UN 3 UNIFY DIMENSIONS

Data in reports and presentations can be viewed from various perspectives called *dimensions*. For example, all business measures, such as sales, profit, margin, etc., constitute a measure dimension, all months, quarters, years, etc., a time dimension.

Identifying dimensions via uniform visualization will help to understand reports and presentations.

This section suggests visualization standards for measures, scenarios, time periods, and structure dimensions.

UN 3.1 UNIFY MEASURES

Business *measures* such as sales, profit, margin, etc. describe, report, and calculate business situations. A standardized notation will help to comprehend the specific characteristics of measures, e.g. whether they are basic measures or calculated ratios of measures, whether they represent value or volume figures, flow or stock figures, or whether they have a positive or negative impact, see Figure UN 3.1.

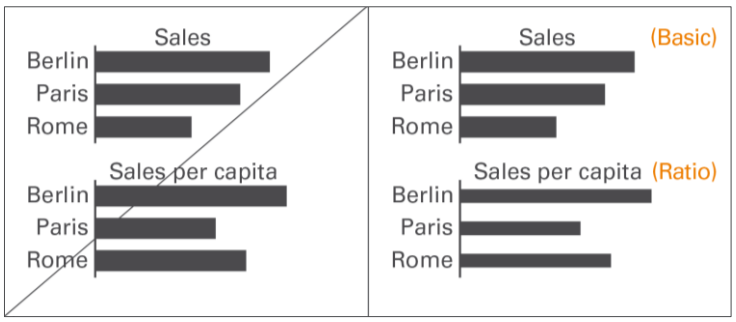

Figure UN 3.1: Unify measures

The *visualization* of business measures is presented here. Their *definition*, generally given in accounting manuals or similar documentation, is *not* discussed here. For the *unified wording* of business measures and their abbreviations see the UNIFY rule UN 1.1 “Unify terms and abbreviations”.

BASIC MEASURES AND RATIOS

Basic measures such as “export sales” are directly derived from business processes. *Ratios* such as “return on sales” are quotients of two basic measures.

Basic measures

Basic measures have either *currency units* (e.g. EUR) or *physical units* (e.g. kg). They are neither shares of something (percentages) nor quotients of two measures.

Use 2/3 of the category width for the column width in *column charts* and the bar width in *bar charts* to visualize basic measures, see Figure UN 3.1-1.

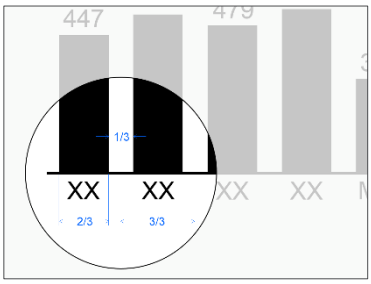

Figure UN 3.1-1: Monthly basic measures in a column chart (example)

Use thick lines for representing basic measures in *line charts*, see Figure UN 3.1-2.

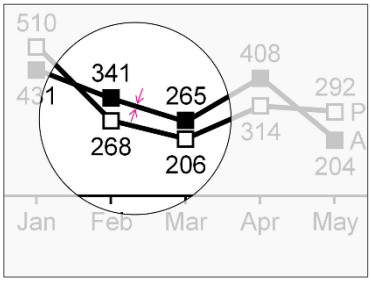

Figure UN 3.1-2: Monthly basic measures in a line chart (example)

Ratios

Ratios are quotients of two basic measures such as “return on sales”. In practice, few denominators exist: “Sales”, “units sold”, “headcount”, and “capital” constitute the majority of all business ratios.

If both the enumerator and denominator have the same unit the resulting ratio has no unit. It is expressed in *percent* (e.g. “profit in % of sales”).

In addition, if both enumerator and denominator have the same basic measure (e.g. “headcount”), it is called a *share* (e.g. “gender share”).

The width of both bars and columns representing *ratios* is 1/3 of the category width, i.e. 50% of the width of bars and columns representing *basic measures*, see Figure UN 3.1-3.

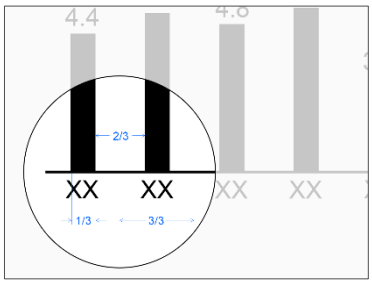

Figure UN 3.1-3: Monthly ratios in a column chart (example)

Represent ratios in *line charts* with thin lines (50% of thick lines), see Figure UN 3.1-4.

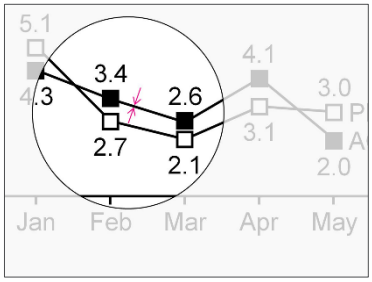

Figure UN 3.1-4: Monthly ratios in a line chart (example)

VALUE AND VOLUME

Value measures such as “profit” and “capital” have currency units. *Volume* measures such as “shipment” and “headcount” have physical units.

A future version of the IBCS will address the visualization of value and volume measures.

FLOW AND STOCK

Flow measures like “net sales” relate to a certain *time period* such as months or years. *Stock* measures like “inventory” relate to a certain *fixed date*, such as December 31st of 2015 (at midnight).

A future version of the IBCS will address the visualization of flow and stock measures.

POSITIVE, NEGATIVE, AND NEUTRAL IMPACT

An increase of a *positive measure* such as “profit” or “sales” positively impacts the organization’s result.

An increase of a *negative measure* such as “cost” or “waste” negatively impacts the organization’s result.

An increase of *neutral measures* such as “market size” or “investment” has no direct impact to the organization’s result.

A future version of the IBCS will address the visualization of positive, negative, and neutral impact.

UN 3.2 UNIFY SCENARIOS

Scenarios (also called data categories, data types, or versions) represent different layers of a business model. Typical scenarios are “Actual”, “Previous year”, “Plan”, “Budget”, and “Forecast”. In special cases *benchmarks* such as competitor data or market averages are also called scenarios.

Often comparisons and variances between different scenarios are presented to provide business insights.

There are two basic types of scenarios:

1 **Actual scenarios** refer to *measured* data about things that already happened in present or past time periods. These data might not be perfectly correct because of difficulties with systems, unclear definitions, and false data acquisition – but they are as correct as possible. The terms we use most often for scenarios of this type are ‘Actual’ and ‘Previous year’.

2 **Planned scenarios** refer to *fictitious* (not materialized) data. The terms we use most often for scenarios of this type are ‘Plan’ and ‘Budget’.

In-between those two basic scenario types there is a third one:

3 **Forecasted scenarios** refer to *expected* data which are strictly speaking fictitious but already taking into account measured data. A typical example for expected data is the sales forecast based on the measured order entry. Forecasted scenarios represent a higher level of certainty than scenarios with planned data but are not completely materialized yet. The term we use most often for scenarios of this type is ‘Forecast’.

When analyzing charts and tables, it is very important to quickly recognize whether you look at measured, expected, or fictitious data. Readers of IBCS compliant reports can visually recognize these scenario types by looking at the *area fill* of a visualization element without having to read the labels. Typical chart visualization elements such as bars, columns, line chart markers, scenario triangles, etc. carry the semantic scenario notation.

In charts presenting variances, their *axes* carry the semantic scenario notation in order to show the respective reference scenario (see UN 4.1).

In charts with stacked columns, stacked areas, and charts with multiple lines or areas, the application of this semantic scenario notation can become a challenge. In these cases, applying the semantic notation to the axis instead of the columns etc. is a valid option.

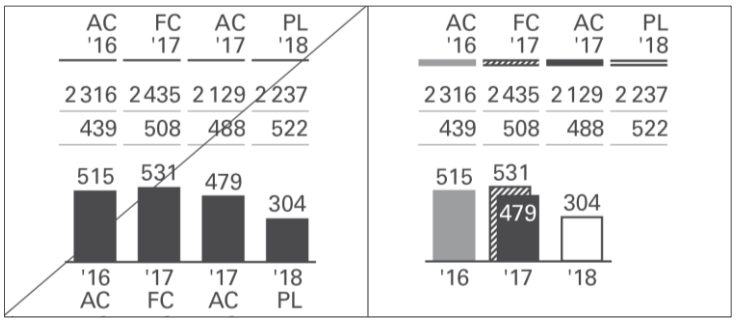

Figure UN 3.2: Unify scenarios

ACTUAL SCENARIOS: MEASURED DATA

Scenarios with measured data are identified by a solid dark (e.g. black or dark gray) fill for the areas of the respective visualization elements.

If measured data of recent periods ("Actual") are compared with measured data from earlier periods (e.g. "Previous year", "Previous month'", "Month YoY") the areas representing the earlier periods are identified by a lighter solid fill (e.g. light gray).

The suggested two-letter codes for the most important measured data scenarios are "AC" for "Actual" and "PY" for "Previous Year".

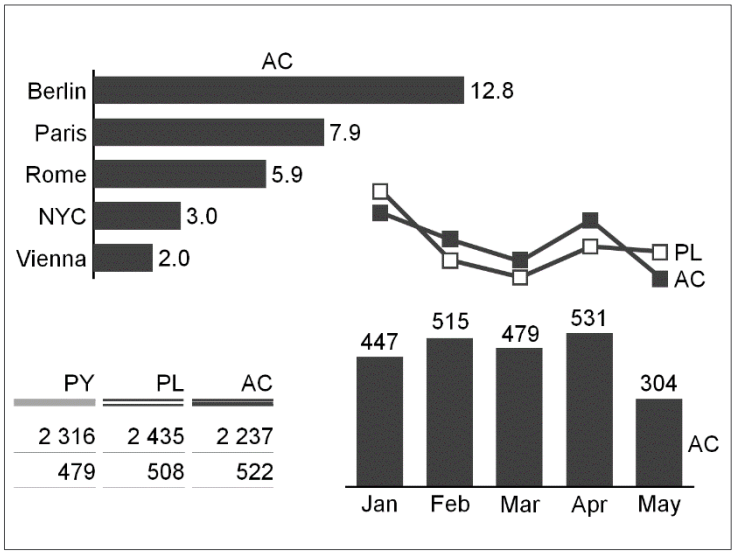

Figure UN 3.2-1: Visualization of measured data (examples)

PLANNED SCENARIOS: FICTITIOUS DATA

Scenarios with fictitious data are identified by bordered (outlined, framed) areas of the respective visualization elements. The areas within these borders literally “fill up when materializing”, e.g. when changing from fictitious data to measured data.

The suggested two-letter codes for the two most important fictitious data scenarios are “PL” for “Plan” and “BU” for “Budget”.

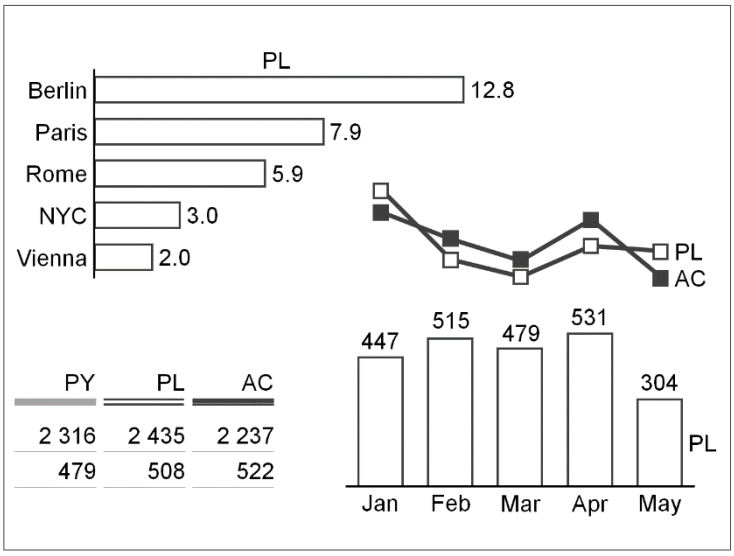

Figure UN 3.2-2: Visualization of fictitious data (examples)

FORECASTED SCENARIOS: EXPECTED DATA

Expected data is strictly speaking fictitious, so they are also identified by bordered (outlined, framed) areas. However, as it is based on measured data, the area fill of the respective visualization elements becomes hatched. The color of the dark stripes correspond to the color of measured data (e.g. dark gray).

The suggested two-letter code for the most important expected data scenario is “FC” for “Forecast”.

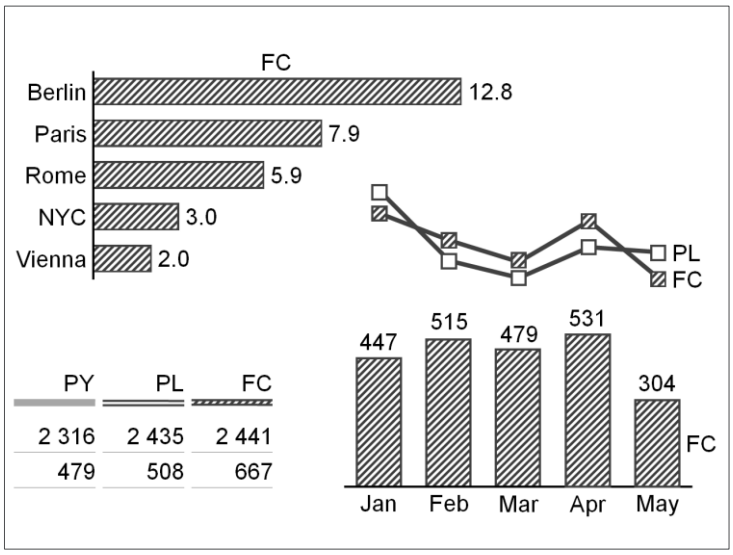

Figure UN 3.2-3: Visualization of expected data (examples)

UN 3.3 UNIFY TIME PERIODS AND POINTS OF TIME

Using standard notations for *time periods* (for flow measures) and *points of time* (for stock measures) is important as they are frequently applied to all forms of business communication. This requires standard notations for the visual direction of time, time period and points of time abbreviations and – in charts with horizontal time axes – category widths, see Figure UN 3.3.

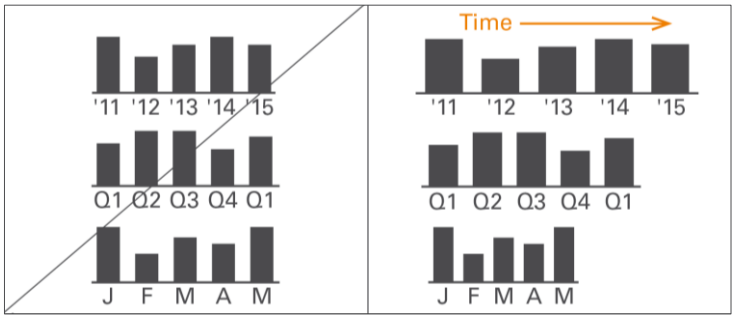

Figure UN 3.3: Unify time periods and points of time

VISUAL DIRECTION OF TIME PERIODS

As opposed to structural comparisons, horizontal axes visualize data series over time. In tables, present data series over time in columns. In both cases time moves from left to right, see Figure UN 3.3-1.