

# Sample Content for Tax Calculation and Reporting

Processes and Functions supporting Sample Business Scenarios



---

# Typographic Conventions

Type Style	Description
<i>Example</i>	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options.  Textual cross-references to other documents.
<b>Example</b>	Emphasized words or expressions.
<b>EXAMPLE</b>	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
Example	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
<b>Example</b>	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
<b>EXAMPLE</b>	Keys on the keyboard, for example, <b>F2</b> or <b>ENTER</b> .

# Contents

- 1 Introduction and Basics..... 6**
  - 1.1 About this Guide ..... 6
  - 1.2 Constraints..... 6
  - 1.3 Related Documentation..... 7
  - 1.4 Glossary ..... 7
- 2 Business Example..... 8**
  - 2.1 Scope and Business Definition ..... 9
- 3 Tax Calculation and Reporting in Detail ..... 10**
  - 3.1 Integrated Source Data..... 11
    - 3.1.1 Tax Master Data ..... 12
    - 3.1.2 Master Data..... 12
    - 3.1.3 Tax Rates ..... 13
    - 3.1.4 Analytical Tax Balances ..... 13
    - 3.1.5 Account Allocation Keys ..... 14
    - 3.1.6 Tax Positions..... 15
    - 3.1.7 Tax Group ..... 16
    - 3.1.8 Exchange Rates Data ..... 17
    - 3.1.9 Connection to ERP System ..... 17
      - 3.1.9.1 Retrieve Financial Statement Items..... 17
      - 3.1.9.2 FSI Worklist..... 18
  - 3.2 Processing..... 18
    - 3.2.1 Collect Source Data ..... 19
      - 3.2.1.1 Join All Data Sources..... 19
      - 3.2.1.2 Prepare Balance Sheet Data ..... 19
    - 3.2.2 Calculate Differences..... 20
    - 3.2.3 Calculate Deferred Tax ..... 20
    - 3.2.4 Calculate Balance Sheet Positions..... 21
    - 3.2.5 Calculate Current Taxes - Before Tax Transfer ..... 21
    - 3.2.6 Tax Transferring along Company Hierarchy ..... 22
      - 3.2.6.1 Tax Transfer between Companies ..... 22
      - 3.2.6.2 Assign Local Currency ..... 23
      - 3.2.6.3 Conversion to Local Currency ..... 23
    - 3.2.7 Calculate Current Taxes - After Tax Transfer..... 23
    - 3.2.8 Calculate Loss Carry Forwards..... 24
    - 3.2.9 Calculate Tax Costs ..... 24
    - 3.2.10 Calculate Tax Rate Reconciliation ..... 25
    - 3.2.11 Conversion to Group/Global Currency ..... 25
    - 3.2.12 Join of Current and Historical Data ..... 25

3.2.13	Calculate and Write Results .....	26
3.2.14	Prepare Input for Accounting Entries .....	26
3.2.15	Write Results.....	27
3.2.15.1	Write Results to Tax Positions .....	27
3.2.15.2	Write Results to Analytical Tax Balances.....	27
3.3	<i>Reporting</i> .....	27
3.3.1	Tax Master Data .....	28
3.3.2	Tax Group .....	28
3.3.3	1. Master Data.....	29
3.3.4	2. Tax Rate .....	29
3.3.5	3a. Account Mapping .....	29
3.3.6	3b. Current Tax Calculation .....	30
3.3.7	3c. Tax Loss Carry Forwards .....	30
3.3.8	3d. Tax Transfer .....	31
3.3.9	4a. Tax Balance Sheet Comparison .....	31
3.3.10	4b. Deferred Tax Calculation.....	32
3.3.11	5. Tax Positions .....	32
3.3.12	6a. Tax Rate Reconciliation .....	33
3.3.13	Group Tax Rate Reconciliation.....	33
3.3.14	Group Tax Expense .....	34
3.3.15	Tax Transfer Table.....	34
3.3.16	Tax Expense .....	34
3.3.17	Input for Adjustment Posting – Permanent Differences .....	35
3.3.18	Input for Accrual Posting – Temporary Differences.....	35

# Table of Figures

**Figure 1: Digital Imperative** ..... 8  
**Figure 2: Sample Content Information and Calculation Model** ..... 9

# 1 Introduction and Basics

## 1.1 About this Guide

This guide provides information about the sample content for Tax Calculation and Reporting, which can be installed on top of SAP Profitability and Performance Management. This sample content describes a project accelerator, ideas, and best practices for modeling an end-to-end corporate Tax Calculation and Reporting model that is feasible for current and deferred tax calculations as well as simulations. It covers the full Tax Calculation and Reporting scheme at a legal entity level as well as group level. It also contains references to further documentation that you should read before performing these tasks.

The structure of this document is organized around the following topic:

### **Business Example**

This part of the guide covers the main features of the sample content. It describes the information model and calculation model.

### **Target Audience:**

- Business experts
- Solution consultants
- Presales teams

### **Considerations**

It is essential that you are familiar with the content of the corresponding guides and documents related to this topic before beginning with this example. For more information about the available guides and documents, as well as integration with other systems, roles, configuration information, users and authorization concept, see [Related Documentation](#).

## 1.2 Constraints

This guide does not provide information about the installation of the sample content. For more information about this, see [Related Documentation](#).

## 1.3 Related Documentation

The following table lists related documents.

Topic	Guide/Tool/Title	Links
<ul style="list-style-type: none"> <li>• Installation and planning of your system landscape</li> <li>• Activities to keep the system running</li> <li>• Information about how to ensure the required security for your SAP landscape</li> </ul>	Administration Guide for SAP Profitability and Performance Management	<a href="#">Administration Guide</a>
<ul style="list-style-type: none"> <li>• Sample Content for Tax Calculation and Reporting</li> </ul>	Sample Content for Tax Calculation and Reporting	<a href="https://launchpad.support.sap.com/#/notes/2901604">https://launchpad.support.sap.com/#/notes/2901604</a> SAP Note 2901604
<ul style="list-style-type: none"> <li>• Operation of SAP NetWeaver</li> </ul>	Technical Operations Manual	<a href="https://help.sap.com/viewer/p/SAP_NETWEAVER_750">https://help.sap.com/viewer/p/SAP_NETWEAVER_750</a>
<ul style="list-style-type: none"> <li>• Application Help</li> </ul>	Detailed Application help for SAP Profitability and Performance Management	<a href="#">Profitability and Performance Management</a>
<ul style="list-style-type: none"> <li>• SAP HANA Administration Guide</li> </ul>	Administration guide for SAP HANA; supported SDA databases	<a href="https://help.sap.com/viewer/product/SAP_HANA_PLATFORM/">https://help.sap.com/viewer/product/SAP_HANA_PLATFORM/</a>
<ul style="list-style-type: none"> <li>• SAP Notes</li> </ul>		<a href="https://launchpad.support.sap.com/">https://launchpad.support.sap.com/</a>

## 1.4 Glossary

<b>GL</b>	<b>General ledger</b>
-----------	-----------------------

## 2 Business Example

The market is at the dawn of the next big technology change where everything is connected and software is embedded in people's lives. This technology change is bringing new opportunities and new threats. Cycle time for innovation is 5–10 times faster, and enterprises can no longer compete unless complexity is reduced. Business efficiency is ahead of the market and product and service profitability are constantly tracked and optimized.

That is why digital performance management will be the game-changer for companies who want to be successful in the digital economy. A digital performance management solution for 21<sup>st</sup> century business needs to measure and manage enterprise efficiency and drive product and service profitability in real time.

Built on SAP HANA, SAP Profitability and Performance Management is a next generation digital performance management solution that provides breakthrough real-time business data aggregation capabilities for SAP and non-SAP systems, a high-speed finance and risk calculation engine and comprehensive simulation and scenario management.

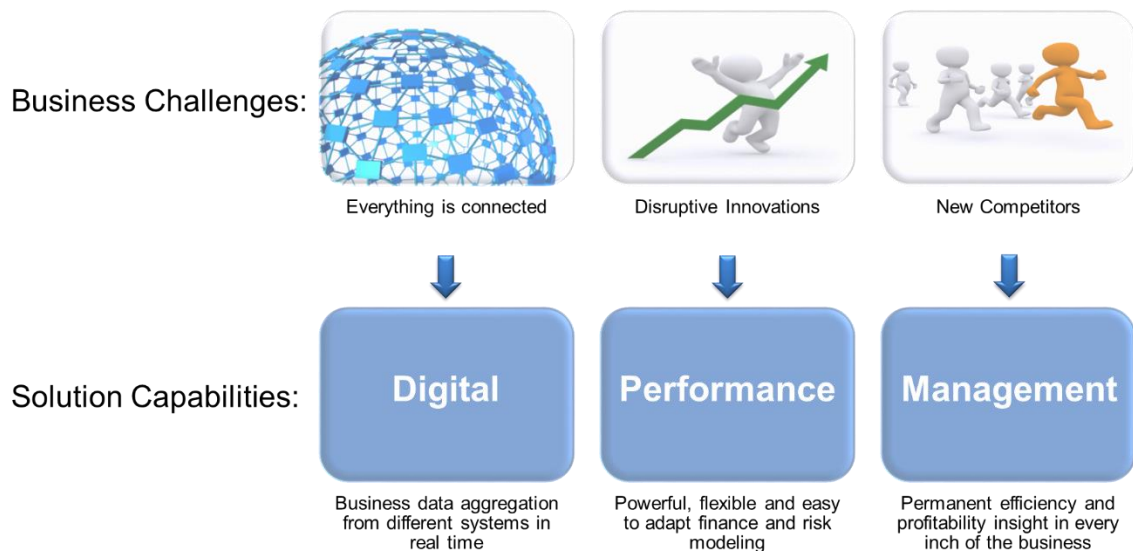


Figure 1: Digital Imperative

## 2.1 Scope and Business Definition

This sample content covers the sample calculation of direct and deferred tax of four entities, comprising certain aspects of data integration, data input, processing as well as reporting.

This allows business users to manage and plan tax expenses in one central solution.

The following screenshot shows the function hierarchy of the sample content and the process template.

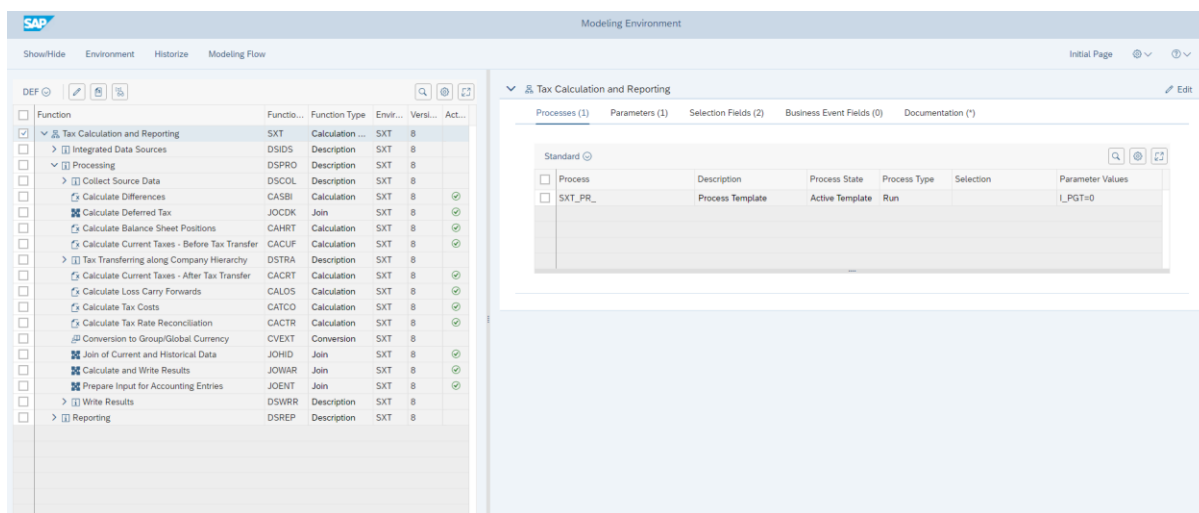


Figure 2: Sample Content Information and Calculation Model

You can also find the information contained in the following chapters on the respective *Documentation* tabs for the model.

## 3 Tax Calculation and Reporting in Detail

Sample Content for Tax Calculation and Reporting covers tax reporting and planning with aim to optimize calculation of current and deferred tax. It helps an entity to recognize the current and future tax consequences of transactions and other events that have been recognized in the financial statements.

This Sample Content contains data for two, consecutive fiscal years for four companies: Sunshine New York, Sunshine Berlin, Sunshine Paris and Sunshine Madrid. By default, each company determines current tax according to one of two different tax calculation approaches: timing or temporary concept with the option to switch to another calculation approach.

It consists of one Calculation Unit function and is structured underneath by description functions in the following sections:

- **Integrated Data Sources**  
Defines manually loaded data, as well as an option to retrieve Financial Statement Item data from ERP systems, as input for the subsequent functions.
- **Processing**  
Here the core of the calculation model is defined to determine tax base and current tax, compute deferred tax asset and deferred tax liabilities arising from temporary differences and unused loss and allocate current and deferred tax to the related components of profit or loss.
- **Reporting**  
Provides standardized reports to assist users in tax planning and controlling on entity or group level.

The *Tax Calculation and Reporting* Unit defines a process template **SXT\_PR\_ - Process Template** with the following activities for execution users. These activities are selected and arranged in a way that reflects the practical steps used in the business process of Tax Calculation and Reporting.

- **Update Assumptions:**
  - *Tax Master Data*, where the user can check and edit tax master data for enterprise group.
  - *Tax Group*, where the user can check and edit tax group company hierarchy data.
  - *1. Master Data*, where the user can check entity master data and switch to another tax calculation approach.
  - *2. Tax Rate*, where the user can check and edit tax rate data on entity level.
  - *3a. Account Mapping*, where the user can check and edit account data on entity level.
  - *3b. Current Tax Calculation*, where the user can check and edit current tax data on entity level.
  - *3c. Tax Loss Carry Forwards*, where the user can check and edit tax loss carry forwards data on entity level.

- *4a. Tax Balance Sheet Comparison*, where the user can check tax balance sheet data and edit temporary and permanent differences for temporary tax calculation approach on entity level.
- **Execution**, which runs the complete calculation.
- **Results:**
  - *3d. Tax Transfer*, where the user can analyze tax postings on entity level.
  - *4b. Deferred Tax Calculation*, where the user can analyze deferred tax data on entity level.
  - *5. Tax Positions*, where the user can analyze tax expense data on entity level.
  - *6. Tax Rate Reconciliation*, where the user can analyze tax reconciliation result data on entity level.
  - *Group Tax Rate Reconciliation*, where the user can analyze overall results on group entity level.
  - *Group Tax Expenses*, where the user can analyze overall results on group entity level.
  - *Tax Transfer Table*, where the user can analyze tax postings per entity.
  - *Tax Expenses*, where the user can graphically analyze tax expense per entity.
  - *Input for Adjustment Posting – Permanent Differences*, where the user can analyze proposed entries to the tax ledger.
  - *Input for Accrual Posting – Temporary Differences*, where the user can analyze proposed entries to the local ledger.

#### Note

For demonstration purposes, all activities in the standard sample content have been defined with level "0" so that they can be executed in parallel. In implementation projects, you can define dependent activities by using different levels.

## 3.1 Integrated Source Data

In this section, you can define the required data sources.

#### Note

This sample content does not work with specific customer data and cannot presume any customer-specific system landscape, application, or interface.

The integration of data sources uses therefore functions of type Model Table to make test data available and these Model Tables need to be exchanged with Model Views and other model functions in an implementation project to connect to the real and concrete customer data sources and targets.

The complete information model is kept lean to ease the adaption in an implementation project.

*Connection to ERP System* provides an example of retrieving financial statement item data.

### 3.1.1 Tax Master Data

This Model Table function is used to provide data for the group tax rate.

The function defines the following fields:

- *Scenario*: This field is used to separate different scenarios.
- *Fiscal Year*: This field defines year used for financial reporting and budgeting.
- *Posting Period*: This field is used to maintain accounting periods that are open for posting and all closed periods are balanced. This is used for opening and closing the periods in the fiscal year for posting purposes.
- *Source*: There are customer system landscapes, where data is coming from multiple systems like data warehouses, timesheet systems, and production systems or entered manually.
- *Tax Code*: This field defines tax type.
- *Tax Rate (%)*: This field presents tax rate as percentage value.

### 3.1.2 Master Data

This Model Table function is used to provide data for each entity level.

The function defines the following fields:

- *Scenario*: This field is used to separate different scenarios.
- *Company Code*: Tax Calculation and Reporting is executed on entity level, therefore this field can have different values and is available in reporting, with option to see calculation result on group level.
- *Fiscal Year*: This field defines year used for financial reporting and budgeting.
- *Posting Period*: This field is used to maintain accounting periods that are open for posting and all closed periods are balanced. This is used for opening and closing the periods in the fiscal year for posting purposes.
- *Local Currency*: This currency is used in direct tax calculation at single entity level.
- *Global currency*: This currency is used for group reporting. No matter, which currency is used in an implementation project, the common practice is to translate every amount into one and the same currency, so that in the complete calculation model only one currency (also called controlling area currency) is used.
- *Region*: This field defines the geographic region of the entity business.
- *Country/Region*: This field defines the country/region of the entity.
- *Segment*: This field defines the segment of the entity business.

- *Calculation Scheme Key*: This field defines tax calculation approach. '1' is reserved for **Timing Concept**, '2' is reserved for **Temporary Concept**.

### 3.1.3 Tax Rates

This Model Table function is used to provide tax rate data for each entity level per different periods.

The function defines the following fields:

- *Scenario*: This field is used to separate different scenarios.
- *Fiscal Year*: This field defines year used for financial reporting and budgeting.
- *Posting Period*: This field is used to maintain accounting periods that are open for posting and all closed periods are balanced. This is used for opening and closing the periods in the fiscal year for posting purposes.
- *Tax Schema*: This field is used to defined calculation scheme approach.
- *Source*: There are customer system landscapes, where data is coming from multiple systems like data warehouses, timesheet systems, and production systems or entered manually.
- *Company Code*: Tax Calculation and Reporting is executed on entity level; therefore, this field can have different values and is available in reporting, with option to see calculation result on group level.
- *Tax Code*: This field defines tax type.
- *Tax Type*: This field defines tax expense from time perspective: current tax or deferred tax.
- *Tax Rate (%)*: This field presents tax rate as percentage value.

### 3.1.4 Analytical Tax Balances

This Model Table function is used to provide balance sheet financial data for each entity in defined fiscal year with prior period's data.

The function defines the following fields:

- *Scenario*: This field is used to separate different scenarios.
- *Report ID*: This field is used as key for reporting elements.
- *Source*: There are customer system landscapes, where data is coming from multiple systems like data warehouses, timesheet systems, and production systems or entered manually.
- *Fiscal Year*: This field defines year used for financial reporting and budgeting.
- *Posting Period*: This field is used to maintain accounting periods that are open for posting and all closed periods are balanced. This is used for opening and closing the periods in the fiscal year for posting purposes.

- *Company Code*: Tax Calculation and Reporting is executed on entity level; therefore, this field can have different values and is available in reporting, with option to see calculation result on group level.
- *Local Currency*: This currency is used in direct tax calculation at single entity level.
- *Global currency*: This currency is used for group reporting. No matter, which currency is used in an implementation project, the common practice is to translate every amount into one and the same currency, so that in the complete calculation model only one currency (also called controlling area currency) is used
- *Account*: This fields defines balance sheet and P&L accounts that track the financial activities of a specific asset, liability, equity, revenue, or expense in reporting year.
- *Amounts* - defined in local and global currency:
  - *IFRS - Prior Period*
  - *Permanent Differences Tax Base/IFRS - Prior Period*
  - *Temporary Differences Tax Base/IFRS - Prior Period*
  - *Tax Base - Prior Period*
  - *Deferred Tax Assets - Prior Period*
  - *Deferred Tax Liability - Prior Period*
  - *Deferred Tax - Prior Period*
  - *Changes in Permanent Differences Tax Base/IFRS*
  - *Changes in Temporary Differences Tax Base/IFRS*
  - *IFRS - Current Period*
  - *Permanent Differences Tax Base/IFRS - Current Period*
  - *Temporary Differences Tax Base/IFRS - Current Period*
  - *Tax Base - Current Period*
  - *Deferred Tax - Current Period*
  - *Deferred Tax Assets – Current Period*
  - *Deferred Tax Liability – Current Period.*

### 3.1.5 Account Allocation Keys

This Model Table function is used to provide profit and loss financial data for each entity in defined fiscal year. Structure of table is this:

The function defines the following fields:

- *Scenario*: This field is used to separate different scenarios.

- *Source*: There are customer system landscapes, where data is coming from multiple systems like data warehouses, timesheet systems, and production systems or entered manually.
- *Posting Period*: This field is used to maintain accounting periods that are open for posting and all closed periods are balanced. This is used for opening and closing the periods in the fiscal year for posting purposes.
- *Fiscal Year*: This field defines year used for financial reporting and budgeting.
- *Company Code*: Tax Calculation and Reporting is executed on entity level; therefore, this field can have different values and is available in reporting, with option to see calculation result on group level.
- *Ledger*: This field represents accounting ledger applied for this calculation.
- *Report ID*: This field is used as key for reporting elements.
- *Account Balance Status*: This field represents opening or closing balance.
- *Account*: This field defines balance sheet and P&L accounts that track the financial activities of a specific asset, liability, equity, revenue, or expense in reporting year.
- *Local Currency*: This currency is used in direct tax calculation at single entity level.
- *Global currency*: This currency is used for group reporting. No matter, which currency is used in an implementation project, the common practice is to translate every amount into one and the same currency, so that in the complete calculation model only one currency (also called controlling area currency) is used.
- *Local Currency Amount*: Amounts are entered in local currency.
- *Global Currency Amount*: Amounts are entered in global currency.
- *Manual Adjustment*: This field defines credit or debit to correct an account transaction.
- *Import Factor*: This field modifies sign of imported ERP account's values.

### 3.1.6 Tax Positions

This Model Table function is used to provide reporting tax positions data for each entity in defined fiscal year.

The function defines the following fields:

- *Report ID*: This field is used as key for reporting elements.
- *Scenario*: This field is used to separate different scenarios.
- *Posting Period*: This field is used to maintain accounting periods that are open for posting and all closed periods are balanced. This is used for opening and closing the periods in the fiscal year for posting purposes.
- *Fiscal Year*: This field defines year used for financial reporting and budgeting.

- *Company Code*: Tax Calculation and Reporting is executed on entity level; therefore, this field can have different values and is available in reporting, with option to see calculation result on group level.
- *Tax Position*: This field defines reporting positions of each entity for reporting period.
- *Account*: This field defines balance sheet and P&L accounts that track the financial activities of a specific asset, liability, equity, revenue, or expense in reporting year.
- *Source*: There are customer system landscapes, where data is coming from multiple systems like data warehouses, timesheet systems, and production systems or entered manually.
- *Local Currency*: This currency is used in direct tax calculation at single entity level.
- *Global currency*: This currency is used for group reporting. No matter, which currency is used in an implementation project, the common practice is to translate every amount into one and the same currency, so that in the complete calculation model only one currency (also called controlling area currency) is used.
- *Local Currency Amount*: Amounts are entered in local currency.
- *Global Currency Amount*: Amounts are entered in global currency.
- *Tax Rate (%)*: This field presents tax rate as percentage value.

### 3.1.7 Tax Group

This Model Table function is used to provide information about company which is sending tax and the one which is receiving, as well as percentage of the tax transfer.

The function defines the following fields:

- *Scenario*: This field is used to separate different scenarios.
- *Fiscal Year*: This field defines year used for financial reporting and budgeting.
- *Posting Period*: This field is used to maintain accounting periods that are open for posting and all closed periods are balanced. This is used for opening and closing the periods in the fiscal year for posting purposes.
- *Company Code*: Direct tax calculation is executed on entity level, therefore this field can have different values and is available in reporting, with option to see calculation result on group level.
- *Partner Company*: This field is used to determine the company that is receiving tax obligation amount in tax transferring calculation.
- *Tax Transfer Base (%)*: This field is used in calculation to determine tax base that is going to be transferred along company hierarchy.

### 3.1.8 Exchange Rates Data

This Model Table function is used to provide exchange rate for last day of fiscal year.

The function defines the following fields:

- *Client*: This field is used to specify SAP system client, which serves as mandatory input for execution of function conversion.
- *Exchange Rate Type*: This field is used to specify exchange rates, which serves as mandatory input for execution of function conversion.
- *From Currency*: This field provides information about currency from which amount will be exchanged from.
- *To Currency*: This field provides information about currency to which amount will be exchanged to.
- *Effective Date for Exchange Rate*: This field provides information about the date from which the exchange rate is valid.
- *Exchange Rate*: This field provides information about specific rate that will be applied when exchanging currencies.
- *Ratio for the 'From' Currency Units*: Ratio used in the conversion function.
- *Ratio for the 'To' Currency Units*: Ratio used in the conversion function.

### 3.1.9 Connection to ERP System

This part provides example of retrieving financial statement item data using Model Table '*FSI Worklist*' as input for function Remote function adapter '*Retrieve Financial Statement Items*'.

#### 3.1.9.1 Retrieve Financial Statement Items

This remote function adapter is used to retrieve financial statement items as defined in header part (*Remote Function Adapter Type: Financial Statement Items*).

The header part in *RFC Destination* defines an ERP system from which the items' data are retrieved. After ERP connection is established, in *Rules* tab is listed all fields from the source system.

In *Rules* green colored rows are mandatory to be assigned to environment fields for successful retrieval and their values are provided as input in model table. Other source fields can be assigned to other environment fields.

### 3.1.9.2 FSI Worklist

This Model Table function is used to provide values for mandatory fields in function '*Retrieve Financial Statement Items*'.

## 3.2 Processing

In this section the core functions of the model to calculate the profitability and cost results are defined.

It comprises the following functions:

- Collect Source Data: *Join All Data Sources*, which combines all source data into one data stream and *Prepare Balance Sheet Data* which prepares data required for positions in balance sheet.
- *Calculate Differences*, which calculates values in Balance Sheet Statement: temporary and permanent differences, tax base.
- *Calculate Deferred Tax*, which uses previous function as input and joins Tax Rates to determine deferred tax.
- *Calculate Balance Sheet Positions*, which uses previous function as input and sums up balance sheet accounts on asset, liability and equity level.
- *Calculate Current Taxes - Before Tax Transfer*, which uses previous function as input and calculates reporting positions in '*3b. Current tax calculation*' report.
- *Tax Transferring along Company Hierarchy: Tax Transfer between Companies*, which allocates amount of tax to be transferred, *Assign Local Currency* which assigns local currency to companies that have been distorted due to offset records in previous function and *Conversion to Local Currency* which converts amount upon transfer is done in local currency.
- *Calculate Current Taxes - After Tax Transfer*, which uses previous function as input and calculates reporting positions in '*3b. Current tax calculation*' report.
- *Calculate Loss Carry Forwards*, which calculates reporting positions in '*4a. Tax Loss Carry Forwards*' report.
- *Calculate Tax Costs*, which uses previous function as input and calculates reporting positions in '*5. Tax Positions*' report.
- *Calculate Tax Rate Reconciliation*, which uses previous function as input and calculates reporting positions in '*6. Tax Positions*' report.
- *Conversion to Group/Global Currency (USD)*, which uses previous function as input and calculates reporting positions in '*7. Group Tax Rate Reconciliation*' report.
- *Join of Current and Historical Data*, which joins current year data and previous year data.
- *Calculate and Write Results*, which executes tax calculation with call of function '*Calculate Tax Rate Reconciliation*' and updates input data set with writer functions.

- Write Results: *Write Results to Tax Positions* and *Write Results to Analytical Tax Balances* are writing update data set in specific model tables.

#### Note

The calculations described above are run and triggered as one process activity ("Execute Simulation"). This is possible due to the high processing speed and does not require the steps listed above to be executed in batch mode.

## 3.2.1 Collect Source Data

This is the first step in tax calculation in which all source data are combined into one data stream.

### 3.2.1.1 Join All Data Sources

This Join function is used to combine all source data into one stream, which are used later for calculating reporting positions.

No fields are taken out and all information is kept.

In the header of the Join function we configure the following settings:

- *Join Type* is set to "Implicit Fields" (which is the default anyway), which means we include all fields from the different data sources automatically.
- *Result Handling* is set to "Include enriched data", because our aim is to include all input data from the general ledger source and union it with the plan and forecast data.
- *Suppress initial* results is set to "No", because we want to be able to see even that later on in reporting as well.
- *Include original Input Data* is set to "No", because for further calculation we need only produced rows.
- *Auto Filling* is set to "If Null then First to Last", in case of null value, then an initial value is returned for that field.

#### Note

No fields are ignored, and all information is kept.

### 3.2.1.2 Prepare Balance Sheet Data

This Join function is used to prepare balance sheet data for timing direct tax calculation approach: transferring amounts from Current tax calculation to Balance sheet in corresponding columns.

No fields are taken out and all information is kept.

In the header of the Join function we configure the following settings:

- *Join Type* is set to “Implicit Fields” (which is the default anyway), which means we include all fields from the different data sources automatically.
- *Result Handling* is set to “Include enriched data”, because our aim is to include all input data from the general ledger source and union it with the plan and forecast data.
- *Suppress initial results* is set to “No”, because we want to be able to see even that later on in reporting as well.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.
- *Auto Filling* is set to “If Null then First to Last”, in case of null value, then an initial value is returned for that field.

### 3.2.2 Calculate Differences

This Calculation function is used to calculate balance sheet values according to:

1. Timing tax calculation approach: Temporary Difference Tax Base/IFRS, Permanent Difference Tax Base/IFRS, Tax Base,
2. Temporary tax calculation approach: Changes in Temporary Difference Tax Base/IFRS, Changes in Permanent Difference Tax Base/IFRS, Tax Base.

In the header of the Calculation function we configure the following settings:

- *Calculation Type* is set to “Absolute”, because input data set in every rule should be same - data set of input function.
- *Result Handling* is set to “Include all data”, because in the output result should be included part of input data set that is not maintained in rules' selection and calculated rows.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.
- *Suppress initial results* is set to “No”, because we want to be able to see even that later on in reporting as well.

### 3.2.3 Calculate Deferred Tax

This Join function is used to union calculation of deferred tax and previously calculated results. In rules section 'Deferred taxes calculation', the first previous calculated balance sheet results are joined with Model Table '*Tax Rates*' and then deferred tax, deferred tax assets, deferred tax liabilities for current period are determined: deferred tax as multiplication of Timing differences between IFRS/Tax base

and Deferred tax Rate, and then according to the sign of amount assigned to either DTA (positive sign) or DTL (negative sign).

In the header of the Join function we configure the following settings:

- *Join Type* is set to “Implicit Fields” (which is the default anyway), which means we include all fields from the different data sources automatically.
- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to be able to see even that later on in reporting as well.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.
- *Auto Filling* is set to “No”, because all fields are assumed to be filled and we do not need to engage left outer joins or lookups to complete them sometimes.

### 3.2.4 Calculate Balance Sheet Positions

This Calculation function is used to calculate balance sheet accounts: e.g. asset, liabilities based on input function '*Calculate Deferred Tax*'.

In the header of the Calculation function we configure the following settings:

- *Calculation Type* is set to “Absolute”, because input data set in every rule should be the same - data set of input function.
- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to add original input data set to the output data as well.
- *Include original Input Data* is set to “Yes”, because besides the produces results the original input data should be added to the output data as well.

### 3.2.5 Calculate Current Taxes - Before Tax Transfer

This Calculation function is used to calculate positions from report '*3b. Current Tax Calculation*' based on input function '*Calculate Balance Sheet Positions*'. Each rule in absolute calculation type is used to create one new reporting position.

In the header of the Calculation function we configure the following settings:

- *Calculation Type* is set to “Absolute”, because input data set in every rule should be the same - data set of input function.

- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to add original input data set to the output data as well.
- *Include original Input Data* is set to “Yes”, because besides the produces results the original input data should be added to the output data as well.

### 3.2.6 Tax Transferring along Company Hierarchy

In this section there are presented three functions that are included in tax transferring between companies:

- *Tax Transfer between Companies*, using iterative allocation to transfer tax base amount along company hierarchy
- *Assign Local Currency*, is used to prepare data before next conversion
- *Conversion to Local Currency*, is used to convert transferred amounts to local currency.

#### 3.2.6.1 Tax Transfer between Companies

This Allocation function is used to allocate taxable amount using the company-partner company structure from model table defined as receiver.

In the header of the Automation function we configure the following settings:

- *Result Handling* is set to “Include all data”, because our aim is to include all data.
- *Suppress initial results* is set to “Yes”, because these do not need to be visible, even later in reporting.
- *Include original Input Data* is set to “No”, because we only work with one scenario during one calculation run, in other words scenarios are not dependent on other scenarios.

This type of allocation is performed through iterative allocation and with following settings in Advanced tab:

- Iteration counter
- Cycle maximum Value: 5
- Result aggregation: None

### 3.2.6.2 Assign Local Currency

This Join function is used to prepare data before conversion to local currency and assign local currencies to transferred amounts. Please note that no fields are taken out and all information is kept.

In the header of the Join function we configure the following settings:

- *Join Type* is set to “Implicit Fields” (which is the default anyway), which means we include all fields from the different data sources automatically.
- *Result Handling* is set to “Include enriched data”, because our aim is to include all input data from the general ledger source and union it with the plan and forecast data.
- *Suppress initial results* is set to “No”, because we want to be able to see even that later in reporting as well.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.
- *Auto Filling* is set to “If Null then First to Last”, in case of null value, then an initial value is returned for that field.

### 3.2.6.3 Conversion to Local Currency

This Conversion function is used to convert transferred amounts to local currency, therefore those transferred results can be used further in calculation of *Current Tax Calculation* report. In the header of the Join function we configure the following settings:

- *Result Handling* is set to “Include all data”, because in the output results, we want to include all data records.
- *Suppress initial results* is set to “No”, because we want to be able to see even that later in reporting as well.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.

### 3.2.7 Calculate Current Taxes - After Tax Transfer

This Calculation function is used to calculate positions from report '*3b. Current Tax Calculation*' based on input function '*Conversion to Local Currency*'. Each rule in absolute calculation type is used to create one new reporting position.

In the header of the Calculation function we configure the following settings:

- *Calculation Type* is set to “Absolute”, because input data set in every rule should be the same data set of input function.

- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to add original input data set to the output data as well.
- *Include original Input Data* is set to “Yes”, because besides the produces results the original input data should be added to the output data as well.

### 3.2.8 Calculate Loss Carry Forwards

This Calculation function is used to calculate positions from report '*3c. Tax Loss Carry Forwards*' based on input function '*Calculate Current Taxes*'. Each rule in absolute calculation type is used to create one new reporting position.

In the header of the Calculation function we configure the following settings:

- *Calculation Type* is set to “Absolute”, because input data set in every rule should be the same - data set of input function.
- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to add original input data set to the output data as well.
- *Include original Input Data* is set to “Yes”, because besides the produces results the original input data should be added to the output data as well.

### 3.2.9 Calculate Tax Costs

This Calculation function is used to calculate positions from report '*5. Tax Positions*' based on input function '*Calculate Loss Carry Forwards*'. Each rule in absolute calculation type is used to create one new reporting position.

In the header of the Calculation function we configure the following settings:

- *Calculation Type* is set to “Absolute”, because input data set in every rule should be the same - data set of input function.
- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to add original input data set to the output data as well.
- *Include original Input Data* is set to “Yes”, because besides the produces results the original input data should be added to the output data as well.

### 3.2.10 Calculate Tax Rate Reconciliation

This Calculation function is used to calculate positions from report '*6. Tax Rate Reconciliation*' based on input function '*Calculate Tax Costs*'. Each rule in absolute calculation type is used to create one new reporting position.

In the header of the Calculation function we configure the following settings:

- *Calculation Type* is set to "Absolute", because the input data set in every rule should be the same as the data set of the input function.
- *Result Handling* is set to "Include enriched data", because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to "No", because we want to add original input data set to the output data as well.
- *Include original Input Data* is set to "Yes", because besides the produces results the original input data should be added to the output data as well.

### 3.2.11 Conversion to Group/Global Currency

This Conversion function is used to calculate positions from report '*Group Tax Rate Reconciliation*' based on input function '*Calculate Tax Rate Reconciliation*'.

In the header of the Join function we configure the following settings:

- *Result Handling* is set to "Include enriched data", because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to "No", because we want to be able to see even that later on in reporting as well.
- *Include original Input Data* is set to "No", because for further calculation we need only produced rows.

### 3.2.12 Join of Current and Historical Data

This Join function is used to join the current and historical data.

In the header of the Join function we configure the following settings:

- *Join Type* is set to "Implicit Fields" (which is the default anyway), which means we include all fields from the different data sources automatically.
- *Result Handling* is set to "Include enriched data", because in the output results should be included only data records on which rule was applied.

- *Suppress initial results* is set to “No”, because we want to be able to see even that later on in reporting as well.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.
- *Auto Filling* is set to “No”, because all fields are assumed to be filled and we do not need to engage left outer joins or lookups to complete them sometimes.

### 3.2.13 Calculate and Write Results

This Join function is used to execute tax calculation and to call functions *Writer* to update data set in specific Model tables.

In the header of the Join function we configure the following settings:

- *Join Type* is set to “Implicit Fields” (which is the default anyway), which means we include all fields from the different data sources automatically.
- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to be able to see even that later on in reporting as well.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.
- *Auto Filling* is set to “No”, because all fields are assumed to be filled and we do not need to engage left outer joins or lookups to complete them sometimes.

### 3.2.14 Prepare Input for Accounting Entries

This Join function is used to prepare the relevant entries for temporary differences for posting to the General Ledger and permanent differences for posting to the Tax Ledger.

In the header of the Join function we configure the following settings:

- *Join Type* is set to “Implicit Fields” (which is the default anyway), which means we include all fields from the different data sources automatically.
- *Result Handling* is set to “Include enriched data”, because in the output results should be included only data records on which rule was applied.
- *Suppress initial results* is set to “No”, because we want to be able to see even that later on in reporting as well.
- *Include original Input Data* is set to “No”, because for further calculation we need only produced rows.

- *Auto Filling* is set to “No”, because all fields are assumed to be filled and we do not need to engage left outer joins or lookups to complete them sometimes.

### 3.2.15 Write Results

In this section calculated results from *Calculate Tax Rate Reconciliation* are written to specific model tables.

#### 3.2.15.1 Write Results to Tax Positions

This Writer function is used to read from function *Conversion to Group/Global Currency* and write selected output data set into Model Table *Tax Positions*.

#### 3.2.15.2 Write Results to Analytical Tax Balances

This Writer function is used to read from function *Conversion to Group/Global Currency* and write selected output data set into Model Table *Analytical Tax Balances*.

## 3.3 Reporting

In this section additional Query functions for comfortable review of results by execution users are defined.

In the process these reviews and reporting activities happen, after the Tax Calculation and Reporting is executed.

- *Tax Master Data*, which gives read and edit access to tax master data.
- *Tax Group*, which gives read and edit data access to the tax group company hierarchy.
- *1. Master Data*, which gives read and edit access to master data.
- *2. Tax Rate*, which gives read and edit access to tax rate data.
- *3a. Account Mapping*, which gives read and edit access to account data.
- *3b. Current Tax Calculation*, which gives read and edit access to tax positions data.
- *3c. Tax Loss Carry Forwards*, which gives read and edit access to tax positions data.
- *3d. Tax Transfer*, which gives read-only access to tax positions data.

- *4a. Tax Balance Sheet Comparison*, which gives read and edit access to tax balance sheet data.
- *4b. Deferred Tax Calculation*, which gives read-only access to tax balance sheet result data.
- *5. Tax Positions*, which gives read-only access to tax expense result data.
- *6a. Tax Rate Reconciliation*, which gives read-only access to tax reconciliation result data.
- *Group Tax Rate Reconciliation*, which gives read-only access to overall results.
- *Group Tax Expenses*, which gives read-only access to overall results.
- *Tax Transfer Table*, which gives read-only access to tax postings.
- *Tax Expenses*, which gives read-only access to results with a predefined layout.

#### Note

Specific chart types have not been defined in this sample content. Reports, therefore, use the default "Column" chart type. However, end users can change this type on the fly and save their chart type as the default layout.

### 3.3.1 Tax Master Data

This Query function is used to provide read and edit data access to the tax master data per fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Code* as 'Item'
- *Tax Rate (%)*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.2 Tax Group

This Query function is used to provide read and edit data access to the tax group company hierarchy.

The following fields are preconfigured in that report:

- *Tax Transfer Percentage (%)*
- *Company*
- *Parent Company/Tax Partner*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.3 1. Master Data

This Query function is used to provide read and edit data access to the master data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Company Code* as 'Company Name'
- *Region*
- *Country/Region*
- *Segment*
- *Local Currency*
- *Global Currency*
- *Calculation Scheme Key* as 'Calculation Scheme Key (1-Timing Concept, 2-Temporary Concept)'

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.4 2. Tax Rate

This Query function is used to provide read and edit data access to the tax rate data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Type,*
- *Tax Rate (%).*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.5 3a. Account Mapping

This Query function is used to provide read and edit data access to the account data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Position*
- *Account*
- *Local Currency Amount*
- *Global Currency Amount*
- *Manual Adjustment*
- *Total*
- *Import Factor*
- *Transferred Value*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.6 3b. Current Tax Calculation

This Query function is used to provide read and edit data access to the tax postings data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Position* as 'Tax Postings'
- *Account*
- *Calculation Scheme Text*
- *Local Currency*
- *Local Currency Amount*
- *Source*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.7 3c. Tax Loss Carry Forwards

This Query function is used to provide read and edit data access to the tax postings data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Position*
- *Local Currency*
- *Local Currency Amount*
- *Source*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.8 3d. Tax Transfer

This Query function is used to provide read data access to the tax postings data company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Sent/Received*
- *Parent Company/Tax Payer*
- *Local Currency Amount*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.9 4a. Tax Balance Sheet Comparison

This Query function is used to provide read and edit data access to the balance sheet data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Account*
- *Source*
- *Local Currency*
- *IFRS - Prior Period*
- *Permanent Difference Tax Base/IFRS - Prior Period*
- *Temporary Difference Tax Base/IFRS - Prior Period*

- *Tax Base - Prior Period*
- *Changes in Permanent Difference Tax Base/IFRS*
- *Changes in Temporary Difference Tax Base/IFRS*
- *IFRS - Current Period*
- *Permanent Difference Tax Base/IFRS - Current Period*
- *Temporary Difference Tax Base/IFRS - Current Period*
- *Tax Base - Current Period*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.10 4b. Deferred Tax Calculation

This Query function is used to provide read and edit data access to the deferred tax data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Account*
- *Local Currency*
- *Deferred Tax - Prior Period*
- *Deferred Tax Asset - Prior Period*
- *Deferred Tax Liability - Prior Period*
- *Deferred Tax - Current Period*
- *Deferred Tax Asset - Current Period*
- *Deferred Tax Liability - Current Period*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.11 5. Tax Positions

This Query function is used to provide read and edit data access to the deferred tax data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Position*
- *Local Currency*
- *Local Currency Amount*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.12 6a. Tax Rate Reconciliation

This Query function is used to provide read data access to the tax reconciliation data per company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Position*
- *Local Currency*
- *Local Currency Amount*
- *Rate (%)*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.13 Group Tax Rate Reconciliation

This Query function is used to provide read data access to the tax reconciliation data on group level per fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Position*
- *Global Currency, Company Code*
- *Global Currency Amount*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.14 Group Tax Expense

This Query function is used to provide read data access to the tax reconciliation data on group level per fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Tax Position*
- *Global Currency*
- *Company Code*
- *Global Currency Amount*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.15 Tax Transfer Table

This Query function is used to provide read data access to the tax postings data company code, fiscal year and posting period defined as variables in report.

The following fields are preconfigured in that report:

- *Company Code*
- *Partner Company*
- *Global Currency Amount*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.16 Tax Expense

This Query function is used to provide read data access to the tax expense data per company code.

The following fields are preconfigured in that report:

- *Tax Position*
- *Global Currency Amount* as 'Tax Expenses'
- *Company Code*
- *Local Currency Amount*

- *Tax Expenses*
- *Tax Rate (%)*

Suggested report view for Analyze Screen:

- Report View as *Chart*
- Chart Type as *Pie*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.17 Input for Adjustment Posting – Permanent Differences

This Query function is used to provide read data access to the proposed adjusting entries in the Tax Ledger based on permanent differences, for each company code.

The following fields are preconfigured in that report:

- *Ledger*
- *Local Currency Amount*
- *Global Currency Amount*
- *Debit/Credit*
- *Company Code*
- *Document Date*
- *Account to be posted*
- *Local Currency*
- *Global Currency*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*

Save layout and mark as *Default Layout* to configure default view of query.

### 3.3.18 Input for Accrual Posting – Temporary Differences

This Query function is used to provide read data access to the proposed accrual entries in the General Ledger based on temporary differences, for each company code.

The following fields are preconfigured in that report:

- *Ledger*
- *Debit/Credit*

- *Local Currency Amount*
- *Global Currency Amount*
- *Company Code*
- *Document Date*
- *Local Currency*
- *Global Currency*
- *Account to be posted*

Suggested report view for Analyze Screen:

- Report View as *Data Grid*



Save layout and mark as *Default Layout* to configure default view of query.

# Important Disclaimers and Legal Information

## Hyperlinks

Some links are classified by an icon and/or a mouse over text. These links provide additional information.

About the icons:

- Links with the icon  : You are entering a Web site that is not hosted by SAP. By using such links, you agree (unless expressly stated otherwise in your agreements with SAP) to this:
  - The content of the linked-to-site is not SAP documentation. You may not infer any product claims against SAP based on this information.
  - SAP does not agree or disagree with the content on the linked-to-site, nor does SAP warrant the availability and correctness. SAP shall not be liable for any damages caused by the use of such content unless damages have been caused by SAP's gross negligence or willful misconduct.
- Links with the icon  : You are leaving the documentation for that particular SAP product or service and are entering a SAP-hosted Web site. By using such links, you agree that (unless expressly stated otherwise in your agreements with SAP) you may not infer any product claims against SAP based on this information.

## Beta and Other Experimental Features

Experimental features are not part of the officially delivered scope that SAP guarantees for future releases. This means that experimental features may be changed by SAP at any time for any reason without notice. Experimental features are not for productive use. You may not demonstrate, test, examine, evaluate or otherwise use the experimental features in a live operating environment or with data that has not been sufficiently backed up.

The purpose of experimental features is to get feedback early on, allowing customers and partners to influence the future product accordingly. By providing your feedback (e.g. in the SAP Community), you accept that intellectual property rights of the contributions or derivative works shall remain the exclusive property of SAP.

## Example Code

Any software coding and/or code snippets are examples. They are not for productive use. The example code is only intended to better explain and visualize the syntax and phrasing rules. SAP does not warrant the correctness and completeness of the example code. SAP shall not be liable for errors or damages caused by the use of example code unless damages have been caused by SAP's gross negligence or willful misconduct.

## Gender-Related Language

We try not to use gender-specific word forms and formulations. As appropriate for context and readability, SAP may use masculine word forms to refer to all genders.



[www.sap.com](http://www.sap.com)

© 2021 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company. The information contained herein may be changed without prior notice.

Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

Please see <https://www.sap.com/corporate/en/legal/copyright.html> for additional trademark information and notices.