This sample chapter describes the entities that make up the planning model in SAP Integrated Business Planning (SAP IBP). These entities combine to define the structure of an organization’s supply chain network and the flows in that network.
To understand and use the SAP IBP planning solution, it's essential to know the basic concepts and building blocks of the SAP IBP system. This chapter will guide you through the concepts of a planning model for SAP IBP.

4 Building Blocks of a Planning Model

Supply chain planning in SAP Integrated Business Planning (SAP IBP) is performed through planning models. A planning model is a well-defined structure of master data, transaction data, and associated calculations to manage and optimize a supply chain network. As the foundation of SAP IBP, the planning model consists of entities that together define the structure of an organization's supply chain network and the flows in that network.

Because every organization is different in terms of its product and supply chain, every organization requires a unique planning model to plan, execute, and analyze the processes relevant to procurement, manufacturing, and delivery. However, the basic building blocks covered in this chapter are the same for most organizations. Along with understanding the organization’s nature, products, material flow, customers, and planning requirements, the planning model entities can be used to develop the model in SAP IBP.

The entities of the planning model that will be discussed in this chapter are as follows:

- Attribute
- Time profile
- Planning level
- Key figure calculation logic
- Version
- Reason code
- Snapshot configuration
- Master data type
- Planning area
- Key figure
- Planning operators
- Scenario
- Global configuration parameters
4.1 Attribute

Attributes are basic information elements of a supply chain entity. In a logical group, combinations of attributes can define master data or a physical element of a supply chain network. A product in a company is normally associated with information such as product identification number (product ID), product name, and market segment. Hence, to model a supply chain network, the first required activity in the design phase is the identification of all the attributes relevant for the planning model.

Based on the property of the attribute, it can be created and used as a character, an integer, a decimal, or a time stamp, as follows:

- **Character**
  
  Characters are the most widely used attribute type in designing and building the supply chain solution in SAP IBP. Product description, market type, customer name, and resource name are examples of attributes used as character elements.

- **Integer**
  
  Integer values may be required for information elements such as lead time, period of coverage for safety stock, or system setting values of lot size policy indicator. Those information elements are created as integer attribute types in SAP IBP.

- **Decimal**
  
  Decimal attributes are used for numerical value maintenance across the time horizon and for using the attributes as key figure data. If the numeric value of an information element remains the same across the time period, mapping this as a decimal attribute can be considered. Information elements that are generally considered for the decimal attributes are cost, capacity supply, consumption rate, currency conversion exchange rate, and production rate.

- **Time stamp**
  
  Multiple information elements require the data maintenance in terms of date or time, and those information elements are created as time stamp attributes. Product introduction or discontinuation date, promotion start date, and material availability date are examples of the data elements that can be captured via the time stamp attribute.

After completing the attribute configuration, every attribute for the planning model design is created and is available to use in SAP IBP per the solution design.

4.2 Master Data Type

Multiple attributes together define a master data type. Master data represents a physical product, locations, flow directions, resources, components, or a combination of them. Master data elements together build the supply chain network and can be used to work with planning data. For example, a sales forecast is a number for the projected sales of a product from a selling location against a customer’s requirement; here, the product, location, and customer are examples of master data elements whose combination is used for forecast planning data. A recommended set of master data types must exist for planning in SAP IBP. However, the information attached to a master data type can be specific to an organization and needs to be defined as an attribute for selection in the master data type.

For example, the product master data type, which is an essential master data type for SAP IBP, can be built of product ID, description, introduction date, product type, and multiple other attributes that are relevant for an organization to perform planning, execution, and analytics activities. For solution implementation, we recommend a top-down approach to master data and attribute types. The master data type relevant for the planning solution should be identified first, and then the required attributes can be created.

While adding the attributes for master data, an attribute can be further identified as a key or required attribute. A key attribute defines the basic building block of an independent dimension data element and becomes a required attribute by default. On the other hand, an attribute whose null value isn’t an accepted criteria in the master data type can be assigned as a required attribute without marking it a root. For example, in product master data, product ID (represented by PRDID) is a root attribute that must have a value for the product to even exist in the system. Other attributes such as product group, product family, etc. are extensions of the product information identified by the product ID.

Table 4.1 shows an example of a product master data type and its associated attributes. Product ID is the key attribute, which defines the existence of product master data in the system. Without a valid value for this attribute, any combination of data for other attributes can’t define product master data. Due to this restriction, product ID is a required attribute. Product geography isn’t a key attribute but is a required attribute; hence, a blank value won’t be accepted. The value example columns in Table 4.1 that highlight the importance and management of attribute...
characteristic while maintaining the master data in the system. Master data types source production and production source item have multiple keys.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Technical Name</th>
<th>Value Example 1</th>
<th>Value Example 2</th>
<th>Key</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product ID</td>
<td>PRDID</td>
<td>2345489210</td>
<td>2679012780</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Product description</td>
<td>PRDESCR</td>
<td>ABC1 product</td>
<td>ABC2 product</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Market segment</td>
<td>MKTSG/MNT</td>
<td>Retail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product family</td>
<td>PRDFAMILY</td>
<td>FRGCA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product geography</td>
<td>PRDGEOG</td>
<td>USA</td>
<td>EU</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4.1  Key and Required Attributes in the Master Data Type

Based on configuration and basic nature, master data types in SAP IBP are categorized as follows:

- **Simple master data type**
  A simple master data type represents one independent master data element in the supply chain. Product, location, customer, resource, and so on are examples of simple master data types. To create a simple master data type, you select the name and ID of the master data and assign the relevant attributes, which together defines the property of the master data element.

- **Compound master data type**
  Compound master data represent a combination of two or more simple master data types, which helps integrate the entities of the supply chain. A product and location individually represent the characteristics of a material and a location through simple master data; however, location/product as compound master data represents a product that has been extended to a particular location. On a similar note, product/location/customer is a compound master data type showing a product that has been extended to a location from which it can be supplied to a customer. Compound master data is created by selecting associated simple master data and relevant attributes of simple master data types.

  In general, a simple master data type has a single key attribute, and a compound master data type is a combination of two or more simple master data types and can have multiple key attributes.

Figure 4.1 shows examples of simple and compound master data types. Simple master data type examples are represented with location and product master data. The compound master data type example consists of simple master data types of location and product to create the location/product master data type.

- **Reference master data type**
  A reference master data type refers to another master data element and doesn’t require a separate data load. A reference master data type is used when the primary data elements of a data set are the same as or a subset of another set of data. For example, every component is also a product, so the component can be created as a reference master data type while referring to the product master data. While creating a reference master data type, you need to refer to an attribute of the parent master data. Hence, if the component is created as reference master data while referring to product master data, the component ID will refer to the product ID, the component description will refer to the product description, and so on.
> **Virtual master data type**
A virtual master data type doesn’t store any data; instead, it’s used to join two or more master data types so that the attribute of one master data type is available for other. A virtual master data type can be built by joining two or more simple or compound master data types through a join condition, which can be a common attribute of different master data, so that other attributes are also available.

> **External master data type**
An external master data type is used to integrate the master data content from an external SAP ERP or SAP S/4HANA system. It allows a near real-time integration of the master data element from the source system to SAP IBP. For an external master data type, an external data source table is used, and the characteristics of the master data are mapped with the reference attribute of the source table from the external master data system.

### 4.3 Time Profile

Time periods and data storage parameters relevant for planning in SAP IBP are defined through time profile maintenance. Start and end times for planning relevant duration are maintained in the time profile. A time profile can have multiple buckets of planning time such as day, week, month, quarter, and so on. A base level value in a time profile is used to create parent-child relationships for aggregation and disaggregation. The smallest time bucket is assigned level 1, and so on up. For example, if a time bucket is relevant for day, week, and month, then the levels assigned will be 1, 2, and 3, respectively; the week planning level will get day as the base planning level. The relationship hierarchy of the planning level and base planning level allows seamless aggregation and disaggregation of data from daily to weekly, monthly, quarterly, yearly, and the other way round. The time profile also controls the default display of time periods for every planning time bucket in SAP IBP Excel planning view.

In SAP IBP, every time period of the time profile is represented by a unique identification number called PERIODID; for example, Week 24 (W24) of year 2018 will be assigned a period ID number of say 56234, W25 can be assigned a number as 56235, and so on. These unique identifiers in background tables help make data processing and retrieval more efficient for different buckets of the time horizon.

### 4.4 Planning Area

A planning area is a unified structure in which planning and analytics processes are performed in SAP IBP. It holds the entire set of master data, time periods, associated attributes, planning levels, and key figures to perform the planning in SAP IBP and to fetch the data in a unified set for analytics usage. The SAP IBP Excel planning view is connected to one planning area and can be set as a default planning area for a user. For project implementation and infrastructure management purposes, an organization can create multiple planning areas for configuration, test, and active environments. Data from one planning area to another can’t be transferred automatically. To perform different planning methodologies (say demand planning, supply planning, and inventory optimization) in a singular planning area, SAP IBP supports the configuration of a unified planning area.

In the planning area, planning-relevant parameters are defined and used. Both the time profile and storage planning level of the time period are assigned in a planning area. The exact planning period, which can be a subset of the time profile
Building Blocks of a Planning Model

The planning horizon works on a rolling basis, so a selection of -12 to 24 months in the planning horizon of the planning area makes the planning relevant for the preceding one year to the next two years on a rolling basis.

Master data types are selected for a planning area, which makes all the attributes of the master data type planning relevant. If the business requires you to move the current period to a period in the past (say a week or a month) for planning purposes, then it can be achieved by using the current period offset functionality in the planning area. Through settings in the planning area, you can define whether a particular planning area is relevant for supply planning, external data integration, and change history enablement. Relevant planning calculation logic through planning operators is assigned in the planning area and can be used through interactive or batch modes to perform those operations for the data elements in the planning area.

4.5 Planning Level

Planning level is a combination of attributes from master data type and time period: it defines the label for the transaction data in the planning area. Every transaction data point exists at a planning level. Aggregation and disaggregation of the key figure is based on the hierarchical structure created by the planning levels. For example, forecast data can be defined for a time bucket (say, a month), a product, a replenishment location, and a customer; hence, a planning level period/product/location/customer can be created and assigned in the planning area for usage in the customer forecast key figure. Another planning level period/product/location can be used for calculating the aggregated forecast for all the customers in a particular time period for the selected product at a selected replenishment location.

In a planning level, the attributes selected can be further defined as a root. A root attribute defines an independent dimension that denotes the mandatory information for having a set of data selected at the relevant planning level. For reading data at a particular level, the root attribute must have a non-null value. Generally, a required attribute of master data is selected as the root attribute for the planning level, although any other attribute can also be made a root attribute of a planning level if relevant for aggregation or disaggregation. Figure 4.2 shows examples of the SAP sample planning level, Period|Product|Location, which is the combination of period, product, and location master data types with the root attributes selected as the required attributes of product and location, as well as the monthly attribute of the time period.

4.6 Key Figure

Key figures in SAP IBP represent supply chain planning and execution-relevant numerical values in periodic time buckets. Numbers such as sales orders, forecasts, and projected inventories are identified as key figure elements. Every key figure has a base planning level at which its value is stored, calculated, or manually edited. Values at other planning levels can be read through the defined.
aggregation and disaggregation in the key figure definition. A sales forecast number is generally calculated in SAP IBP at the period/product/location/customer planning level, and the period can be day, week, month, and so on. Forecast information at higher or lower planning levels is obtained through the respective aggregation and disaggregation logic maintained in the key figure. Aggregation logic in SAP IBP can be sum, minimum, maximum, average, or custom. An aggregation logic is selected during the system configuration per the nature of the key figure. For example, the projected inventory key figure will have a different aggregation logic than a sales order key figure. The disaggregation mode of a key figure can be copy, equal distribution, or proportional. Disaggregation in the SAP planning system distributes the data to lower planning levels. For example, if a forecast is updated in a monthly bucket, the update in the weekly bucket will be based on the disaggregation mode.

Key figures in SAP IBP can be categorized as key figures, helper key figures, or attribute transformations. Most of the standard key figures are created as key figures for which the values can be stored, calculated, or edited, and any specific calculation logic can be provided. These key figures can be accessed through the Excel planning view. Helper key figures are used to hold the intermediate values for complex calculations, and it’s a standard practice to prefix helper key figures with “**H**”. Helper key figures aren’t applicable for the Excel planning view and aren’t visible to the end user accessing the planning views. Because these are only used to perform intermediate calculations, helper key figures aren’t relevant for storage, editing, aggregation, or disaggregation.

An attribute transformation key figure is used for changing the value of an attribute that can be used for further calculation or data editing. For example, time period is an attribute, and a specific time, for example, a week, is represented by an attribute, say **PERIODID0**. Through attribute transformation, we can copy the base planning level of **PERIODID0** and change the value of this attribute by providing calculation logic (an example may be putting an offset for a few time periods), and this calculation can impact a key figure value as input. In this case, the attribute transformation may allow the values of the key figure to shift by the periods mentioned in the calculation. Usage of the functionalities of key figure, helper key figure, and attribute transformation key figure depend on the business requirements and are used to perform the required calculations in the most efficient fashion.

If a real-time integration with an execution system (e.g., SAP ERP or SAP S/4HANA) is required for the key figure, then the key figure must be assigned as an external key figure. The precondition of using the external integration in the key figure is that the planning area has been identified as relevant for external integration through the configuration checkbox in the planning area. Hence, key figures such as inventory, sales order, purchase order, etc. can be dynamically integrated in SAP IBP through external data integration to have the most recent value in the planning system as the execution system.

A standard key figure can be marked as an alert key figure by selecting the **Alert Key Figure** value. An alert key figure works in binary format in SAP IBP with the allowed value as 1 or 0, which represent “yes” and “no,” respectively. An alert key figure must be calculated and can’t be stored or edited. Alert key figures require defined calculation logic that results in either positive or negative (assigning the value as 1 or 0) and hence provide the information in the SAP IBP database to generate the alert based on this key figure.

Through system configuration settings, it’s possible to control the logic of editing a key figure as well as its usage for supply planning. For an editable key figure, editing the key figure can be controlled for the time periods by setting whether the edit can be performed only in the past, current, or future bucket, or if it can be performed in all the past, present, and future time buckets. A key figure can also be marked as system editable, which is applicable for the values of the key figure as calculated by the SAP IBP planning algorithm. Usage in supply planning is marked if a key figure is either input, output, indirect input, or both input and output for supply planning. It may be possible that a particular key figure isn’t relevant as I/O (input or output) for supply planning.

Figure 4.3 shows examples of standard, alert, and helper key figures from an SAP IBP system. **DEPENDENTLOCATIONDEMAND** is a stored key figure as an output of the planning algorithm and is available for planner’s review in the planning view. **CAPACITYOVERLOADALERT** here can get the value of 0 or 1 and hence will either generate an alert or not. A helper key figure is used here for an intermediate calculation and isn’t available for review in the planning view by planners.
As discussed in the previous section, calculation logic can be provided in the key figure to calculate the values as required in SAP IBP. A key figure stored, maintained, or edited at the base planning level may need to get the value from another planning level through a request-level calculation logic. Request level calculation defines the logic through which the key figure data can be fetched from other relevant planning levels in the key figure. Request level calculation happens through the aggregation logic (sum, minimum, maximum, average, or custom). Sum is the most popular request level aggregation logic used in SAP IBP as generally the roll-up of the planning level works with the sum logic. However, key figures such as projected inventory, capacity threshold value, and forecast error may require different logic, including custom, maximum, average, etc. For request level calculation, every key figure needs to be analyzed for the aggregation function usage.

When writing the key figure calculation, the key figure calculation functions are also important. The following examples are provided for referencing the key figure configuration calculation:

- **Aggregation logic**
  Aggregation logic calculations are used to calculate the key figure value from the base planning level to the higher planning level. This is achieved by writing the request level calculation while referring to the base planning level number.

  \[
  \text{SALESORDER}_{\text{Request}} = \text{SUM} (\text{SALESORDER}_{\text{PerProdLocCust}})
  \]

  This represents the calculation of key figures at the request level with the logic of summation from the base planning level of period/product/location/customer. For the planning calculation if the sales order key figure is displayed at period/product/location level, the value is calculated from the summation of all the sales orders for all the customers in the time period for a location/product combination.

- **Disaggregation logic**
  Disaggregation logic calculations are based on using the disaggregation operators such as copy, equal, proportional, or custom, as discussed in the previous section.

- **Mathematical operation**
  Mathematical operators are simplified tools used to perform key figure calculations based on the specific business requirement. Standard operators are used to perform the required calculation. Figure 4.4 shows one SAP standard example of the usage of mathematical operators. In this example, a helper key figure is used to hold the total cost value, multiplication of cost per unit, and
constrained demand, and the gross profit is calculated by subtracting the total cost from the revenue.

<table>
<thead>
<tr>
<th>GROSSPROFIT</th>
<th>SUM(&quot;GROSSPROFIT&quot;.&quot;genEnlCost&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROSSPROFIT</td>
<td>&quot;CONSTRAINEDDEMANDPLANLEVEL&quot;.&quot;genEnlCost&quot; - &quot;NATURALCOST&quot;.&quot;genEnlCost&quot;</td>
</tr>
<tr>
<td>NPERATURE</td>
<td>&quot;COSTPERUNIT&quot;.&quot;genEnlCost&quot;</td>
</tr>
</tbody>
</table>

**Figure 4.4** Mathematical Operator Usage for Key Calculation

- **Usage of IF criteria**
  Conditional argument IF is used widely in SAP IBP key figure calculation to perform the calculations based on the required logic. The simple logic of the IF condition argument can follow the format `Keyfigure@planning level = IF`. Usage of this format can be further illustrated by a key figure example in the SAP2 planning area of SAP IBP as represented in Figure 4.5. `ACTUALSPRICE` key figure at request level calculation is happening through an IF condition. If the `ACTUALSQTY` key figure in a time period is 0, then the `ACTUALSPRICE` gets the value assigned for the time period; if the `ACTUALSQTY` key figure’s value isn’t equal to 0, then the value of the `ACTUALSPRICE` key figure is calculated by dividing the `ACTUALSQTY` key figure’s value from the `ACTUALSREV` key figure’s value in the time period.

  In Figure 4.5, the `COMPONENTCOEFFICIENT` key figure demonstrates the conditional argument IF along with another conditional argument ISNULL. The ISNULL argument is used to identify the values that aren’t marked as 0 but have a blank or null value.

- **Nested IF criteria**
  Conditional arguments for key figure calculations can also work on the nested IF argument for performing complex calculations based on multiple conditions. The format to write and read the nested IF condition follows similar logic to an IF condition. Figure 4.6 shows an example of using a complex argument designed through a nested IF argument. Note that the ELSE value (when the IF condition isn’t correct) has its own IF argument to calculate the value required for the consensus accuracy key figure percentage. The same key figure also uses another functional argument ABS (absolute value).

**Figure 4.5** Usage of the IF Conditional Argument for Key Calculation

**Figure 4.6** Nested IF Conditional Argument for Key Calculation

- **Usage of attributes in key figure calculation**
  Attributes created in SAP IBP can also be used for key figure calculations if required. The most widely used period-related attributes use the time buckets to identify past, present, or future time periods for the key figure calculations. The attribute in the key figure calculation is selected by using double quotation marks (e.g., “attribute”). The availability of the attribute for a key figure calculation is
restricted by selection of the attribute at the planning level for which the key figure is being calculated through the key figure calculation expression.

For a planning configuration in which week represents the lowest time bucket and hence the **PERIODID0** value represents the weekly bucket, if a calculation is required for the future bucket only, the following can be used to perform the calculation only for the future:

```
IF("PERIODID0" > "$$PERIODID0CU$$
```

Using this, **PERIODID0** checks whether the relevant week for the calculation is greater than the current week as represented by standard attribute **$$PERIODID0CU$$** for the current time period.

Another example is performing a calculation only for the product of a particular product type. If the product type attribute is represented as **PRDTYPE**, and the check needs to happen for **ABCTYPE** to put a value of 1 if true and 0 otherwise, then the argument can be written as follows:

```
IF("PRDTYPE" = "ABCTYPE", 1, 0)
```

Figure 4.7 shows the calculations for a demand planning quantity using period ID. For the past period, the value is copied from the actuals quantity (**ACTUALSQTY** key figure), and for the future, it’s calculated through marketing promotion forecast (**MKTG PROMOTIONFCSTQTY**) and demand planning quantity (**DEMANDPLANNINGQTY**).

---

**4.8 Planning Operators**

Planning operators are the algorithms that compute key figure data through a defined logic. They provide readily available references to perform supply chain planning and analytics operations. Examples of using the planning operators can be as simple as copying one key figure to another key figure or as complex as calculations such as statistical forecasting, supply heuristics, or inventory optimization.
<table>
<thead>
<tr>
<th>Technical Name</th>
<th>Name</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DELABNDCOMBOS</td>
<td>Delete abandoned combinations</td>
<td>If some of the root master data types have been deleted from the system, clean the system and makes it consistent by deleting any abandoned planning combinations.</td>
</tr>
<tr>
<td>DISAGG</td>
<td>Disaggregate</td>
<td>Perform the copy and disaggregation of source key figures to target key figures while having the flexibility to select the duration and any period offset. The disaggregation operator can be used even if the source and target key figures are stored at different planning levels. Through parameters, the attribute is provided for the source key figure, which may be at the base planning level or higher than the base planning level for the target key figure. Consider a case where the source is at period/product/customer, and the target key figure is at period/product/location level. The planning operator can be executed at the product level, and the disaggregation at target happens for the location/product level.</td>
</tr>
<tr>
<td>GROUP</td>
<td>Group multiple operators</td>
<td>Define a group of planning operators to be executed as a single batch job. The execution can be triggered by the user or can be automated by assigning a key figure whose value import in the SAP IBP system triggers the group operator. A parameter can be assigned to control the execution of the remaining operators if any of the operators in the group results in an error.</td>
</tr>
<tr>
<td>IBPFORECAST</td>
<td>Statistical forecasting</td>
<td>Run the statistical forecast for the defined model in simulation or batch mode.</td>
</tr>
<tr>
<td>IO</td>
<td>IO (Inventory optimization)</td>
<td>Perform single-stage or multistage inventory optimization through selection of relevant parameter such as SINGLE STAGE IO or MULTI STAGE IO. Other planning functions through this operator are expected demand loss, forecast error, and component inventory. We’ll discuss these in detail in Chapter 13, which is devoted to inventory optimization in SAP IBP.</td>
</tr>
</tbody>
</table>

For a planning operator to be relevant and available for a planning area, the operator must be assigned in the planning area during configuration.

Table 4.3 Standard Planning Operators (Cont.)
4.9 Version

Version in SAP IBP provides the functionality to create and use alternative plans and what-if scenario planning. The base version is the inherent active version of the SAP IBP system that is used for active planning and data integration. Other simulation versions can be configured in the system to support the alternative plans. Alternative plans through versions can share the master data with the base version or can have their own set of master data.

Versions are highly efficient and useful tools for the planners to perform simulation planning to identify and finalize the best demand-supply plan as well as for easy collaboration with team members. Master data and key figure values can be copied from one version to another and can be analyzed and compared in a planning view. Planning operators can be executed for a specific version; for example, a planner can copy the master data and key figures from the active version to a simulation version; change the capacity, forecast, cost parameters; execute a supply or inventory optimization; and then compare the results in the simulated version with the base version. Planning data in the version is available to every other member in the planning team with the required authorization to work in the version, and it doesn’t require an essential sharing of the version from one planner to another. The simulation version’s key figures can be copied back to the base version’s data if simulation decisions result in a better plan output.

Organizations also use the version capability to copy the data before the planning cycle ends (e.g., daily or weekly cycle) into a different version for analysis and comparison purposes. Version-specific simulation planning can be performed for the entire data set of the base or simulation version or by selecting a smaller set through the filter capability of using the versions in planning interfaces. Copying master data and key figures between versions can be performed interactively by users or can be scheduled in the background.

4.10 Scenario

Scenarios are used by planners to perform simulation planning on the fly. Planning data in a scenario are available only to the planner who has created the scenario and for the team members with whom the scenario has been shared by the scenario creator. The baseline scenario is provided in the system, which contains the data in the active database. Multiple simulation scenarios can be created by the planners for planning review and change impact analysis by adjusting a planning variable and using the planning operators to analyze its impact. Scenario planning data can be promoted to the baseline scenario to overwrite the active data. Other than promoting to the baseline data, a scenario can also be deleted, duplicated, or reset. Deletion removes both the scenario and its data, whereas reset erases the data in the scenario while still keeping the scenario for future usage. The duplicate option duplicates the selected scenario and creates a new one for further simulation exercises.

A scenario doesn’t contain its own master data, and it shares the master data with the baseline scenario. Planners can create scenarios in the planning interface without any preconfiguration.

Figure 4.8 shows the scenario interface in the planning interface and an example of data displayed with multiple versions and scenarios.

4.11 Reason Code

Reason codes are required to tag, share, and retrieve the information related to a change in the plan. Multiple reason codes can be configured in the SAP IBP environment. When a user changes some data in the planning view, he can select a reason code, provide an associated comment, and share it with an existing SAP Jam group. In this manner, the comment and reason code are published in the SAP Jam collaboration page for the team members in that particular SAP Jam
group. Information in the SAP Jam collaboration page appears with a hashtag (#) and the reason code. Clicking on this provides all the comments related to this reason code. This is an efficient information-sharing mechanism; for example, if a sales manager adjusts the forecast for a market segment based on market information, the change can be tagged through a reason code like "Market intelligence input" with further comment and can be shared with the entire sales and marketing team related to the product segment. The data will be changed in real time through SAP IBP database changes, and the information will be shared with the relevant people in real time. If there are any further changes with this forecast with the same reason code, all the changes and comment information can be reviewed together through the # grouping functionality of the reason code. An example with system screenshot has been provided in Chapter 6, Section 6.2.3.

### 4.12 Global Configuration Parameters

Global configuration parameters are used to define default application settings used in SAP IBP that control system behavior. Global parameters can be used to make all charts and graphs available for public use or to restrict them for the user’s authorization, for example. Global parameters are defined through parameter group, parameter name, and parameter value. Parameter group is provided as the standard part of the solution to control a particular application by maintaining the value for the parameter. Parameter name can be selected by the user while configuring the global parameter for a group. Information relevant to the parameter group is provided in Table 4.4.

<table>
<thead>
<tr>
<th>Parameter Group</th>
<th>Solution Area</th>
<th>Control Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALYTICS</td>
<td>Analytical charts and dashboard applications</td>
<td>Access to charts, graphs, and default number of alerts display</td>
</tr>
<tr>
<td>COLLABORATION</td>
<td>SAP Jam integration</td>
<td>Enable the collaboration through the SAP Jam application</td>
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<tr>
<td>FORECAST</td>
<td>Statistical forecast</td>
<td>Forecast algorithm when some historical data is missing; allows whether a negative forecast is acceptable</td>
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<tr>
<td>HOME_PAGE</td>
<td>Dashboard</td>
<td>Default planning area of the SAP IBP dashboard</td>
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Table 4.4 SAP IBP Global Configuration Parameters

### 4.13 Snapshot Configuration

The snapshot application is used to save the values of a particular key figure at different points in time so that the changes in the value can be tracked over time. This can be highly useful in business scenarios and metrics related to demand sensing, schedule adherence, plan change tracking, etc. Figure 4.9 shows the snapshot configuration in the SAP IBP system.

SAP IBP can support a maximum of nine snapshots for a key figure. A snapshot key figure in the planning view appears with the key figure name, the suffix for snapshot, and the snapshot number. Snapshots are triggered through the planning operator and can be executed periodically. For example, a snapshot can be configured for a forecast key figure so that three snapshots are taken for the preceding three months. The forecast values for a product group or customer group can be analyzed over a period of time to understand the consistency and to take action if required.
4.4 Building Blocks of a Planning Model

Figure 4.9  Snapshot Configuration

4.14 Summary

This chapter defined the concepts of the planning model and associated elements in SAP IBP. Basic elements covered include master data types, attributes, time profiles, planning areas, planning operators and key figure calculations. Also discussed were more advanced capabilities such as the creation of multiple planning versions, user-driven scenarios and key figure snapshots. You’re now equipped with the knowledge required to build the solution in the SAP IBP system per your organization’s supply chain infrastructure, design, and requirements. The next chapter will focus on step-by-step creation of the building block items.
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