 4, Section 4.2. Now, in this section, we'll create a new planning

model from scratch. First, we'll create a currency table with conversion rates. Then, we'll create the data model by using master data. The process will conclude with uploading transactional data for the actuals and forecast versions of the model.

**Demo Data Package**

In this section, we'll go through the model creation process. You'll need to download the demo data package from the publisher's website at <https://www.sap-press.com/5753>. You'll find a compressed archive at the bottom of the page in the **Product supplements** section. All three files required for this section can be found in the **Planning Data** folder.

The planning model we'll build in this section is based on sales data for various sporting goods (clothes and accessories). The planning process will be performed for regions and products on a monthly granularity. The files with the sample data contain the following contents:

- **Operating Income Master Data.xlsx**  
This file contains the master data for the planning model and the currency conversion table. Both tables are essential for the initial model creation. This workbook contains four sheets:
  - **Accounts**  
This sheet contains all accounts and their attributes.
  - **Region**  
This sheet defines the regional hierarchy of sales regions.
  - **Product Groups**  
This sheet contains the product hierarchy.
  - **Currency**  
This table contains currency conversion rates, which we'll use to create a currency table.
- **Operating Income Actuals (2023).csv**  
This file contains actual transactional data for 2022 and 2023.
- **Operating Income Forecast (2023).csv**  
This file contains forecasted transactional data for 2022 and 2023.

Note that you'll need a program like Microsoft Excel to open XLSX files.

6.2.1 Creating a Currency Conversion Table

To establish our planning workflow, we first need to create a currency conversion table. This table will be used later within planning models to show values in other currencies.

Data for the  
planning model

Creating a currency conversion table

Open the main menu and select **Modeler • Currency Conversions • Currency Conversion Table**, as shown in Figure 6.11.

Select the **New Currency Conversion Table** entry and enter the title, as shown in Figure 6.12: "OperatingIncome\_Currency". Then, click on **Create**.

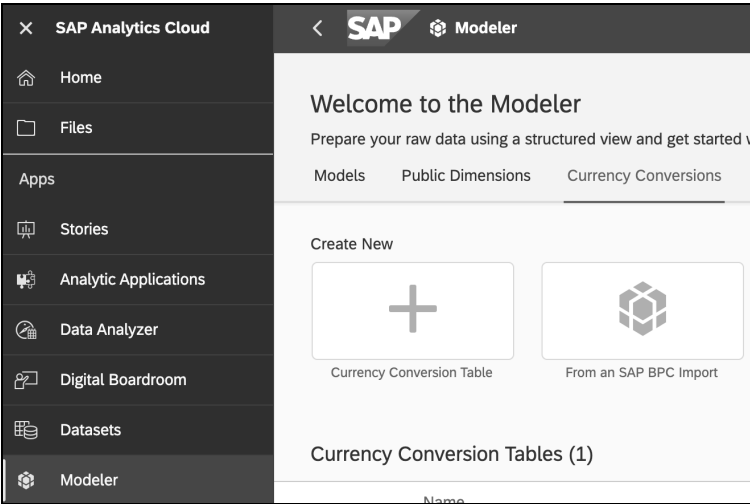


Figure 6.11 Creating a New Currency Conversion Table

Create Currency Conversion Table

\*Name

OperatingIncome\_Currency

Description

Conversion rates for the Operating Income model


CreateCancel

Figure 6.12 New Table Name and Description

Adding conversion rates

You'll be automatically redirected to an empty table in which you can enter conversion rates line by line. For each entry, you must maintain the **Source Currency**, **Valid From**, **Target Currency**, **Rate Type**, and **Exchange Rate** fields. You also can maintain different exchange rates for different versions.

Enter the values from the **Currency** sheet from the *Operating Income Master Data.xlsx* Excel file. To make this process easier for you, the sheet already matches the structure of the table in SAP Analytics Cloud so that you simply copy and paste the rates. However, make sure you do not copy the header line.

The results should match the table shown in Figure 6.13. Now, click on the **Save** icon  to save the table.


SAP Modeler OperatingIncome_Currency * 						
Workspace		General		Edit		
Conversion Table						
Source Currency	Target Currency	Valid From	Exchange Rate	Category	Rate Version	Rate Type
1 CAD	USD	2022-01-01	0.781917			Average
2 EUR	USD	2022-01-01	1.05947			Average
3 AUD	USD	2022-01-01	0.761684			Average
4 CNY	USD	2022-01-01	0.160075			Average
5 CAD	EUR	2022-01-01	0.73768			Average
6 AUD	EUR	2022-01-01	0.716435			Average
7 CNY	EUR	2022-01-01	0.151808			Average
8 AUD	CAD	2022-01-01	0.971125			Average
9 CNY	CAD	2022-01-01	0.205771			Average
10 AUD	CNY	2022-01-01	4.7195			Average
11 CAD	USD	2023-01-01	0.799681			Average
12 EUR	USD	2023-01-01	1.09556			Average
13 AUD	USD	2023-01-01	0.788472			Average
14 CNY	USD	2023-01-01	0.160899			Average
15 CAD	EUR	2023-01-01	0.729774			Average
16 AUD	EUR	2023-01-01	0.719705			Average
17 CNY	EUR	2023-01-01	0.146841			Average
18 AUD	CAD	2023-01-01	0.986243			Average
19 CNY	CAD	2023-01-01	0.201218			Average
20 AUD	CNY	2023-01-01	4.90056			Average
21 CAD	USD	2024-01-01	0.799681			Average
22 EUR	USD	2024-01-01	1.09556			Average
23 AUD	USD	2024-01-01	0.788472			Average
24 CNY	USD	2024-01-01	0.160899			Average
25 AUD	EUR	2024-01-01	0.719705			Average
26 CNY	EUR	2024-01-01	0.146841			Average
27 AUD	CAD	2024-01-01	0.986243			Average
28 CNY	CAD	2024-01-01	0.201218			Average
29 AUD	CNY	2024-01-01	4.90056			Average

Figure 6.13 New Currency Conversion Table

The currency conversion table is not automatically used but must be explicitly referenced in a planning model, which we'll set up during the model creation process.

6.2.2 Creating a Master Data Model

First, we'll create the model and master data manually. We'll create the model and all dimensions first and upload any transactional data later. This modeling procedure is common in planning workflows and will also show you how to create a model manually.

Follow the initial steps described in Chapter 4, Section 4.3. Create a new model by opening the main menu and clicking on **Modeler • Model**, as shown in Figure 6.14.

Creating a model manually

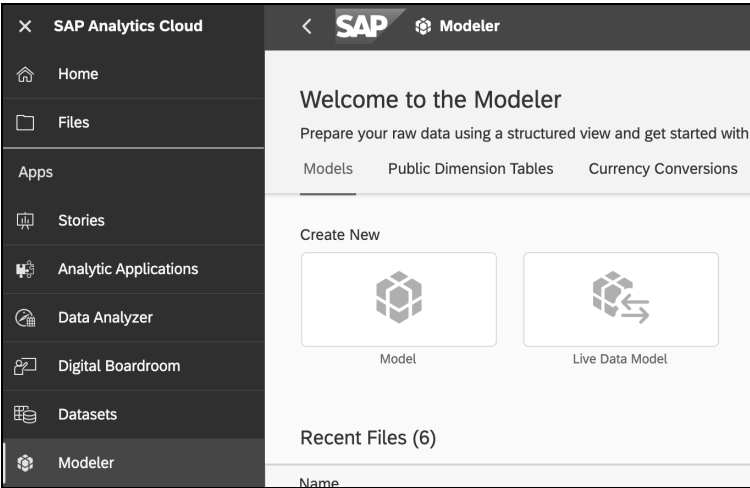


Figure 6.14 Creating New Models

Start with empty model

Choose the **Start with an empty model** option, as shown in Figure 6.15. SAP introduced a new data model type in 2021. However, since this model was introduced after the product launched, some restrictions apply. Some features are also only supported in the new model. More information about this topic can be found in Chapter 4, Section 4.5.1.

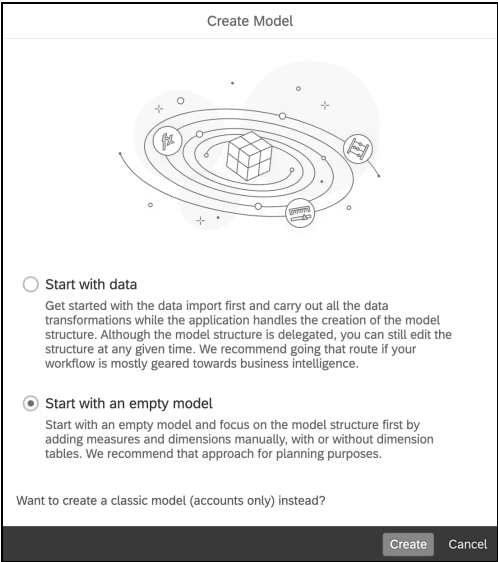


Figure 6.15 Choosing a Model Type

The empty model initially has a version dimension and a date dimension, as shown in Figure 6.16. These dimensions must be maintained first before you can upload any data to the model.

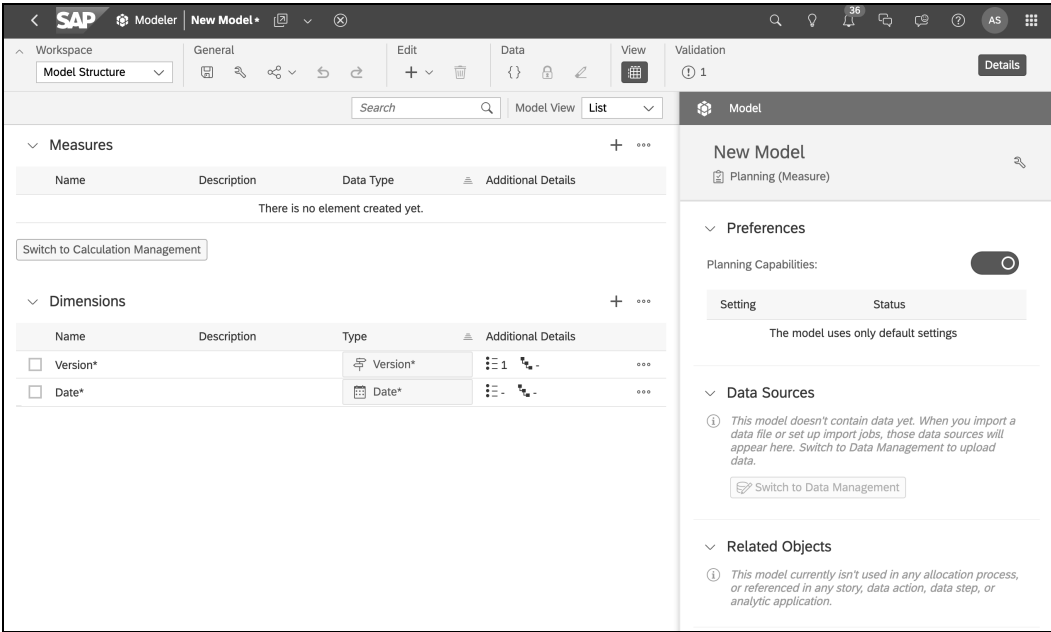


Figure 6.16 New Model with Version and Date Dimensions

Initially, we want to activate the currency conversion and validate the date settings. Click on the **Model Preferences** icon and click the **Planning** tab. Ensure that the **Planning Capabilities** slider is on and the **Date Dimensions used for Planning** dropdown has **Date** selected, as shown in Figure 6.17.

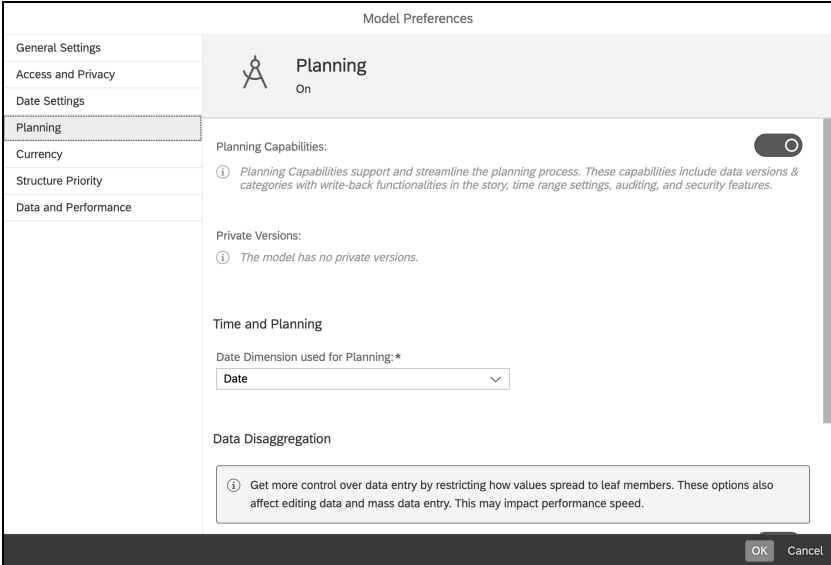


Figure 6.17 Planning



Enabling currency conversion

Switch to the **Currency** tab and activate the **Currency Conversion** option, as shown in Figure 6.18. Make sure that the **Currency Rate Tables** field shows your previously created table, **OperatingIncome\_Currency** and confirm these settings by clicking on **OK**.

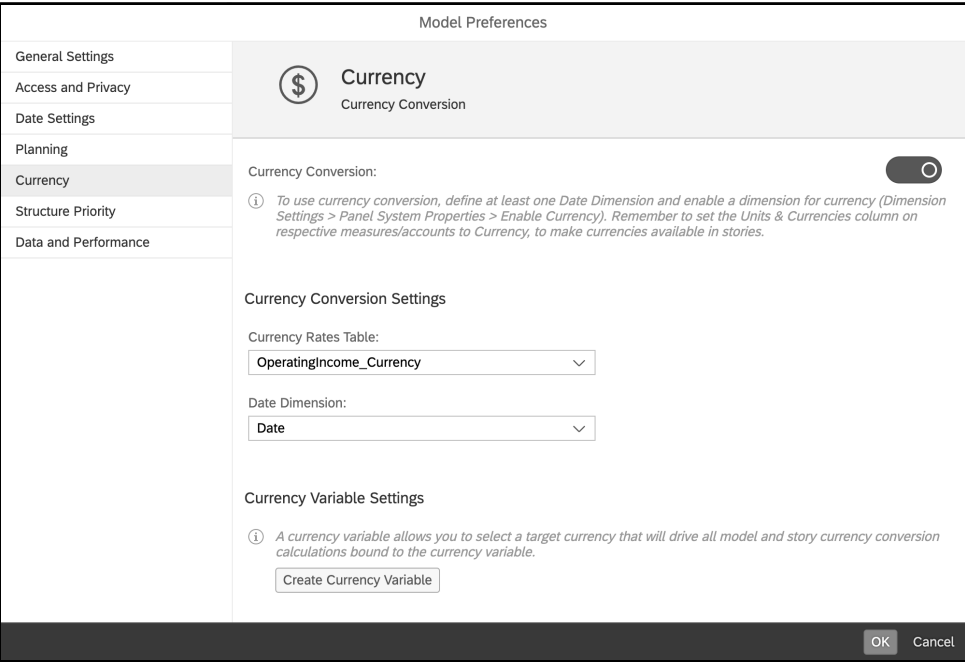


Figure 6.18 Enabling Currency Conversion

Adding an account dimension

Now, click on the **+** button and select the **Add New Dimension** entry. Rename the title of the dimension to “**OP\_Accounts**” and make sure that the **Type** field is set to **Account** and confirm these settings by clicking on **Add**, as shown in Figure 6.19.

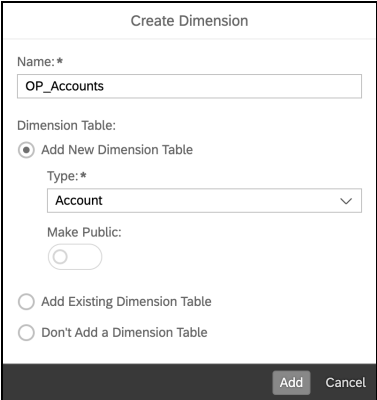




Figure 6.19 Adding New Account Dimensions

Public Dimensions

A public dimension is saved independently from its model and thus can be used across multiple models. One advantage of a public dimension is that it is maintained centrally and thus reduces maintenance effort. Public dimensions only contain master data; the necessary transactional data must be provided in each model separately. These dimensions are suitable for account structures or real-world structures like organizations, regions, or products.


In the new model type, not every dimension type can be set as a public dimension. In this case, the setting is greyed out.

A new dimension will now be added to the list. Open the dimension by clicking on the  icon in the **Type** column and switch to the grid view by clicking on the  icon in the top right, as shown in Figure 6.20. Open the *Operating Income Master Data.xlsx* Excel file and switch to the **Accounts** sheet. Select the contents of this sheet (except for the first line, which contains the headers) and copy this data. Then, paste this data into the grid view of the account dimension in SAP Analytics Cloud. The result should match the table shown in Figure 6.20.

Dimension overview

OP_Accounts							
	Member ID	Description	Hierarchy	Formula	Account Type	Rate Type	Calculated On
1	H000000	Finance	<root>				
2	H100000	Operating Income	H000000		INC	Average	
3	H105000	Gross Profit	H100000		INC	Average	
4	H110000	Net Revenue	H105000		INC	Average	
5	H111000	Gross Revenue	H110000		INC	Average	
6	H111100	Gross Sales	H111000		INC	Average	
7	H111200	Retail Returns	H111000		EXP	Average	
8	H112000	Discounts	H110000		EXP	Average	
9	H112100	Pricing Adjustments	H112000		EXP	Average	
10	H112200	Sale Allowances	H112000		EXP	Average	
11	H112300	Sales Discounts - Other	H112000		EXP	Average	
12	H112400	Sales Markdowns	H112000		EXP	Average	
13	H120000	Cost of Goods Sold	H105000		EXP	Average	
14	H121000	Raw Materials	H120000		EXP	Average	
15	H121100	Labor	H120000		EXP	Average	
16	H121200	Purchase Price Variance	H120000		EXP	Average	
17	H122000	Other Direct Costs	H120000		EXP	Average	
18	H122100	Vendor Chargebacks	H120000		EXP	Average	


Figure 6.20 Account Dimension

Click on the **Back** icon  in the top left to navigate back to the model overview. Now, create another public dimension with the following parameters:

- **Name:** “OP\_Region”
- **Type:** Organization
- **Make This a Public Dimension:** No

Creating a hierarchy

Open this new dimension by clicking on its name in the list. Click on the **+ Create Hierarchy** button in the sidebar and choose the **Parent-Child Hierarchy** option. Enter “Hierarchy” into the **ID** field and leave the **Description** field empty.

Again, switch to the grid view (via the  icon). Similar to the account dimension, the *Operating Income Master Data.xlsx* Excel file contains the necessary data. Open the file and navigate to the **Region** tab. Then, copy its content (except the header info in the first line) and paste it into SAP Analytics Cloud. The view should match the table shown in Figure 6.21.

OP_Region				
	Member ID	Description	Hierarchy	Currency
1	#	Unassigned	<root>	USD
2	ENTERPRISE	Enterprise		USD
3	REG0002	Southeast	HREG0001	USD
4	REG0001	Northeast	HREG0001	USD
5	HREG0001	East US	HALL_COMPANY	USD
6	HALL_COMPANY	United States	<root>	USD
7	HREG0003	West US	HALL_COMPANY	USD
8	HREG0004	Overseas	<root>	EUR
9	REG0005	Midwest	HREG0003	USD
10	REG0004	Pacific	HREG0003	USD
11	REG0006	EMEA	HREG0004	EUR
12	REG0003	Asia Pacific	HREG0004	CNY

Figure 6.21 OP\_Region Dimension

Creating a generic dimension

Return to the dimension overview and create a new dimension with the following parameters:

- **Name:** “OP\_Product”
- **Type:** Generic
- **Make This a Public Dimension:** No

Similar to the dimension before, open the dimension by clicking on its name. Create a new parent-child hierarchy with the ID “Hierarchy.” Again, the *Operating Income Master Data.xlsx* Excel file provides the contents. Open this file, navigate to the **Product** tab, and copy all contents (except the first line of header info) into the grid view of SAP Analytics Cloud. The result should match the table shown in Figure 6.22.

OP_Product			
	Member ID	Description	Hierarchy
1	#	No Product	<root>
2	ALL_PRODGROUP	Product Group	
3	ALL_PRODUCTS	All Products	<root>
4	HPRD0001	Apparel	ALL_PRODUCTS
5	HPRD0002	Footwear	ALL_PRODUCTS
6	PRD0001	Athletic Shirts	HPRD0001
7	PRD0003	Athletic Shorts	HPRD0001
8	PRD0004	Caps	HPRD0001
9	PRD0005	Tennis Shoes	HPRD0002
10	PRD0006	Running Shoes	HPRD0002
11	Glasses	Glasses	HPRD0001

Figure 6.22 OP\_Product Dimension

Return to the model overview and open the sidebar of the OP\_Region dimension by clicking on the dimension title in the **Type** column on the left side of the screen. Check the **Properties** section. It should show the **Currency** entry, as shown in Figure 6.23.



Figure 6.23 Currency Property

Since the new model requires at least one measure, we need to create an empty measure which we won’t use during our planning activities. Switch to the **Calculations** overview by clicking on the dropdown on the top left of the modeler (below **Workspace**).

Creating a measure

Click on the **+ icon** next to **Measures** to add a new measure. Name the measure “SignedData” as shown in Figure 6.24.

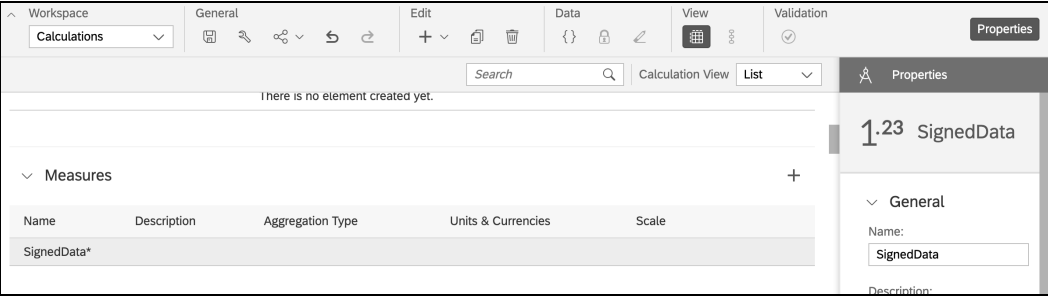


Figure 6.24 Creating a New Measure

Measures and accounts in one model

The new model type allows models to carry both single measures and account dimensions. This can lead to conflicting situations where measures and accounts have inconsistent properties. To prevent issues caused by this, you can open the model preferences and determine if properties and calculations are prioritized either from measures or the account dimension. Depending on which you select, the properties of the selection will be respected first. In our case, there is no potential for conflict as we don't apply any properties here.

Date dimension

Last, we need to validate the **Date** dimension. By default, it is set to a specific range which may not match our data. Click on the **Date** dimension in the **Type** column to open the dimension settings in the right sidebar. Scroll down to the **Date** settings and make sure to set the **From/To Year** setting to **2022** to **2023** as shown in Figure 6.25. Otherwise, the data upload will fail as our data is mapped from 2022 to 2023.

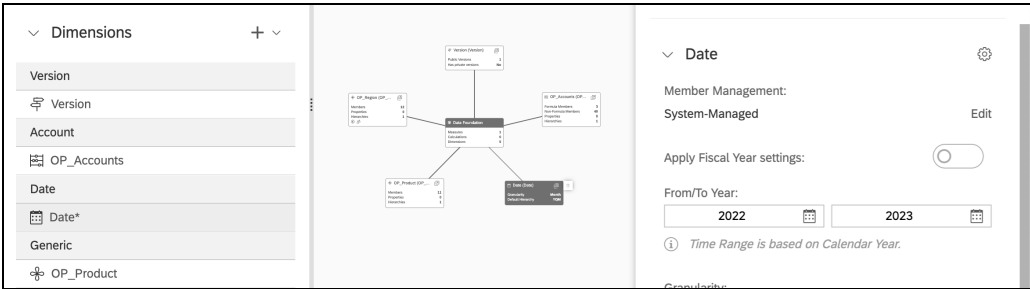


Figure 6.25 Setting the Date Range

We're now done with the initial steps for creating our planning model, so let's save it by clicking on the **Save** icon. Now, create a new subfolder called **Sales Planning** and save the model with the title "Operating Income." Validate your model against the screen shown in Figure 6.26.

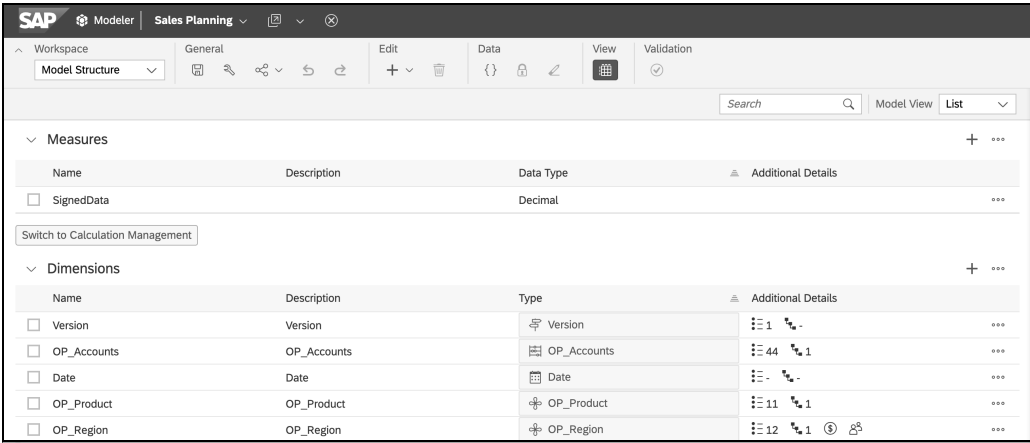


Figure 6.26 Final Model

6.2.3 Uploading Transactional Data to the Model

After creating the model, now is the time for uploading transactional data to it. The demo data package contains two files in the **Planning Data** folder that contain those numbers.

Make sure that you're on the model overview screen and click on **Data Management** in the top left. This area can be used to import new data. You can also set up scheduled imports and exports, as shown in Figure 6.27.

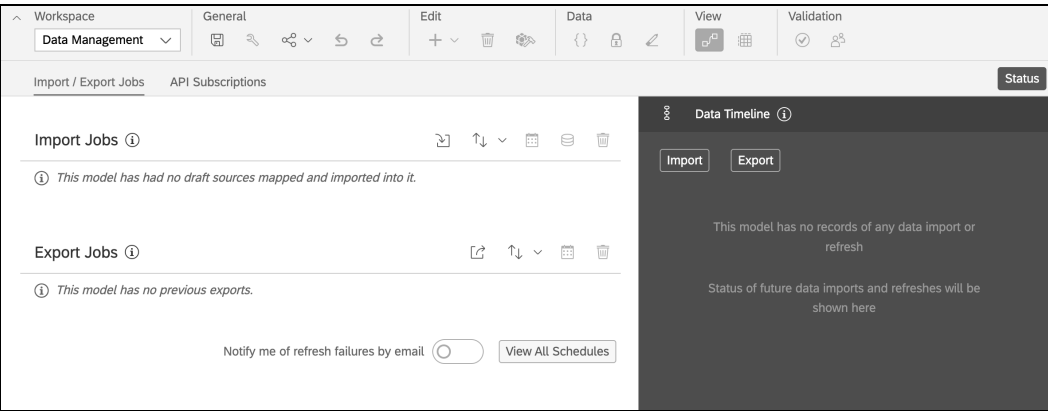


Figure 6.27 Data Management

In the following sections, we'll first upload actual data and then forecast data.

Actual Data

First, let's import the actual data. Click on the **Import** icon in the **Import Jobs** section. There, select **File (Local File or File Server)**, as shown in Figure 6.28. Click on **Select Source File** and select the *Operating Income Actuals (2023).csv* file on your computer. Confirm by clicking on **Import**.

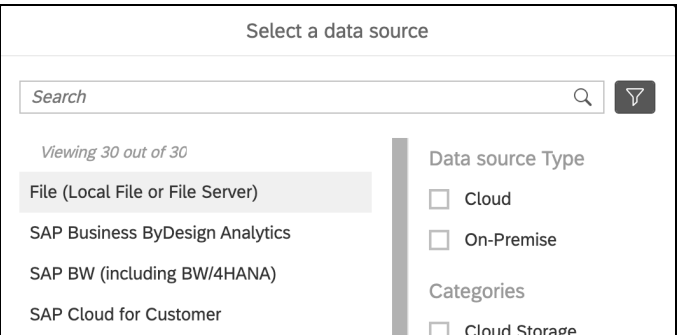


Figure 6.28 Uploading New Data

**Data mapping** After you’ve successfully uploaded the file, it will be displayed under the **Import Jobs** tab. Click on **Set Up Import** and then click on **Next** to skip the data wrangling step and open the mapping dialog, as shown in Figure 6.29, where you can define how the uploaded file should be mapped to the model.

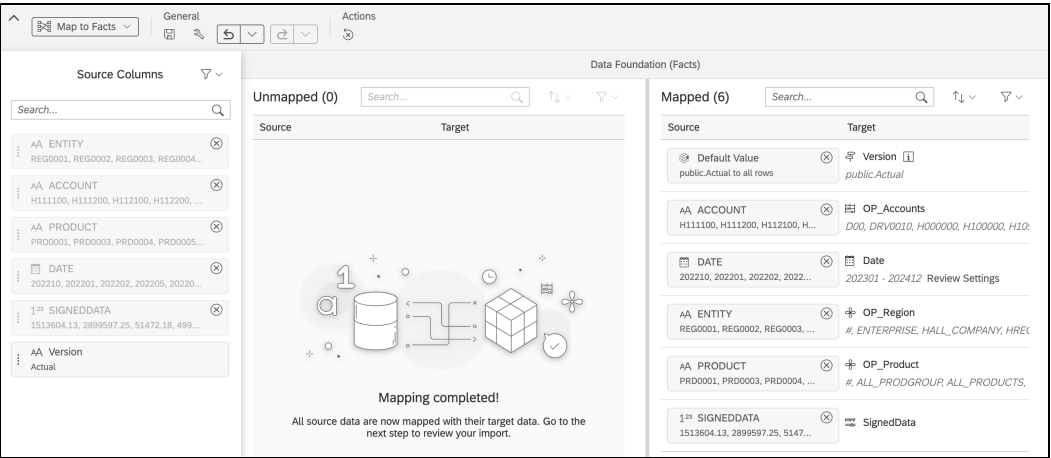


Figure 6.29 Data Mapping

Because the file’s structure is very similar to the model, SAP Analytics Cloud automatically recognizes almost all columns. If a column can’t be mapped automatically, you’ll be notified in the left sidebar. You then must map this column to an account dimension by using drag and drop. The dimensions are shown in the card view in the middle of the screen. The **Version** column on the left will stay unmapped as the version values on the right side are filled out with default values.

The import preferences, which can be accessed from the bar on the top, offer various options, as shown in Figure 6.30, to further configure the data import job. As new values are added, you can click on **View All Options** to determine how data is treated that doesn’t match the master data.

- Import method** The **Import Method** section allows you to choose among four options:
- **Update**  
Updates all existing records with the uploaded ones. New entries will be added to the model.
  - **Append**  
Adds all uploaded records to the model, including new entries.
  - **Clean and replace selected version data**  
Deletes existing data and replaces it with imported records. This process only applies to the indicated version. New entries will be added to the model.

- **Clean and replace subset of data**  
Deletes a subset of existing data defined using either versions or dimensions. Then, the data is replaced with the newly uploaded data. New entries will be added to the model.

Make sure that the **Update** option is selected.

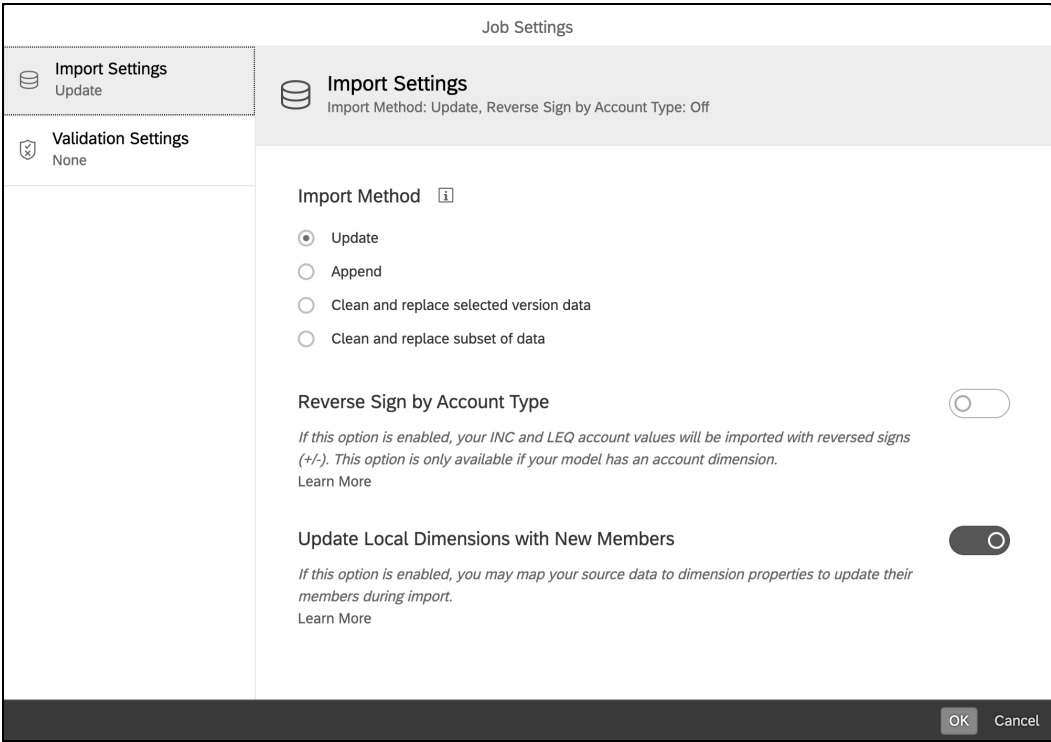


Figure 6.30 Import Settings

By default the **Version** column is set to a default value. In our case, this is **public.Actual** which is correct for this step. Later, we will upload our forecast data. We will then adjust this setting.

Mapping versions

Finalize the mapping by clicking on the **Next** button on the bottom right twice. SAP Analytics Cloud will now validate the data. After this step is completed successfully, click on the **Run Import** button to complete the import job. Finally confirm by clicking on **Finish**. After some time, the upload will finish and you will receive a success confirmation.

**Forecast Data**

Now, we want to import the forecasted data. For now, the new model in SAP Analytics Cloud does not support the creation of new versions directly in the modeler. A workaround is necessary in which we will open a story and

create a version there. Then we will return to the modeler to upload the forecast data. Once SAP delivers this functionality, the workaround can be skipped and you can directly upload the second file.

Leave the modeler and head to the stories overview. Create a new **Canvas** page in optimized mode and add a new table which populates its data from the **Operating Income** model we just created. Now open the **Version Management** interface from the **Tools** section in the top bar (see Figure 6.31).

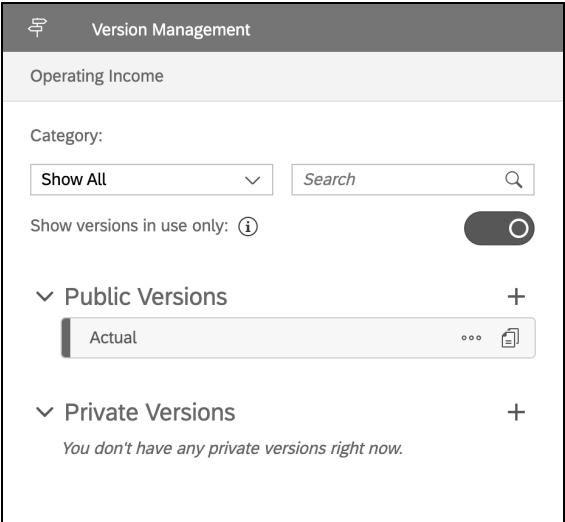



Figure 6.31 Version Management


Click on the **+** next to **Public Versions** to create a new version. Set the **Version Name** to “Forecast” and the **Category** to **Forecast** as shown in Figure 6.32. Confirm by clicking on **Create**.



Figure 6.32 Creating a New Public Version

Afterwards, leave the story without saving it. Return to the modeler and open the **Operating Income** model again. Switch back to the **Data Management** screen.

Again, click on the **Import** icon  and select the **File (Local File or File Server)** option. Click on **Select Source File** and choose the *Operating Income Forecast (2023).csv* file from your computer. Start the upload process by clicking on **Import**.

Open the file by clicking on **Set Up Import**. Skip the data wrangling step again by clicking **Next** to reach the **Mapping** screen. First, in the **Job Settings** that can be accessed by clicking on the  icon in the top bar, under **Import Method**, select the **Append** option, as shown in Figure 6.33.

Appending data

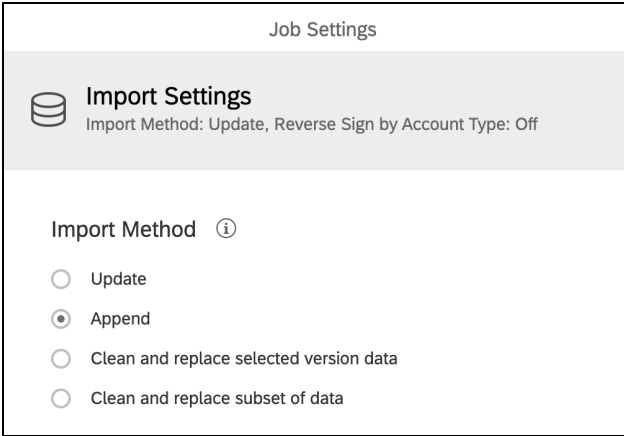


Figure 6.33 Changing Import Methods

Again, we must make sure that all dimension are mapped correctly. By default, the **Version** dimension is mapped to a default value. Therefore, we will again leave the **Version** column on the left side unassigned. First click on the **X** next to **Default Value** in the right sidebar as shown in Figure 6.34.

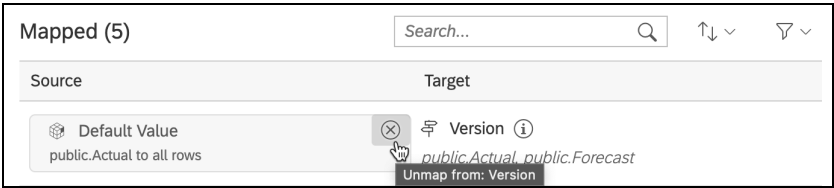


Figure 6.34 Unmapping Versions

Now, the **Version** will appear as **Unmapped** in the middle. Click on the three dots as shown in Figure 6.35 and choose **Set default value....** In the newly-appearing dialog, select the **public.Forecast** version.



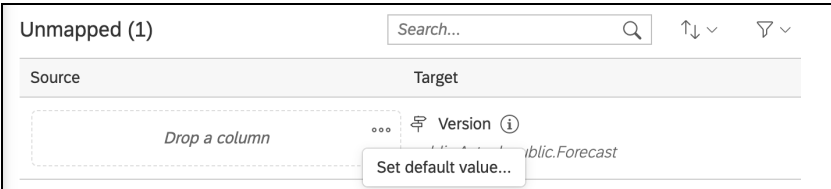


Figure 6.35 Unmapped Targets

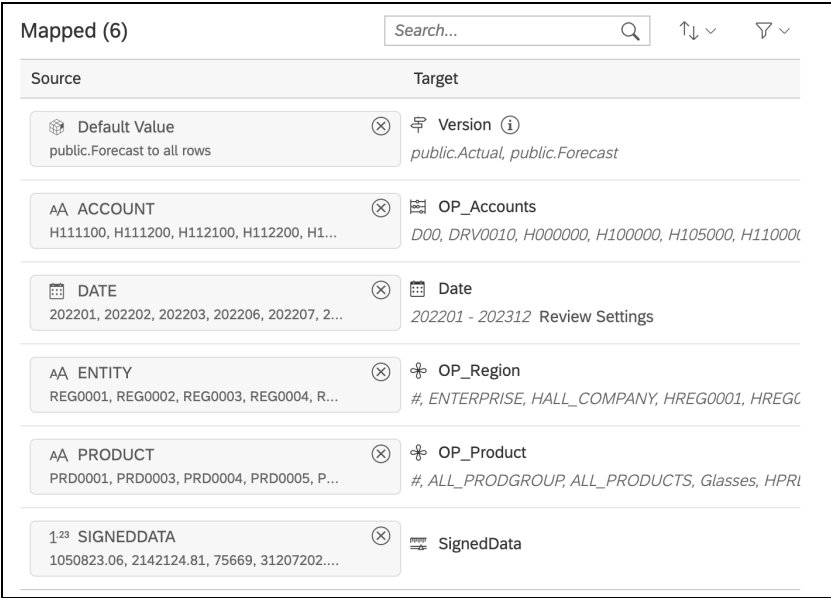



Figure 6.36 Mapped Columns

The **Mapped** column should now match Figure 6.36. Again, click on **Next** two times to complete the import job. After successful validation, click on **Run Import** and **Finish** to upload the data to the model. The model is now filled with data and ready to use.

6.2.4 Setting Up a Planning Model

In addition to the settings described in Chapter 4, Section 4.5, the modeler provides specific settings that only apply to planning models and enable you to further configure planning models. These settings will be presented in this section.

Model preferences

Open the modeler for any planning model (you can use the Operating Income model we just created) and open the model preferences . The model preferences screen provides various options to further configure the model.

Access and Privacy

The **Access and Privacy** tab combines all functionality for managing the security and privacy of a model and prevents unauthorized access, as shown in Figure 6.37.

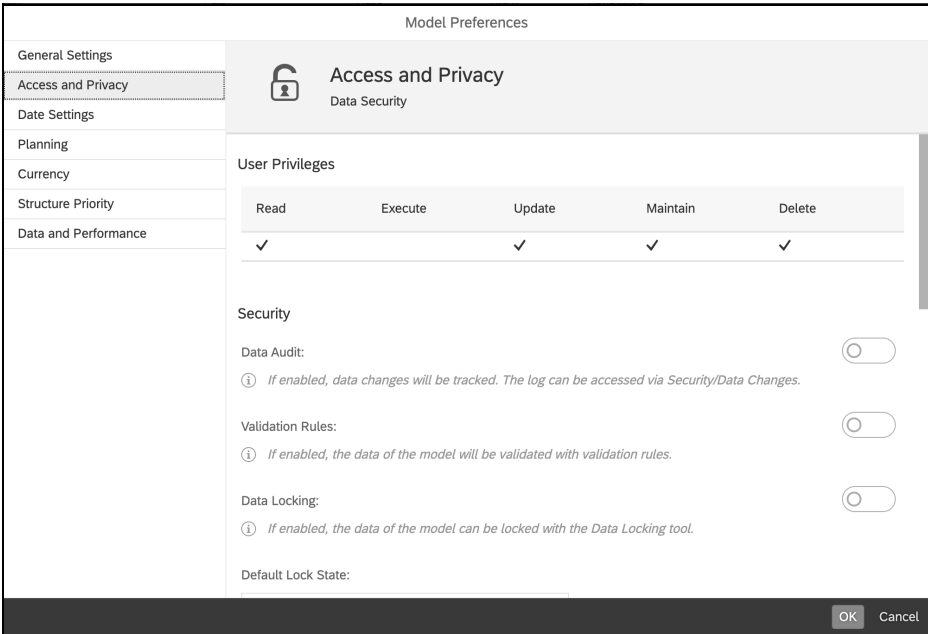


Figure 6.37 Model Preferences: Access and Privacy

If you turn on the **Data Audit** option, all data changes performed in the model (e.g., through data entry) are captured in a log file. More information on this topic can be found in Chapter 3, Section 3.3.1.

Data audit

The **Data Locking** switch can be turned on to lock the values in a model. Once the option is activated, users can lock individual values in the planning process so that these values can't be modified by other users. This feature is helpful for ensuring that data entries are not accidentally overwritten by others. You must indicate whether values are generally locked automatically or only locked manually (**Default Lock State**).

Data locking

Turning on the **Restricted Export** option will disable the exporting functionality of all charts and tables that use this model. This option can be used to protect sensitive data from being easily exported to other systems.

Restricted export

The **Access and Privacy** section also provides options to steer data access, as shown in Figure 6.38. Once the **Model Data Privacy** switch is enabled, the model is only visible to the owner and users that carry the necessary role. However, this option shouldn't be selected if possible since model visibility can also be controlled by using the folder structure, as described in Chapter 3, Section 3.3.5.

Model data privacy

**Data access control** The **Data Access Control in Dimensions** tab can be used to turn on data access control for single dimensions. When this option is activated, you can restrict data access by using individual dimension members. More information on this topic can be found in Chapter 4, Section 4.5.2.

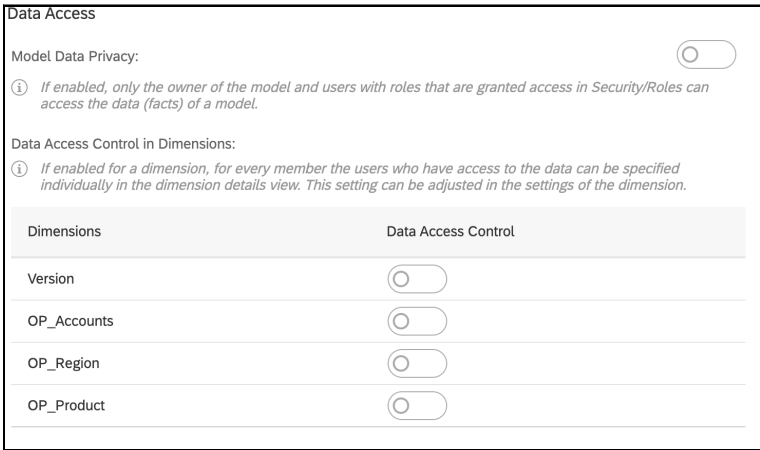


Figure 6.38 Access and Privacy: Further Options

Date Settings

The **Date Settings** tab provides options for defining a fiscal year that deviates from the calendar year, as shown in Figure 6.39. To use this function, you must first enable the **Apply Fiscal Year Settings** switch for the date dimension. Then, you can determine individual start and end dates.

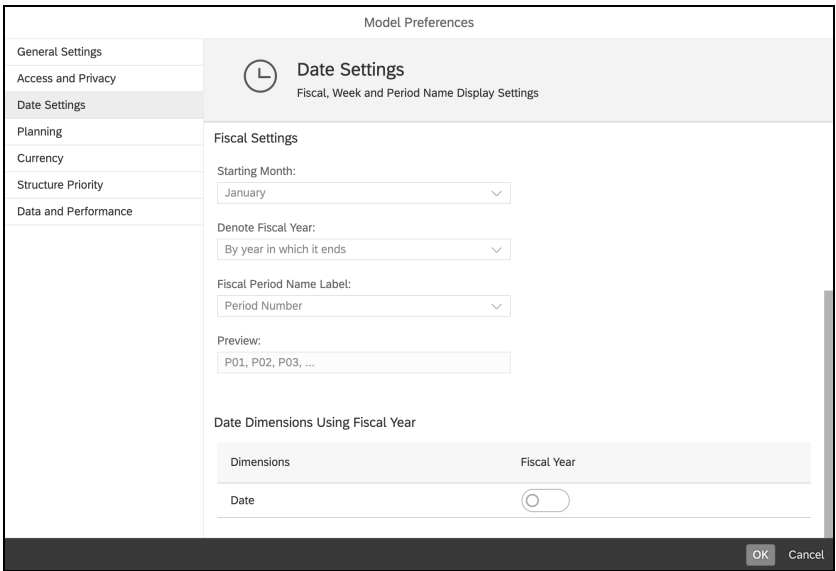


Figure 6.39 Date Settings

6.3 Planning-Specific Functionality

Because the planning component of SAP Analytics Cloud is not always separated from other areas of the product (especially the story), this section will cover all functionalities specific to planning. General story functionality is described in detail in Chapter 5, which is also required reading to follow along with the examples in this section.

All examples in this section are demonstrated using the Operating Income model created in Section 6.2. By using this model, we'll walk through various planning workflows for establishing planning processes.

6.3.1 Versions and Data Entry


Version management and data entry are two crucial tools to solve planning tasks. Ahead, we'll first create a model based on the planning model. Then, we'll create a private version and manipulate the data in it.

First, create a new, story as described in Chapter 5, Section 5.2. For this example, create a new canvas page in optimized mode. Add a table to the page and use the **Operating Income** model. Open the builder and add the **Date** dimension to the columns. Expand the hierarchies for **Finance** and **Date** so that these tables match the screen shown in Figure 6.40. Be aware that revenues have a negative sign and costs carry a positive sign in our scenario.

Creating a table

Operating Income								
Measures	SignedData							
	Version	Actual						
	Date	(all)	2022	Q1 (2022)	Q2 (2022)	Q3 (2022)	Q4 (2022)	2023
OP_Accounts								
✓ Finance								
✓ Operating Income		-18,234.72 Million	-12,034.29 Million	-2,497.66 Million	-2,484.93 Million	-3,731.23 Million	-3,320.46 Million	-6,200.44 Million
> Gross Profit		-14,538.65 Million	-9,525.73 Million	-1,979.52 Million	-1,964.71 Million	-2,975.85 Million	-2,605.65 Million	-5,012.92 Million
> Operating Expenses		3,696.08 Million	2,508.56 Million	518.15 Million	520.22 Million	755.38 Million	714.81 Million	1,187.52 Million
> Key Performance Indicators		-3.49 Percentage	-3.52 Percentage	-3.56 Percentage	-3.48 Percentage	-3.49 Percentage	-3.54 Percentage	-3.45 Percentage

Figure 6.40 Finance Table

Open the version management dialog box by clicking the  icon in the top bar, as shown in Figure 6.41. The interface shows all versions currently available in this model and allows you to create private versions. You may need to disable the **Show versions in use only** option to show all versions. Private versions are initially only visible to their creator. They can be shared with selected users, however, or published for general usage by all users who also have access to the model.

Version management

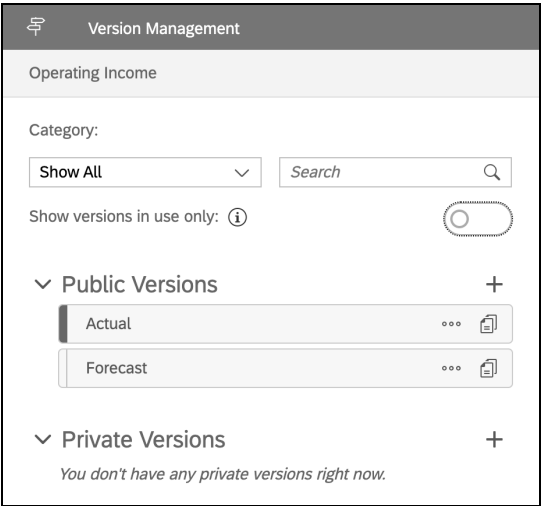



Figure 6.41 Version Management

Copying the forecast

Now, let’s create a copy of the **Forecast** version, which we’ll then use to execute our planning workflow. Click on the **Copy** icon  next to the **Forecast** version. A new dialog box will open where you should change the **Version Name** to “Private Forecast”.

You can also select the category to which the new version belongs. The dialog box also offers multiple options for defining precisely what data is copied to the new version. Alternatively, the new version can be blank. Leave the settings as shown in Figure 6.42 and confirm these settings by clicking on **OK**. Afterwards, close the version management dialog box by clicking on **Close**.

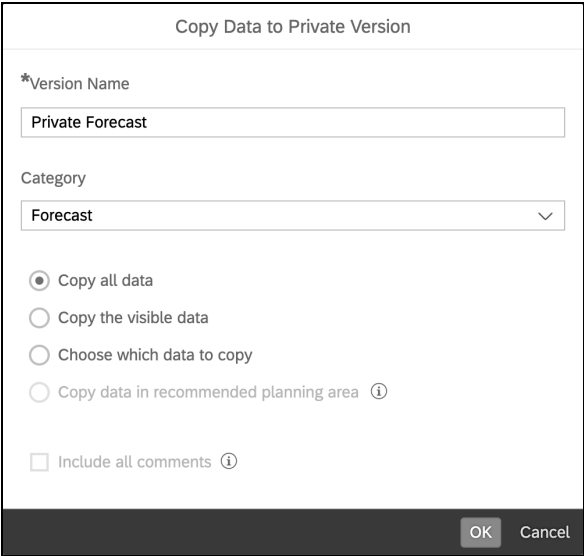




Figure 6.42 Copying Versions


If you want to share a version, view all changes that are performed on the version, or delete a version, click on the three dots icon  next to it. Versions can be published by clicking on the  icon.

Publishing versions

The version will be automatically added to the table and will carry a copy of the forecast values. Drill into the date hierarchy for the new version (**Private Forecast**) to quarter level for the year **2022**, as shown in Figure 6.43. If the version isn’t visible in the table, you may need to first change the **Version** dimension filter in the builder (see Chapter 5, Section 5.7.1).

Measures		SignedData					
Version		Actual	Private Forecast				
Date		(all)	(all)	2022	Q1 (2022)	Q2 (2022)	Q3 (2022)
OP_Accounts							
v Finance							
v Operating Income		-18,234.72 Million	-23,669.36 Million	-11,205.93 Million	-2,324.56 Million	-2,299.07 Million	-3,487.43 Million
v Gross Profit		-14,538.65 Million	-18,965.73 Million	-8,857.31 Million	-1,840.93 Million	-1,810.18 Million	-2,779.23 Million
v Operating Expenses		3,696.08 Million	4,703.63 Million	2,348.62 Million	483.63 Million	488.88 Million	708.20 Million
v Key Performance Indicators		-3.49 Percentage	-3.49 Percentage	-3.53 Percentage	-3.56 Percentage	-3.51 Percentage	-3.51 Percentage

Figure 6.43 Private Forecast in a Table

Click on a cell to enter data into the model. New values can be entered as absolute changes (e.g., +30,000,000) or percentage changes (e.g., +1%). Alternatively, you can just enter the new value directly. Click on the value showing the **Operating Income** key figure for the year **2022** and type in “+1%” as shown in Figure 6.44. Confirm the entry by pressing the  key.

Data entry

Private Forecast											
✓	(all)	✓	2022	>	Q1 (2022)	>	Q2 (2022)	>	Q3 (2022)	>	Q4 (2022)
<hr/>											
<hr/>											
-23,894.59 Million	+1%				-2,371.29 Million		-2,345.28 Million		-3,557.53 Million		-3,157.07 Million
-19,143.76 Million		-9,035.35 Million			-1,877.94 Million		-1,846.57 Million		-2,835.09 Million		-2,475.75 Million
4,750.83 Million		2,395.82 Million			493.35 Million		498.71 Million		722.44 Million		681.32 Million
-3.49 Percentage		-3.53 Percentage			-3.56 Percentage		-3.51 Percentage		-3.51 Percentage		-3.55 Percentage

Figure 6.44 Entering Data into a Table

After you’ve entered the data, the value is increased by 1%. Also, as this table has two hierarchies, the change is propagated down both hierarchies and applied accordingly. SAP Analytics Cloud keeps the weights of each child

identical (in this case, each quarter is a child) and raises their values accordingly. The changed values are marked in yellow, as shown in Figure 6.45.

Private Forecast						
▼ (all) ▼	2022 >	Q1 (2022) >	Q2 (2022) >	Q3 (2022) >	Q4 (2022) >	2023 >
-24,008.91 Million	-11,545.48 Million	-2,395.00 Million	-2,368.73 Million	-3,593.10 Million	-3,188.64 Million	-12,463.43 Million
-19,234.11 Million	-9,125.70 Million	-1,896.72 Million	-1,865.03 Million	-2,863.44 Million	-2,500.51 Million	-10,108.41 Million
4,774.79 Million	2,419.78 Million	498.29 Million	503.70 Million	729.66 Million	688.13 Million	2,355.01 Million
-3.49 Percentage	-3.53 Percentage	-3.56 Percentage	-3.51 Percentage	-3.51 Percentage	-3.55 Percentage	-3.45 Percentage

Figure 6.45 Yellow Background for Changed Values

6.3.2 Distributing Values

**Planning area** If you want to distribute values across a hierarchy (e.g., over the course of year) by using different weights, you can use the *distribution* functionality. This functionality is always context based, which means that the interface for this action is always based on a specific cell in the table.

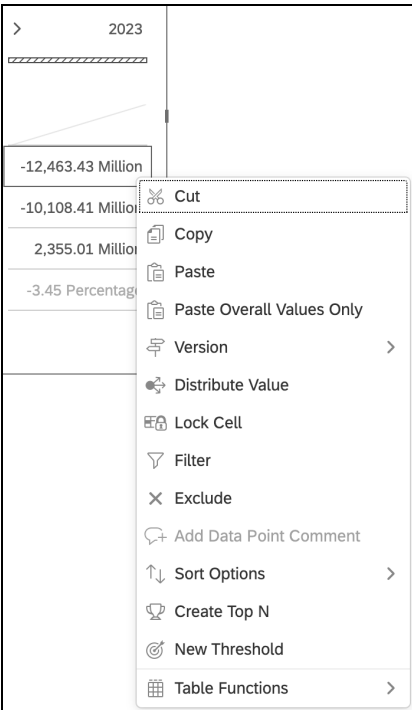


Figure 6.46 Opening the Planning Interface

Right-click on the **Operating Income** value for the year **2023** in the table. Select the **Distribute Value** option to open the planning interface, as shown in Figure 6.46, which will open the dialog box shown in Figure 6.47.

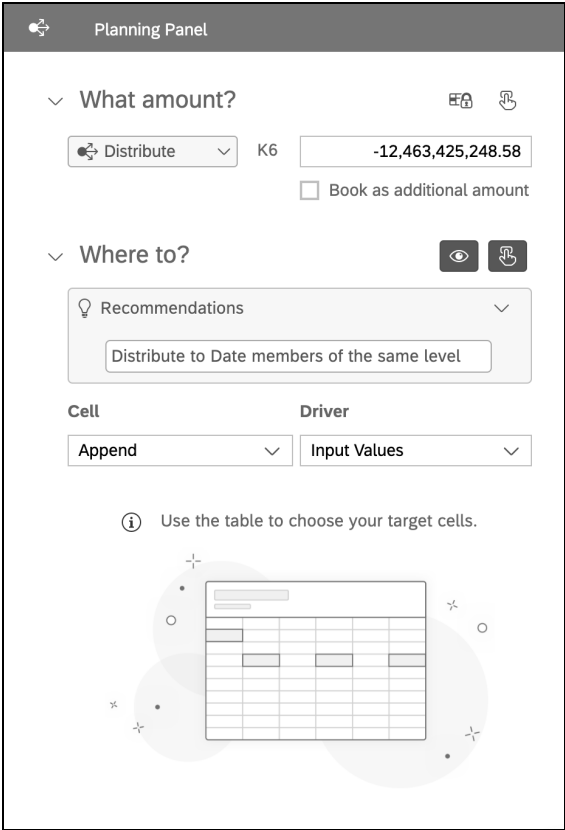


Figure 6.47 Distributing Values

The planning interface allows you to perform several planning processes in a single environment. Commonly used or suggested processes are displayed to you as **Recommendations**. If you click on a recommendation, it is applied automatically.

To distribute values across a hierarchy (for example, across a year) using individual weightings, you must use the **Distribute** functionality. To determine which targets should be used for the value distribution, you must select them directly in the table. In our example, we selected the cells **Q1 (2023)** to **Q4 (2023)** for the **Operating Income** measure. The planning interface will then automatically adjust itself, as shown in Figure 6.48.

Recommendations

Distributing values

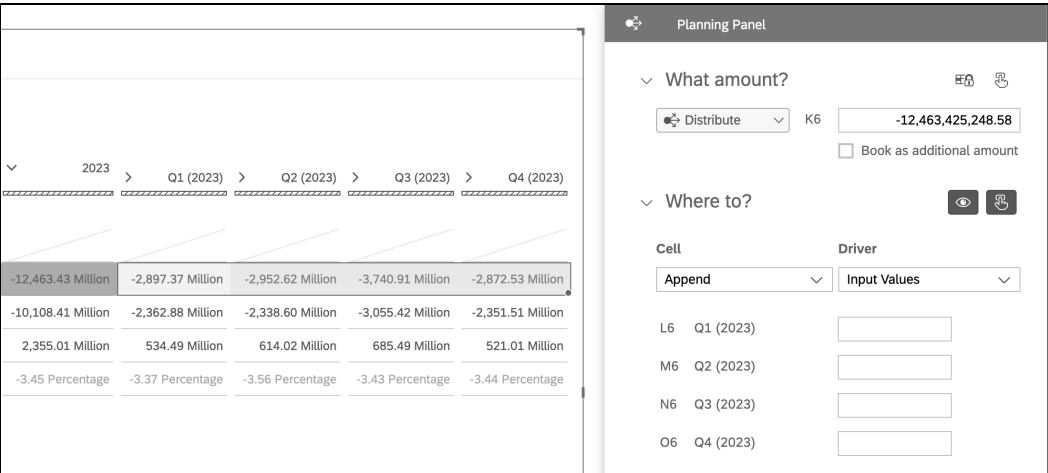


Figure 6.48 Distributing Values

You can use the **Driver** dropdown menu to determine how the weights are determined. The following options are available:

- **Input Values**  
You enter the values manually. For this step, you'll simply type in the value into the fields.
- **Input Weights**  
Note that, instead of absolute values, you can enter percentages for the weights.
- **Equally**  
The value will be divided by the number of targets (in our example, four) and distributed among those targets.
- **Proportionally**  
The existing weighting of the current values will be used to distribute the new value accordingly.

Choose one of these four options and enter values for the quarters accordingly, if required. Then, click on **Apply** to perform the distribution.

Moving values

Besides distributing values, you can also move values. In this scenario, we want to move values from one dimension member to another. This scenario may arise, for example, when a projected deal for the current year is delayed to the next year and your revenue forecasts need to be adjusted.

To move the **Operating Income** for 2022, first click on this value in the table and open the planning interface again as before. Now, we want to move the value across the **Date** dimension. Since we selected the value for 2022, we can only move it to other years, in this case 2023. Therefore, click on the

2023 value for **Operating Income** so that the planning interface adjusts itself, as shown in Figure 6.49.

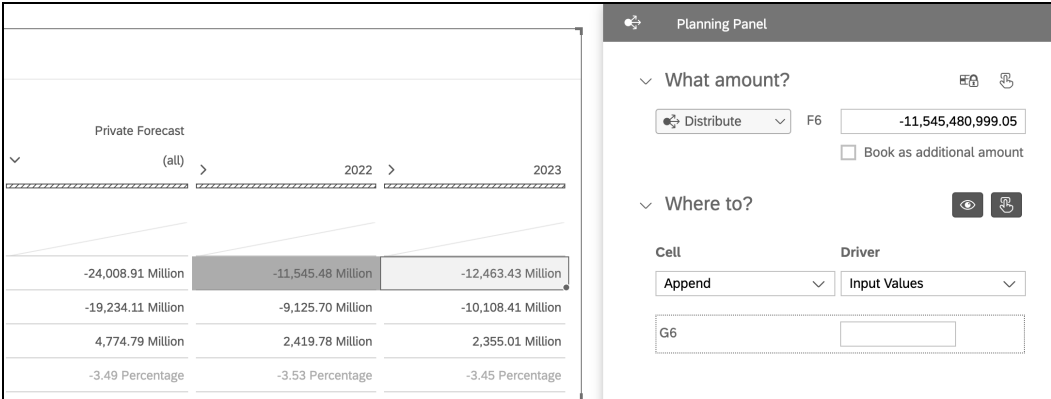


Figure 6.49 Assigning Values

Now, click on the empty input field and enter the value that you want to move from one dimension member to the other. In this case, we want to move the value **-200,000,000** from the year 2022 to the year 2023. After entering the value, you'll be immediately presented with a preview of the changes, as shown in Figure 6.50. After clicking on **Apply**, the changes will be performed.

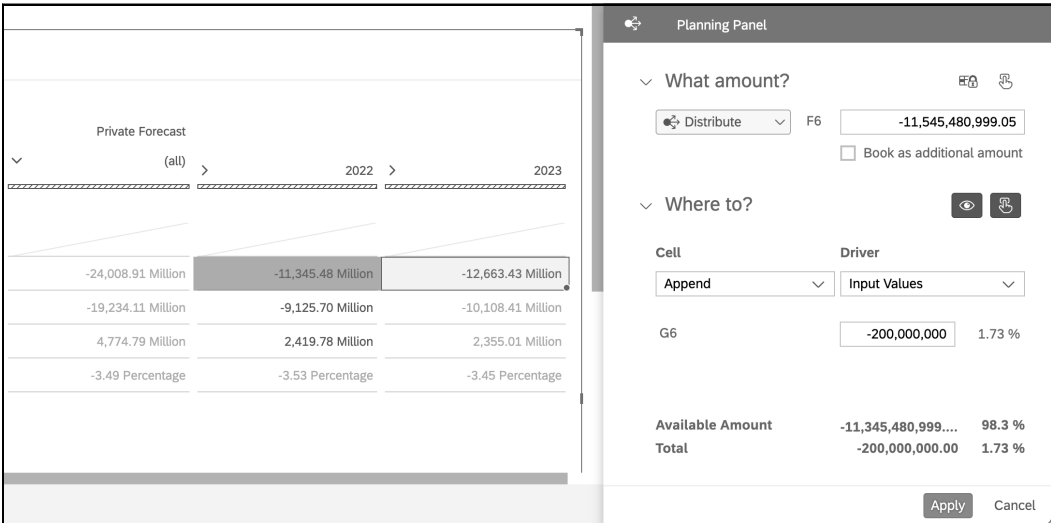


Figure 6.50 Preview of Moved Values

To assign new values (if you're expecting a revenue increase, for example), **Assigning values** you can perform this task in the planning interface as well. In this scenario,



you'll enter a value and have it added to one or more dimension members in the table.

Select the **Operating Income** values for the years 2022 and 2023 in the table. Then, open the planning interface as before by right-clicking on the selected values and selecting **Redistribute values**.

Now, enter the value “-500,000,000” to both years. Next, change the distribution method to **Distribute source amount to targets**, as shown in Figure 6.51, by clicking on the dropdown menu below the **What amount?** heading. Enter the value “-500,000,000” into the empty cell next to the dropdown menu.

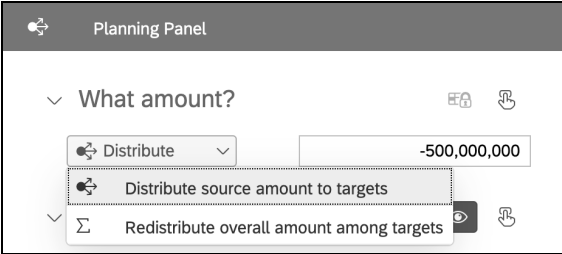


Figure 6.51 Changing the Distribution Method

For our example, we want to distribute the new value equally. Enter the value “-250,000,000” for each target. The table will provide an immediate preview of your changes, as shown in Figure 6.52. Click on **Apply** to submit these changes.

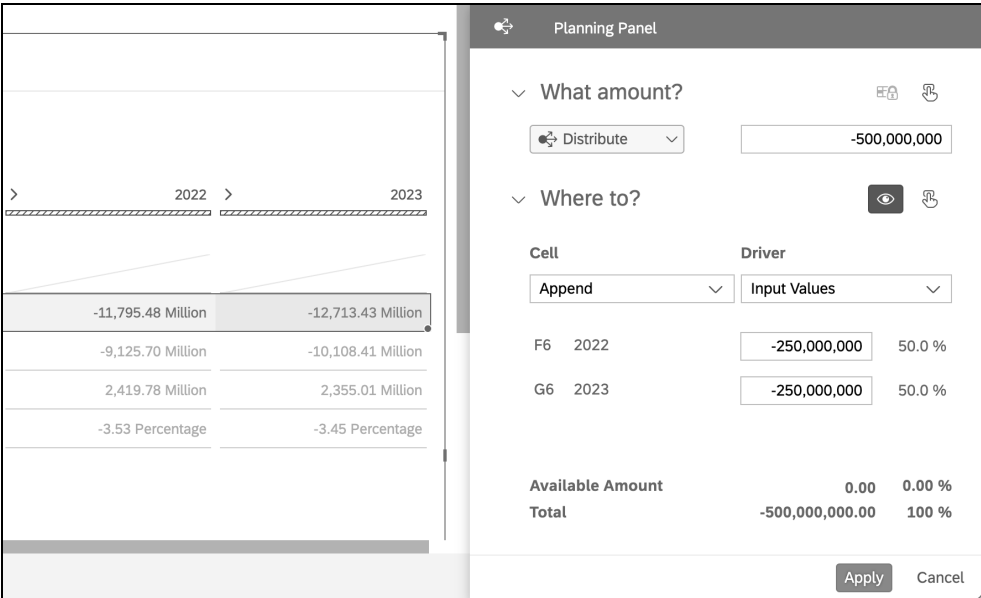


Figure 6.52 Preview of the Assignment

6.3.3 Allocations

The allocations tool is a powerful functionality to allocate a total value into multiple values by using drivers. For a better understanding of this procedure, we'll create a basic allocation to allocate our **IT Expenses**, which is a single total value that applies to multiple products. The allocation should be driven by the **Gross Sales** for each product.

**Creating Allocation Steps**

Previously, allocations were created in the allocations interface. This is no longer recommended by SAP. Going forward, SAP recommends creating allocation steps within data actions.

For this example, we will create a data action. More information on data actions can be found in Section 6.3.6.

Although allocations are executed within stories, they must first be created as processes. Click on the main menu and then select **Data Actions • Create New • Data Action**. Rename the data action to “IT Expenses” and select the **Operating Income** model as the **Default Model**, as shown in Figure 6.53.

Creating allocation processes

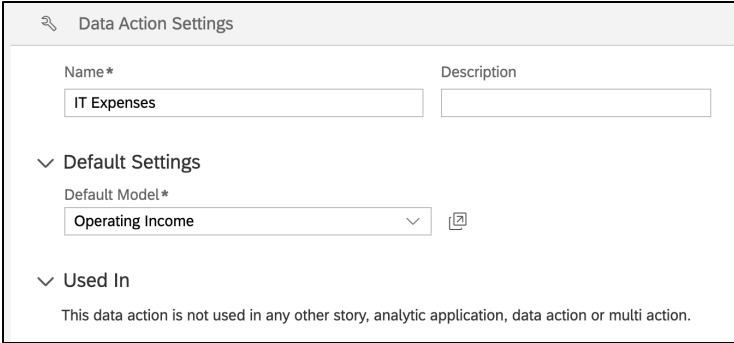


Figure 6.53 Creating New Data Actions

Now click on the **Add Allocation Step** icon in the top bar. The allocation processes consist of allocation steps that are executed when performing the allocation process in a story. These steps can be reused across multiple data actions once they're created. Alternatively, you can create a new allocation step directly within the data action interface. The new empty step is shown in Figure 6.54. Rename the new allocation step “IT Expense” and select the **OP\_Accounts** dimension from the **Source Dimension** dropdown list and the **OP\_Product** dimension from the **Target Dimension** dropdown list. As **Driver Dimension** choose **OP\_Accounts**, as shown in Figure 6.55. Confirm the allocation step by clicking on the **Save** icon in the top bar and save the data action into the **Sales Planning** folder.

Creating an allocation step

Allocation

A Data Action Allocation Step was created. Would you like to use an existing allocation instead? Use Existing Allocation

Name

Description

Source Context

Data Source

Operating Income

Filters

Version

TargetVersion

+ Add Filter

Write Mode

Keep Source

Driver Context

Reference Dimension

Date (Year, Quarter, Month)

+ Add Reference Dimension

Target Context

Booking Account

Select a Booking Account

Write Mode

Overwrite Target

Allocation Rules

Copy

Paste

Delete

Show All

Search

	Source Dimension	Driver Dimension	Target Dimension
<input type="checkbox"/>			

Figure 6.54 Empty Allocation Step

Allocation

A Data Action Allocation Step was created. Would you like to use an existing allocation instead? Use Existing Allocation

Name

IT Expense

Description

Source Context

Data Source

Operating Income

Filters

Version

TargetVersion

+ Add Filter

Write Mode

Keep Source

Driver Context

Target Context

Allocation Rules

Copy

Paste

Delete

Show All

Search

	Source Dimension	Driver Dimension	Target Dimension
<input type="checkbox"/>	OP_Accounts (Hierarchy)	OP_Accounts (Hierarchy)	OP_Product (Hierarchy)
<input type="checkbox"/>			

Figure 6.55 Creating New Allocation Steps

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6.3 Planning-Specific Functionality

After you've created the allocation step, you must define its allocation rules. Click on the value helper icon below **Source Dimension**, which will open a new dialog box, as shown in Figure 6.56. Select the **IT Expenses** member in the hierarchy.

Select Source Member

Members

Search

Parameters

All Member All Members

H000000 Finance

H100000 Operating Income

H105000 Gross Profit

H130000 Operating Expenses

H131000 Sales and Marketing

H133000 Personnel Costs

H134000 IT Expenses

H135000 Other Expenses

H200000 Key Performance Indicators

D00 Drivers

DRV0010 Growth Rate %

Figure 6.56 Selecting a Source Member

Under **Driver Dimension**, select the **Gross Sales** measure by using the value helper, and under **Target**, choose the **All Products** dimension as shown in Figure 6.57. Save the data action by clicking on the **Save** icon.

Copy

Paste

Delete

Show All

Search

	Source Dimension	Driver Dimension	Target Dimension
<input type="checkbox"/>	OP_Accounts (Hierarchy)	OP_Accounts (Hierarchy)	OP_Product (Hierarchy)
<input type="checkbox"/>	IT Expenses	Gross Sales	All Products
<input type="checkbox"/>			

Figure 6.57 Allocation Rules

To execute the allocation process, you must create a new story (or use an existing one). Add a new canvas page in optimized mode with a table using

Allocation rules

Executing allocations

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the **Operating Income** model. Modify the **Version** filter in the builder to show the **Private Forecast** version only, which we created in Section 6.3.1. Then, add the dimension to the columns and drill into the accounts and product hierarchy, as shown in Figure 6.58.

Operating Income				
Measures		SignedData		
Version		Actual		
OP_Product		No Product	All Products	
OP_Accounts				
Finance		3,696,078,294.17		
Operating Income		-3,696.08 Million	-14,538.65 Million	-7,505.24 Million
Gross Profit		-	-14,538.65 Million	-7,505.24 Million
Operating Expenses		3,696.08 Million	-	-
Sales and Marketing		301.37 Million	-	-
Personnel Costs		1,782.03 Million	-	-
IT Expenses		335.82 Million	-	-
Other Expenses		1,276.85 Million	-	-
Key Performance Indicators		-	-2.78 Percentage	-2.79 Percentage

Figure 6.58 New Canvas Page with a Table

In the table shown in Figure 6.58, the **IT Expenses** aren’t maintained for individual products right now. We want to fix this problem by executing an allocation.

Executing allocations

In previous version of SAP Analytics Cloud, you used to click on the **Allocate Values** icon  in the top bar of the story and select **Execute Allocation**. This method is still supported but is no longer recommended by SAP. Also, since we created our allocation step within a data action, we need to add a data action to the story to access it.

Choose **Data Action Trigger** from the **Insert** area in the top bar to add it to the page. Label it as “Execute Allocation Step” and select our previously-created data action. Confirm the entries as shown in Figure 6.59. The other settings allow to you determine if the executed changes should be directly published to the version and if you want set a fixed target version or let the user choose it upon execution.

The new data action trigger can be placed freely around the table. It can be executed in **Design** and **View** mode. Click on the data action to execute it. You will be then prompted to select the version as shown in Figure 6.60. Select the **Private Forecast** and confirm by clicking on **Run**.

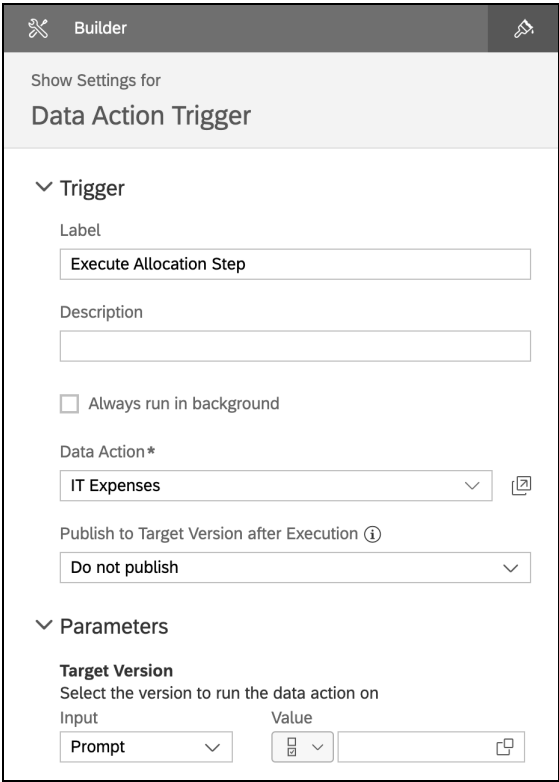


Figure 6.59 Creating a New Data Action Trigger

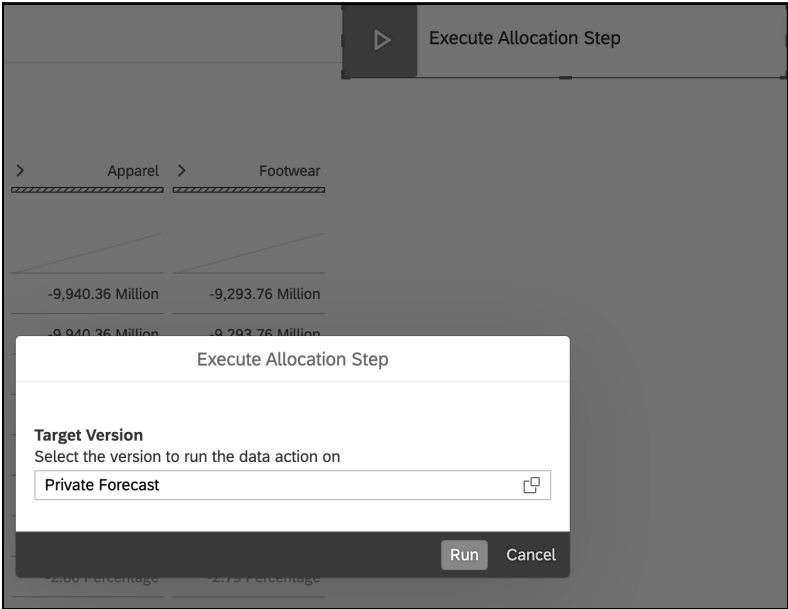


Figure 6.60 Executing a Data Action


SAP Analytics Cloud now executes the allocation process and allocates IT expenses to each product using the gross sales for each product as drivers. Once the allocation process is completed, you'll see IT expenses for individual products in the table as well, as shown in Figure 6.61.

Operating Income					
	Measures	SignedData			
	Version	Private Forecast			
	OP_Product	No Product	All Products	Apparel	Footwear
OP_Accounts					
▼ Finance		4,325,070,510.56			
▼ Operating Income		-4,325.07 Million	-19,683.84 Million	-10,172.74 Million	-9,511.10 Million
➢ Gross Profit		–	-19,234.11 Million	-9,940.36 Million	-9,293.76 Million
▼ Operating Expenses		4,325.07 Million	449.72 Million	232.38 Million	217.34 Million
➢ Sales and Marketing		392.40 Million	–	–	–
➢ Personnel Costs		2,242.68 Million	–	–	–
➢ IT Expenses		0.00 Million	449.72 Million	232.38 Million	217.34 Million
➢ Other Expenses		1,689.99 Million	–	–	–
➢ Key Performance Indicators		–	-2.86 Percentage	-2.86 Percentage	-2.86 Percentage

**Figure 6.61** Results of Allocation Process

### 6.3.4 Grid Pages

As described in Chapter 5, Section 5.2.1, a story also offers the grid page type. This page type allows you to work with a grid view of your data. The grid page is only available in classic design mode.

**Creating a table** This page type is especially helpful for planning workflows. Create a new story and select the **Grid** page type. Click on the **Insert** icon  in the top bar and choose the **Operating Income** model. Add the **OP\_Product** dimension to the columns and drill down into the hierarchies, as shown in Figure 6.62.

Grid pages can only show tables. However, you can add multiple tables from different data sources to one grid page, and they're automatically put below each other. Interactivity with a table on a grid page is similar to a table on a canvas or responsive page. However, a grid page allows you to use all cells that are not used by a table for calculations.

	A	B	C	D	E
1	Operating Income in Million USD   🌐				
2	Version	Actual			
3	OP_Product	No Product	▽ All Products	> Apparel	> Footwear
4	OP_Accounts				
5	▽ Finance				
6	▽ Operating Income	-2,790.19	-11,017.21	-7,346.49	-3,670.71
7	▽ Gross Profit	—	-11,017.21	-7,346.49	-3,670.71
8	> Net Revenue	—	-7,920.11	-5,271.57	-2,648.55
9	> Cost of Goods Sold	—	3,097.11	2,074.92	1,022.11
10	> Operating Expenses	2,790.19	—	—	—
11	> Key Performance Indicators	—	—	—	—

**Figure 6.62** Grid Page with Table


Click on the **Cost of Goods Sold** measure for the product group **Apparel** (cell **E9**) and copy the value of the cell by pressing **Ctrl**+**C** on a PC or **Command**+**C** on a Mac. Now, click into an empty cell (e.g., cell **G2**) and paste the value by pressing **Ctrl**+**V** on a PC or **Command**+**V** on a Mac. The **G2** cell should now show same the value as **E9**, as shown in Figure 6.63.

D	E	F	G
			\$1,022.18 M.
> Apparel	> Footwear		
-7,346.49	-3,670.72		
-7,346.49	-3,670.72		
-5,271.57	-2,648.54		
2,074.92	1,022.18		
-	-		
-	-		

Figure 6.63 Copied Value in G2

Instead of simply copying the value into the new cell, you've created a *cell reference* by performing this action. With a cell reference, the value itself is not copied, but instead a context is pasted into the cell that leads to the original value. Specifically, the **G2** cell will now always show the value for **Cost of Goods Sold** for the product group **Apparel**.

**Formulas** In addition to cell references, you can also enter formulas into empty cells. Double-click on an empty cell (e.g., **G4**) and type in a formula. The formula bar at the top automatically shows all available functions. You also can directly reference cells by entering their addresses. Type the formula “=D9+D8” in, as shown in Figure 6.64.

Because both functionalities can quickly lead to a high number of cell references, keeping track of all of them can become difficult. However, the story interface offers a way to display cell references. Click on the **Cell References and Formulas** icon  in the top bar and select **Show References** and **Show Formulas**. While cell references will be highlighted in color, formula-based cells will simply show the raw formula, as shown in Figure 6.65.

= D9 + D8

	A	B	C	D	E	F	G
1	Operating Income in Million USD						
2	Version	Actual					\$1,022.18 M...
3	OP_Product	No Product	▼ All Products	> Apparel	> Footwear		
4	OP_Accounts						-3,196.65 Mi...
5	▼ Finance						
6	▼ Operating Income	-2,790.19	-11,017.21	-7,346.49	-3,670.72		
7	▼ Gross Profit	—	-11,017.21	-7,346.49	-3,670.72		
8	> Net Revenue	—	-7,920.11	-5,271.57	-2,648.54		
9	> Cost of Goods Sold	—	3,097.11	2,074.92	1,022.18		
10	> Operating Expenses	2,790.19	—	—	—		
11	> Key Performance Indicators	—	—	—	—		

Figure 6.64 Entering Formulas

D	E	F	G
			\$1,022.18 M...
> Apparel	> Footwear		
			=D9+D8
-7,346.49	-3,670.72		
-7,346.49	-3,670.72		
-5,271.57	-2,648.54		
2,074.92	1,022.18		
—	—		
—	—		

Figure 6.65 Showing Cell References and Formulas

6.3.5 Value Driver Tree

The value driver tree, which we mentioned in Section 6.1.3, is a powerful tool for visualizing complex relationships among key figures and run simulations on them.

In the following section, you’ll create a value driver tree to learn its basic functionalities. For this process, we’ll visualize a subset of the measure relations that are stored in the model. Value driver trees are directly created within stories.

Create a new story in optimized mode and add a new **Canvas** page. Now, click on the plus **+** icon in the **Insert** area of the story toolbar and select the **Value Driver Tree** option. Choose the previously-created **Operating Income** model in the **Based on** section, as shown in Figure 6.66.

Creating a value driver tree

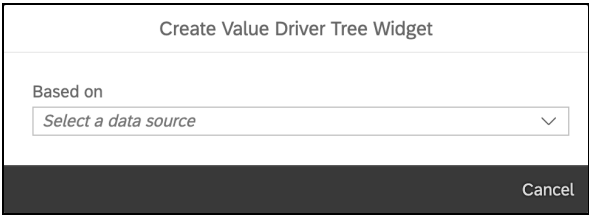


Figure 6.66 Creating a Value Driver Tree

Figure 6.67 shows our newly created and empty value driver tree.

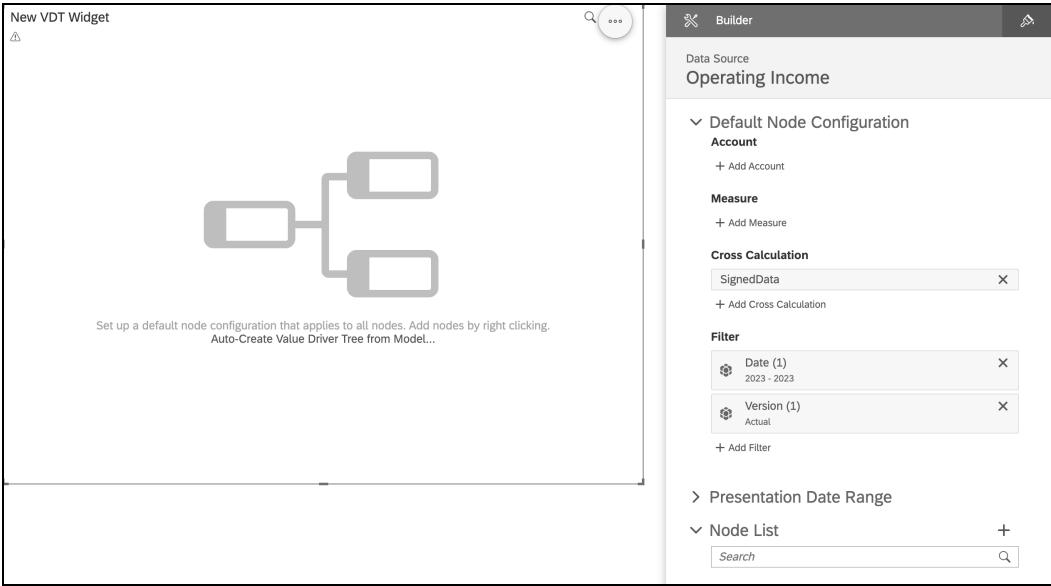


Figure 6.67 Empty Value Driver Tree



Creating Value Driver Trees

Until SAP released the Q3 2020 version of SAP Analytics Cloud, value driver trees could only be designed in a dedicated environment, which can still be accessed by opening the main menu and clicking on **Value Driver Trees**. Although this path is still supported, SAP is officially recommending the new value driver tree designer found within stories. Therefore, we'll only demonstrate how to create a value driver tree in a new story.

Filling the value driver tree with data

Click on the blue **Auto-Create Value Driver Tree from Model...** text in the middle of the new value driver tree. You can now directly choose which parts of the model you want to visualize. To keep it simple, only choose the account **Gross Revenue** (under **Finance • Operating Income • Gross Profit • Net Revenue**, as shown in Figure 6.68).

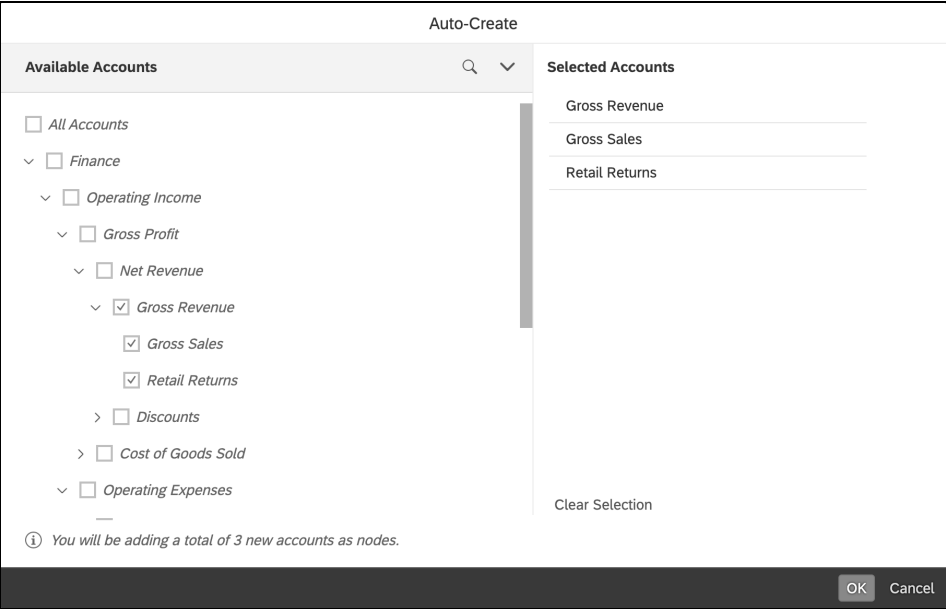


Figure 6.68 Account Selection

After you selected the account, the sidebar will automatically adjust and reflect the selection only. Click on **OK** to confirm the selection. Afterwards, add a new **Measure** on the sidebar of the value driver tree. Here, choose the **SignedData** measure.

SAP Analytics Cloud now automatically creates a new value driver tree to visualize the relationships between the selected accounts, as shown in Figure 6.69. Based on the node type, you may need to add additional information like the data source or calculation method.

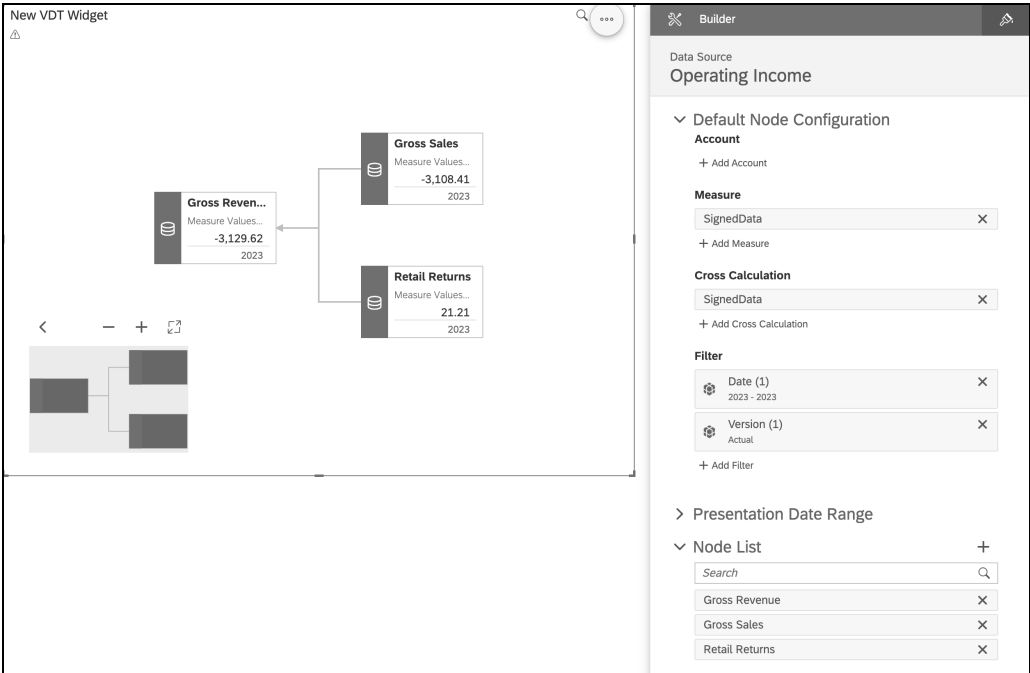


Figure 6.69 Automatically Generated Value Driver Tree

The sidebar now allows you to adjust the dates and versions that should be used by the value driver tree and the simulations. You can also adjust the planning horizon. Adjust the **Version** filter to **Private Forecast** and the **Date** filter to reflect the years **2022 to 2023**, as shown in Figure 6.70. You may need to click on the **Fit to Screen** icon on the bottom left to rearrange the value driver tree and make it fully visible again.

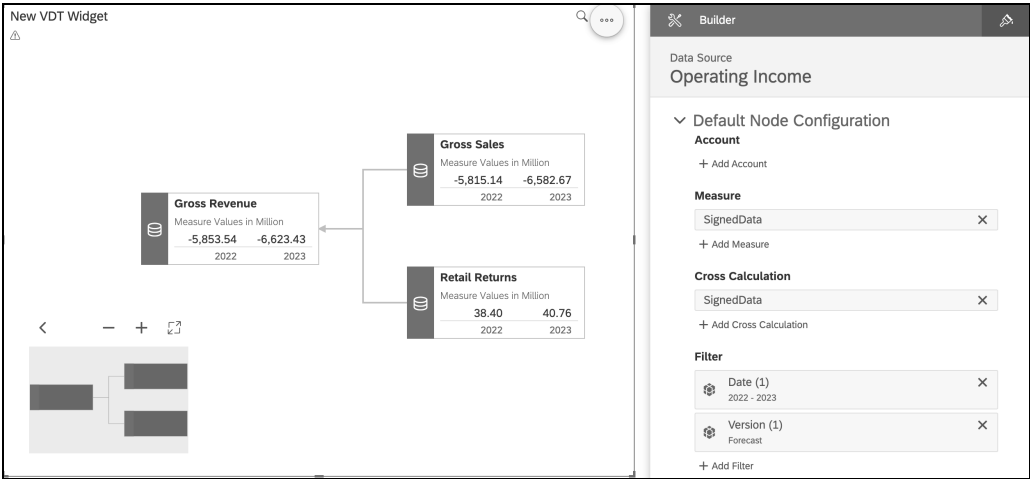


Figure 6.70 Adjusted Value Driver Tree

Further configurations

By using the **Builder**, as shown in Figure 6.71, you can configure the value driver tree further. Not only can you base the value driver tree on measures from the model; you can also show calculated measures. This feature can be quite helpful if you want to extend existing simulations with your own simulation calculations. These calculations can be created in the **Account** and **Cross Calculation** sections if required.

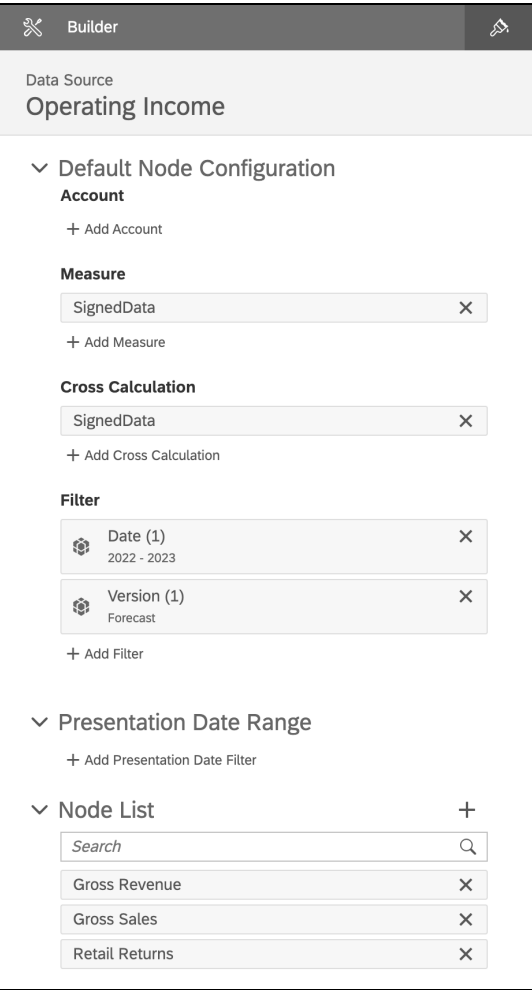


Figure 6.71 Value Driver Tree Builder


Cross-calculations

Cross-calculations are especially useful the compare key figures with each other. These calculations are also created in the builder and allow you to access additional functionalities. Cross-calculations can, for example, include currency conversions or rolling forecasts.

The **Presentation Date Range** area provides options for restricting the visualized date range further. In our case, such a filter would still keep the simulation running across our selected years (2018 to 2021) but would only visualize the years that are specified within the **Presentation Date Range Filter**. This feature allows you to hide years that you need for simulation purposes but don't want to be displayed.

The **Node List** allows you to search for every single node of the tree and configure each node individually. You can also create new nodes in this list manually which, for example, can form unions with other nodes by adding or multiplying their values.

The value driver tree is directly executed within the story in which it was created.


Once you've maintained the node creation settings, save the value driver tree by clicking the **Save** icon .

To use the value driver tree, you must add it to a canvas or responsive page of a story. The usage of the value driver tree is described in Section 6.1.3.

Using value driver trees

6.3.6 Data Actions

Data actions are helpful tools for accelerating planning processes and automating routine tasks. A data action is designed within its own interface but executed within a story.

Open the main menu and select **Data Action • Create New • Data Action** to create a new data action. Assign the name "Initialize version" and select the **Operating Income** model as the **Default Model**, as shown in Figure 6.72. Save the data action by clicking on the **Save** icon .

Creating data actions

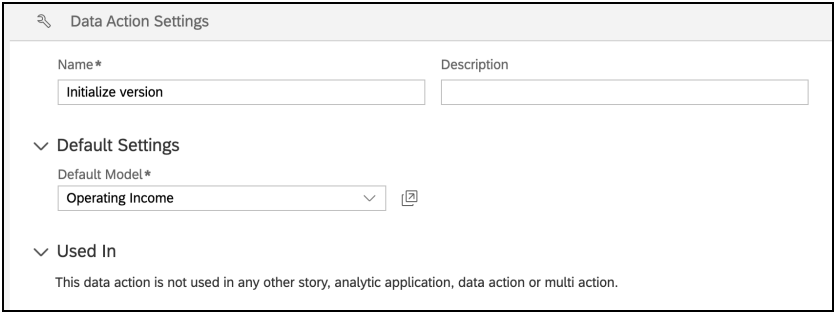









Figure 6.72 Creating New Data Actions


You can create various types of data actions and access them through the top bar of the interface. The following types are available:

Data action types

-  **Copy action**  
This action allows users to copy data within a dimension from one dimension member to one or more other members and apply aggregations or filters. You can, for example, create a routine that copies the data for 2023 automatically to the years 2024 to 2026.
-  **Cross-model copy action**  
This action can be used to copy data from one model into another model, set filters, and assign dimensions so that the copy workflow can be executed without any manual effort.
-  **Allocation action**  
This action can be used to execute an allocation step directly within a story and set all required parameters and filters up front.
-  **Embedded data action**  
This action can be used to embed an existing data action directly into the data action you're actively creating. This action allows you to create basic steps and later reuse them.
-  **Currency conversion**  
This action can be used to convert accounts from one currency to another.
-  **Advanced formulas action**  
This data action provides users an interface to define transformation scripts (visual scripting and coding are supported) to transform your data. Various functions can be called to cover complex scenarios.

Creating a copy action

Now, let's say want to create a copy action: Click on the  icon to add a copy action. Name the action "Copy to next year" and click on **Add Copy Rule**. Choose the **Date** dimension and select the **2022** value for the **From** field. Select **2023** for the **To** field, as shown in Figure 6.73.

The **Filters** and **Aggregate To** options can be used to further define whether only a specific set of data should be used and whether you want to perform any aggregations while copying. **Write Mode** determines if existing values are overwritten or if new values are appended. Save the copy action by clicking on the **Save** icon .

Using data actions

Data actions must be executed within a story or application. Add a new table based on the **Operating Income** model and add the **Date** dimension to either rows or columns. Add the data action to the page as well and place it next to the table. If you now execute the data action, you'll observe that the year 2023 will be automatically filled in with the values from 2022.

Multi Actions

When opening the main menu, you'll also find the **Multi Actions** section. In this area, you can create multi actions that include data actions and

version management steps across multiple models and versions. Like data actions, multi actions can be triggered within a story and provide a powerful tool to establish your planning process.

Multi actions are helpful if you want to first build small data actions that you'll reuse across multiple workflows. You can create data actions to perform single steps (e.g. create a new version or copy data) and then create multi actions to reuse them in separate scenarios and orders.

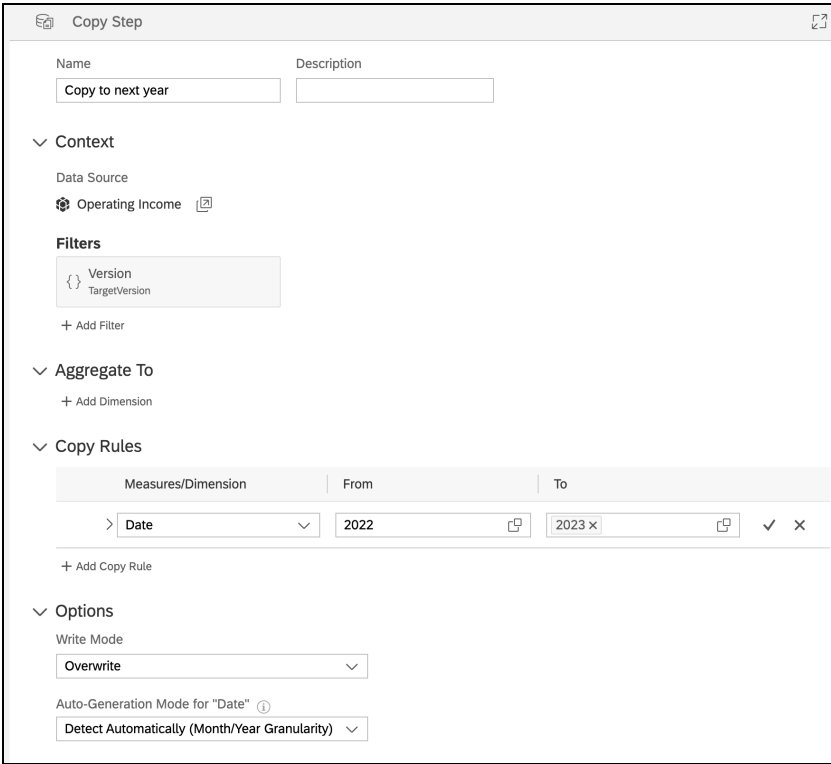


Figure 6.73 Creating Copy Actions

6.3.7 Calendar

Introduced in Section 6.1.3, the calendar is another tool for establishing planning workflows. This tool is helpful for tracking planning tasks and reminding users of open activities. Open the main menu and click on **Calendar**. Within the calendar, you can switch between displaying the day, week, or month or show a list or Gantt view of all tasks (using the options shown in Figure 6.74, in the top left). The Gantt view represents the timelines of tasks as bars in a list, which provide an immediate overview of all ongoing projects.

Accessing the calendar

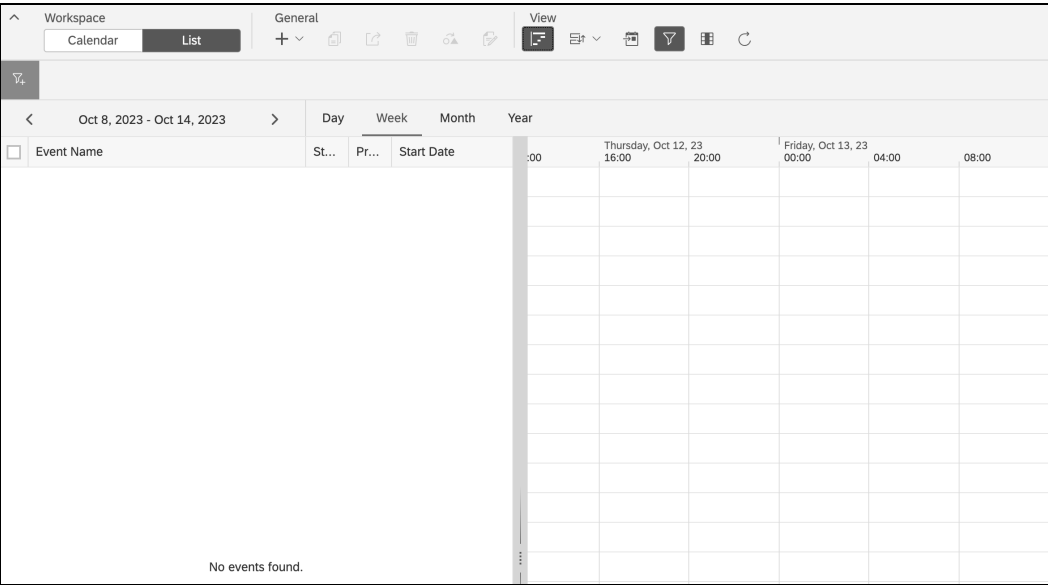



Figure 6.74 Calendar

Within the calendar, you can create tasks and events, which again can be used to govern and establish planning workflows. To create a new task, click on the plus icon  in the top bar. You must first select the task type, then name the task and provide start and end dates, as shown in Figure 6.75. You can also add a recurrence to the task (e.g., every month) or add a parent process if this tasks belong to a larger task.

Create Composite Task

Event Name: \*

Enter Q4 data

Start By:

Time

Start Date:

Nov 8, 2023, 13:00

End Date:

Nov 15, 2023, 14:00

+ Add Recurrence

Parent Process

+ Add Parent Process

Create

Cancel

Figure 6.75 Creating a New Task

Within a task, many options exist for maintaining its contents, as shown in **Task settings** Figure 6.76. You can add a description to a task and add links to all relevant stories, applications, or files that are needed to complete the task (**Work Files**).

Composite Task

To activate this task, assign someone to it.

You are owner of:

Enter Q4 data

Overall Status:

Inactive

Time:

Nov 8, 2023, 13:00\* - Nov 15, 2023, 14:00\*

Work Files (0):

Stories, Analytic Applications or URLs

+ Add File

Description

Add more information, instructions, or notes you'd like to share.

Abassin Sidiq

Time

Start By:

Time

Start Date:

Nov 8, 2023, 13:00

End Date:

Nov 15, 2023, 14:00

Figure 6.76 Maintaining a Task

In addition, you'll need to specify an owner in the **Owner** field who will be responsible for the task, as shown in Figure 6.77. The **Assignee** is also mandatory and defines the user who must actually complete the task. You can also add a **Reviewer** who validates the task before the task is considered complete. If the task is part of a bigger planning process, you can indicate that in the **Hierarchy** section.

In addition, you can maintain reminders, add more files, or leave private notes that are only visible to you. Once a task is created and published,

Owners, assignees, and reviewers

Working with tasks

notifications will automatically be sent to all affected users. Users can also pin tasks to their home screens to keep track of them.

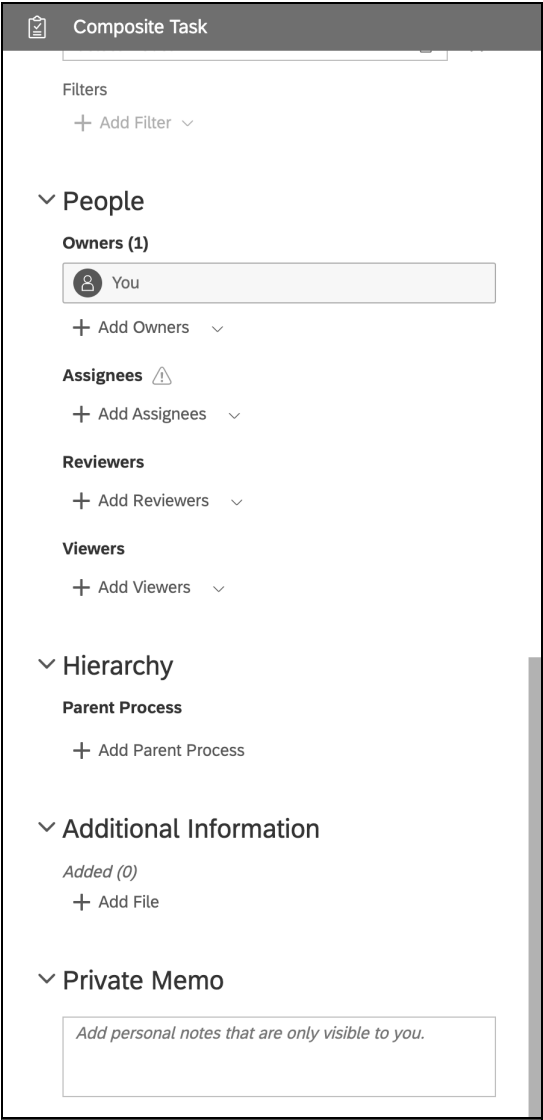


Figure 6.77 Additional Settings for Tasks

6.4 Summary

The planning component of SAP Analytics Cloud can be used to perform rather complex enterprise-wide planning workflows. While some of these processes are designed in a separate environment, they are mainly executed in a story or an application.

Because the planning component is deeply integrated with the story, synergies are created that allow controllers, for example, to first analyze data and then perform their own analyses immediately by using planning tools in the story.

Now that you’ve seen how to use historical data and establish classic planning workflows, the next chapter will describe how predictive analytics can be used to automate future estimations and calculations.

If you want to gain deeper insights into the topic of financial planning and analysis, we recommend reading the book *SAP Analytics Cloud: Financial Planning and Analysis* (<https://www.sap-press.com/5486/>) which was published by SAP PRESS.



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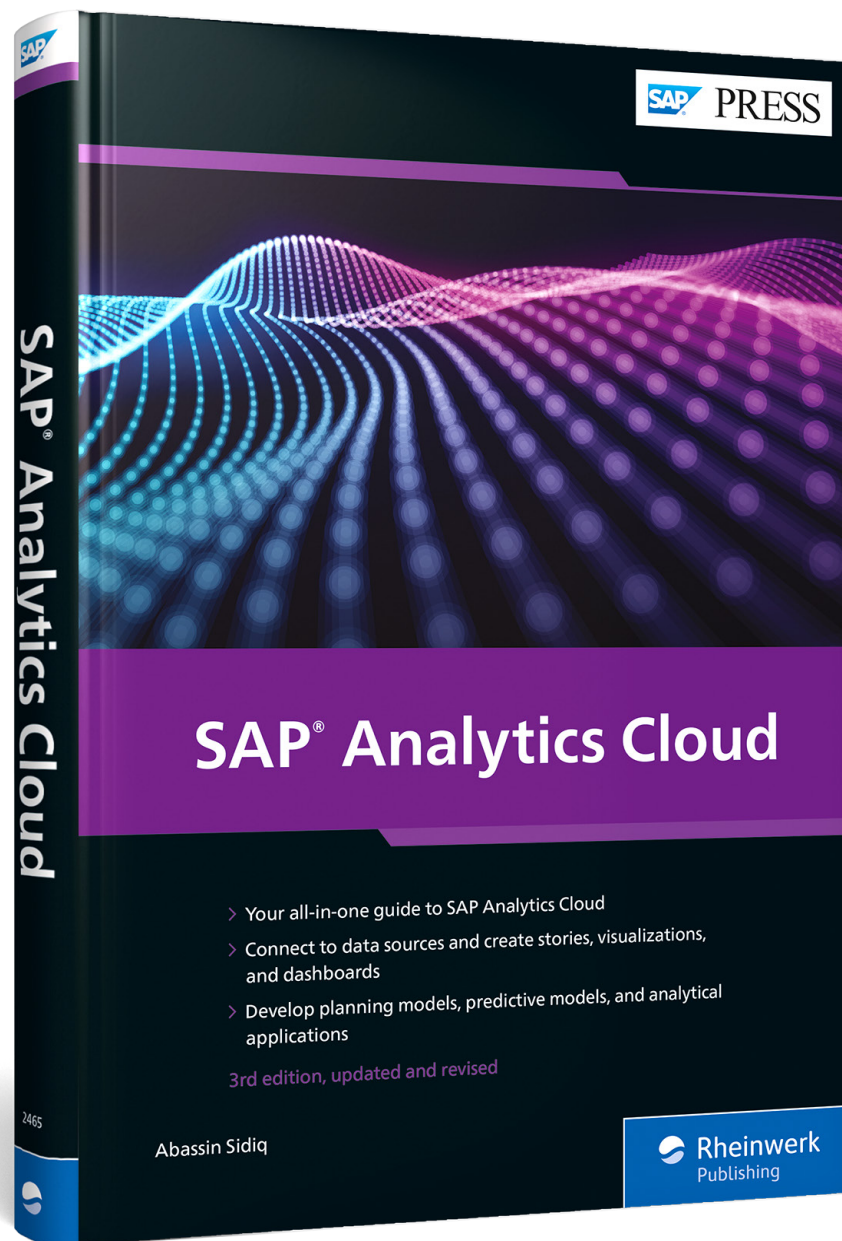
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