

# **Kyubit Planning, Budgeting & Forecasting**

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# 1. Overview

## 1.1. The concept of Planning, Budgeting and Forecasting module

Standard features of Kyubit Business Intelligence software offer numerous ways to analyze and visualize existing data from the provided data sources (OLAP, SQL, CSV). However, when looking at the values on reports, analyses, and dashboards, it will take some time and brain processing to decide if the values we see are successful or not, and still many times we will not be sure about it. The idea of the Planning, Budgeting & Forecasting module is to bring a completely new application section in which users on the company/organization level will prepare a **Plan** that includes existing dimensions and measures (existing OLAP data source) and plan values that are expected in the coming period. If an organization can prepare such a plan that relies on an existing data source, then we can monitor the success of the actual values in the given time period, and not only the success of the plan as a whole but success of individual items related to dimensions that were included in the plan monitored in various combinations. In other words, the Planning, Budgeting & Forecasting module makes it possible to collect plan values in the organization and monitor planned versus actual values in various contexts.

## 1.2. To who it is intended

Any organization that would like to monitor important business values through time will benefit by using the Planning, Budgeting & Forecasting module as it represents a meaningful and structured way to collect plan input values, offers much planning related convenient features, keeps track and history of every action and value provided by the plan participants, provides many ways on how to visualize the parts of the plan that are related to the particular interest of the user observing the plan. Especially, if the business plan has many items to plan over by many participants, Kyubit Planning, Budgeting & Forecasting will bring an easy-to-comprehend workflow and user interface for providing plan values and later dashboard visualizations of the plan in various contexts versus actual values. Typical usage is the sales-based organizations that need to plan various sales aspects for the next year (or another period of time), but it will also quickly find utilization in production, tourism, healthcare institutions, and other sectors.

## 1.3. Technical prerequisites

Kyubit Planning, Budgeting & Forecasting is a built-in module into the standard Kyubit BI web application that is separately licensed from the standard Kyubit BI features. All users are using their web browsers to interact with the application. The Planning, Budgeting & Forecasting module expects the existing OLAP database (multidimensional or tabular) that will be the base for the Plan creation and monitoring.

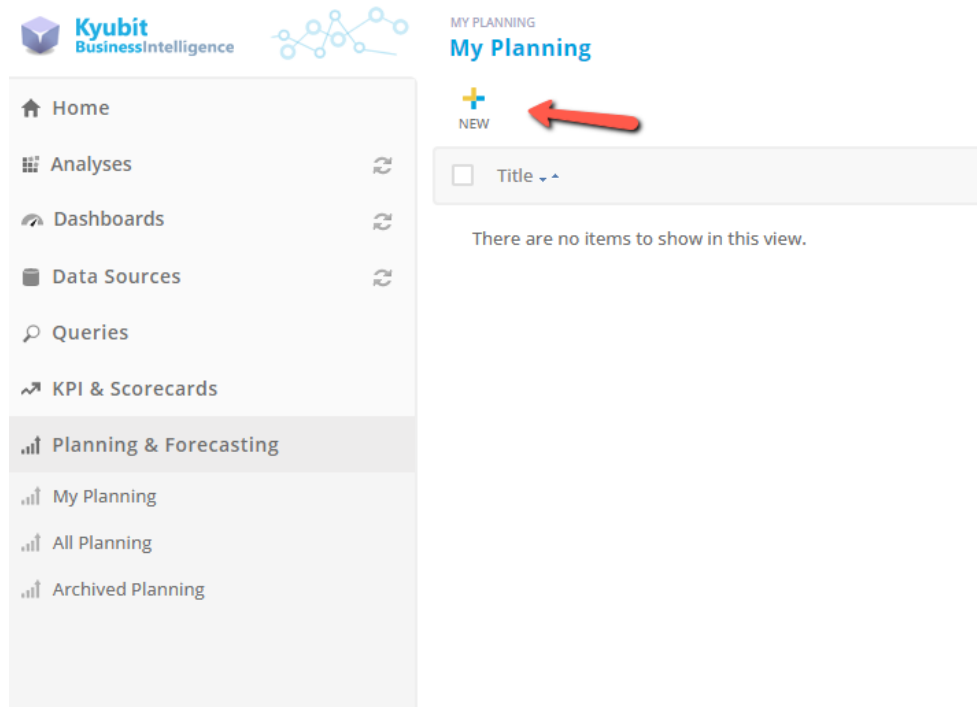
## 1.4. Plan users and licensing

All Kyubit users that should be involved in the planning process (Plan owners or participants) must have enabled planning usage in the Administration > Users section. The number of users that could be enabled for planning features is related to the Planning, Budgeting & Forecasting license obtained. Users who only need to see the plan vs actual results monitoring on the dashboards do not have to be enabled for planning usage and are not related to the Planning, Budgeting & Forecasting license.

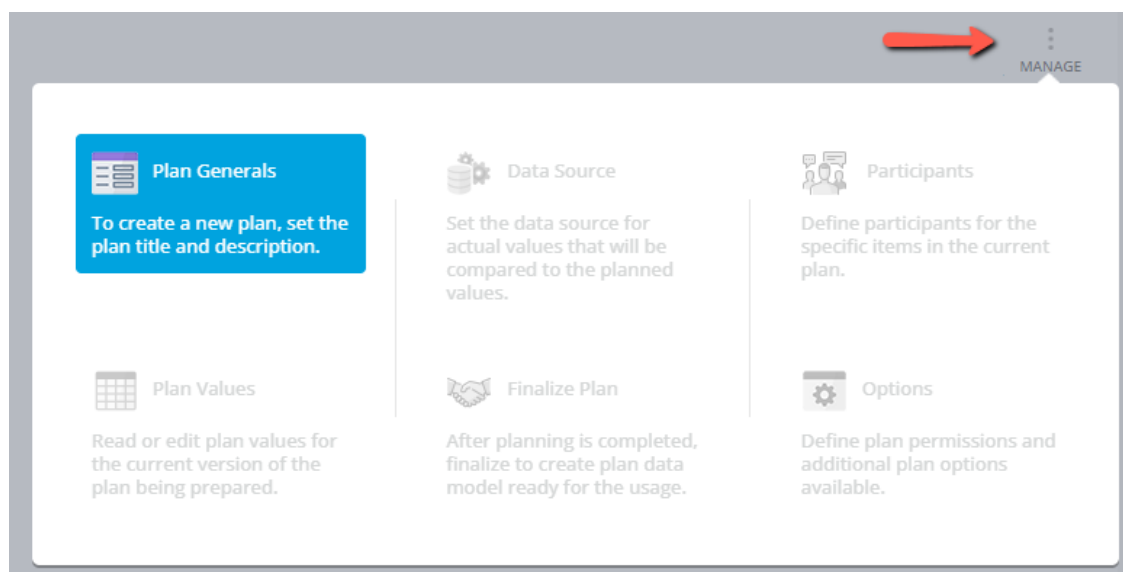
## 2. Preparing a Plan

### 2.1. Creating a new plan

All users with enabled plan features could create a new plan. The plan could stay a personal plan or it could become available for other users within the organization. Navigate to the Planning section of the application and click on the New button to start creating a new plan.



New plan details will be opened in a separate browser tab with the display of 'No plan data' text. Using the **Manage** option in the upper-right corner the plan owner leads the process of preparing initial plan details, data source configuration, selecting participants (if required), process of plan values input and plan finalization.



## 2.2. Plan Generals

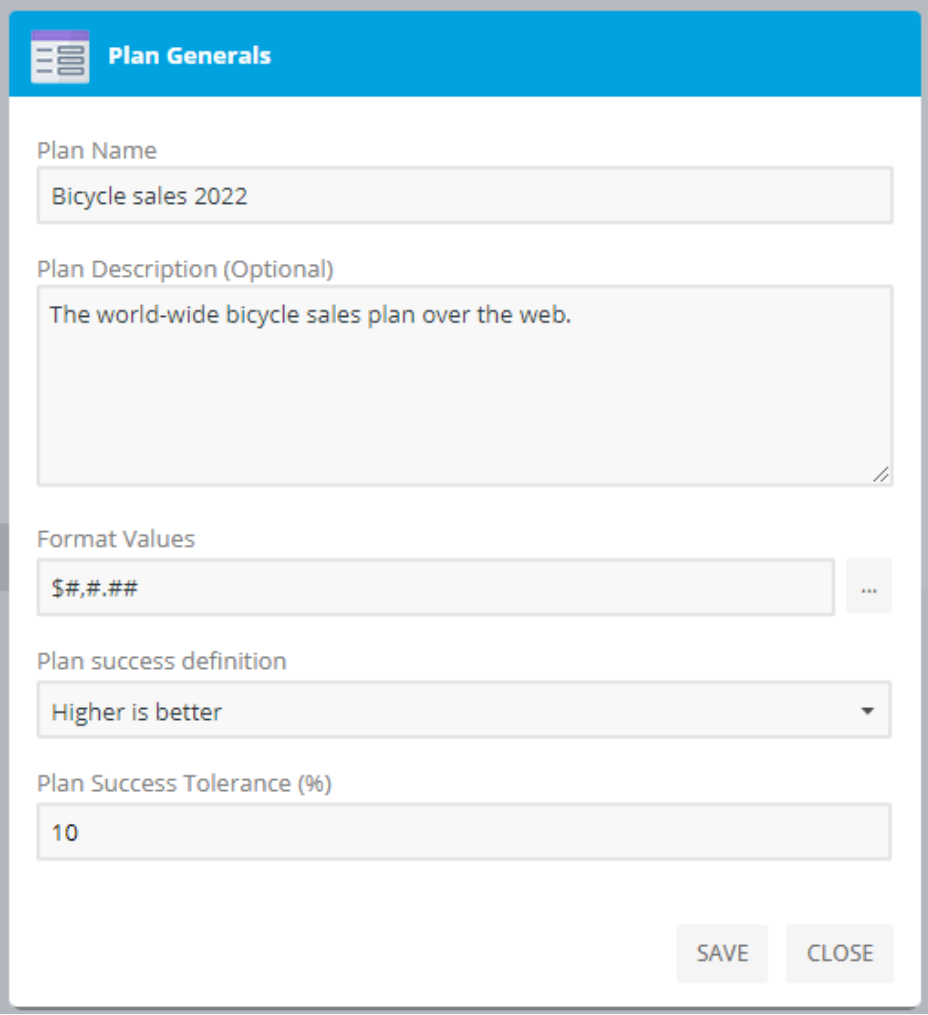
The first step is to provide very basic plan details, such as **Plan Name**, **Plan Description**, **Format Values**, **Plan Success Definition**, and **Plan Success Tolerance**.

The **Format Values** input presents the numeric formatting of the plan values to ensure that plan values are always correctly displayed in all situations and environments (for example, the format “€#,#.##” defines that values are related to Euro currency and that is using thousands separator and two decimal digits).

**Plan Success Definition** defines if it is more successful that plan has higher or lower values. This is only important while presenting the Plan vs Actual values on the dashboard charts. (for example, if we plan sales values the success is to have higher values than planned, while if planning expenses, then it is more successful to have lower values than planned).

**Plan Success Tolerance** defines what difference from the plan values will be considered as a ‘partial success’ while presenting Plan vs Actual values on the dashboard chart. The ‘partial success’ is marked with the yellow circle KPI icon on the dashboard.

All these values could also be edited anytime later during the plan lifecycle in the application (until the plan is archived).



**Plan Generals**

Plan Name  
Bicycle sales 2022

Plan Description (Optional)  
The world-wide bicycle sales plan over the web.

Format Values  
\$#,#.##

Plan success definition  
Higher is better

Plan Success Tolerance (%)  
10

SAVE CLOSE

## 2.3. Plan Data Configuration

As the plan closely relies upon existing data to provide the status of the Plan vs Actual values, it is required to define data source details about from which database the actual values will be retrieved to compare with the plan values. At the moment, only OLAP database is supported as a data source. After providing the **Plan Generals** the next step is to choose **Plan Data Configuration** from the **Manage** menu.


In the sample scenario for this user documentation, we will create a plan for bicycle and related products online sales for the next year. The best way to explain **Plan Data Configuration** is to first visualize the values structure for the plan we are about to prepare. Imagine for a moment that year 2023 is already at the end and these would be the actual values related to our plan.


Date.Calendar [ CY 2023 ]				
Drop Filters Here				
Internet Sales Amount				
Drop Measures Here				
Primary Plan Dimension	Month	Plan Periods Time Dimension		
	+ January 2023	+ February 2023	+ March 2023	+ April 2023
Subcategory	Internet Sales Amount	Internet Sales Amount	Internet Sales Amount	Internet Sales Amount
Bike Racks	\$1.560,00	\$2.520,00	\$4.200,00	\$2.160,00
Bike Stands	\$1.272,00	\$2.544,00	\$3.180,00	\$4.134,00
Bottles and Cages	\$1.972,30	\$3.436,09	\$3.958,33	\$3.976,37
Caps	\$557,38	\$1.339,51	\$1.438,40	\$1.339,51
Cleaners	\$238,50	\$477,00	\$580,35	\$540,60
Fenders	\$1.428,70	\$2.967,30	\$3.318,98	\$3.714,62
Gloves	\$857,15	\$2.155,12	\$2.816,35	\$2.669,41
Helmets	\$5.773,35	\$14.590,83	\$16.725,22	\$15.640,53
Hydration Packs	\$1.429,74	\$2.364,57	\$3.519,36	\$3.079,44
Jerseys	\$5.135,02	\$10.382,00	\$13.563,39	\$12.219,65
Mountain Bikes	\$359.161,60	\$278.042,48	\$414.898,28	\$385.261,92
Road Bikes	\$342.494,35	\$288.593,52	\$369.266,60	\$342.659,06
Shorts	\$909,87	\$5.319,24	\$6.649,05	\$5.879,16
Socks	\$62,93	\$395,56	\$422,53	\$431,52
Tires and Tubes	\$5.375,12	\$17.346,30	\$19.856,97	\$18.476,20
Touring Bikes	\$128.255,40	\$137.160,72	\$183.608,58	\$240.983,28
Vests	\$1.206,50	\$1.714,50	\$1.905,00	\$2.857,50
Total	Σ \$857.689,91	Σ \$771.348,74	Σ \$1.049.907,39	Σ \$1.046.022,77

Following the structure of the Actual values, we would like to create a plan for, we will define the required **Plan Data Configuration** details. Firstly, we will choose the appropriate OLAP database cube for **Data Source** where all actual values for our plan exist. (In this sample this is **AdventureWorks** sample OLAP database)


For the **Measure**, we will select the **Internet Sales Amount** measure from the OLAP database.

For the **Plan Primary Dimension**, we will select a level **Subcategory** from the **Product** dimension. **Plan Primary Dimension** defined the primary concern of our planning. In this case, these are bicycle-related products.



**Plan Data Configuration**


**Data Source**


...


**Plan Measure**


...


**Plan Primary Dimension**


...


**Plan Periods Time Dimension**


...


**Plan Scope Time Dimension**

...


**Plan Scope Value**

...


**Context Dimension (Optional)**

×
...

**PLAN DATA CONFIGURATION READY**
SAVE
CLOSE

**Plan Periods Time Dimension** defines time items over which we will prepare a plan. It could be any time structure. Mostly this is referred to months, quarters, or days. In this case, we will select the **Month** level from the **Date** dimension.

**Plan Scope Time Dimension** defines the dimension level that will be used to define time scope. In this case, we plan for the next year, so we need to select a dimension level that holds years. We will select the **Calendar Year** level from the **Date** dimension.

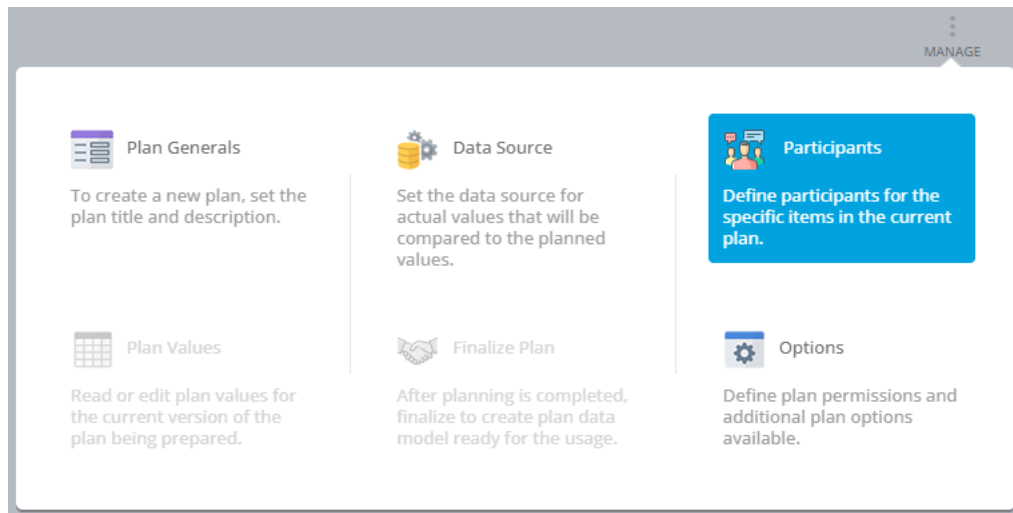
**Plan Scope Value** defines the particular value from the previous selection that is related to our plan. In this case, this is the year 2023. So, we will select **CY 2023**.

Optionally, the plan can include the third **Context Dimension**. In this case, we not only plan product sales in time but also would like to include the sales geography dimension in the plan, we will include the Country level from the Customer dimensions. If we want to include other users to be participants in the current plan Context Dimension members will be used to assign user participation (explained in the next chapter).

The above inputs define the relation of the plan values to the actual values. Once these details are provided the plan is set for the next planning steps. Anytime you click the Save button plan data configuration will be saved, while when you click on the **Plan Data Configuration Ready**, the values will be saved and set the plan for the next step the **Participants Selection**.

## 2.4. Plan Participants

The next step is the **Participants Selection** from the plan Manage Menu.



In any case, it is possible to continue with the plan without participants. In that case, the plan owner will provide all plan values. However, if the plan includes the **Context Dimension** it is possible to select plan participants users which are assigned per each of the **Context Dimension** items and will provide plan values for each **Context Dimension** item. In our sample plan, the **Context Dimension** is set to Countries, so we could assign participants per country. If the plan includes participants, the participants selection step cannot be completed until all **Context Dimension** items have been assigned to a participant. The single participant could be assigned to multiple items. When plan participants are selected, the plan values cannot be completed until all participant provide their inputs. If required the plan owner could change the plan participants during the planning values. Plan participants could be all users of the Kyubit application that have enabled Planning, Budgeting & Forecasting usage.

Participants

Participant

John Adams

Assign this participant to below selected plan context items.

ASSIGN PARTICIPANT

<input type="checkbox"/> Context Item	Assigned To	Completed
<input type="checkbox"/> Australia	David Johnson	-
<input checked="" type="checkbox"/> Canada	John Adams	-
<input type="checkbox"/> France	-	-
<input type="checkbox"/> Germany	-	-
<input type="checkbox"/> United Kingdom	-	-
<input type="checkbox"/> United States	-	-

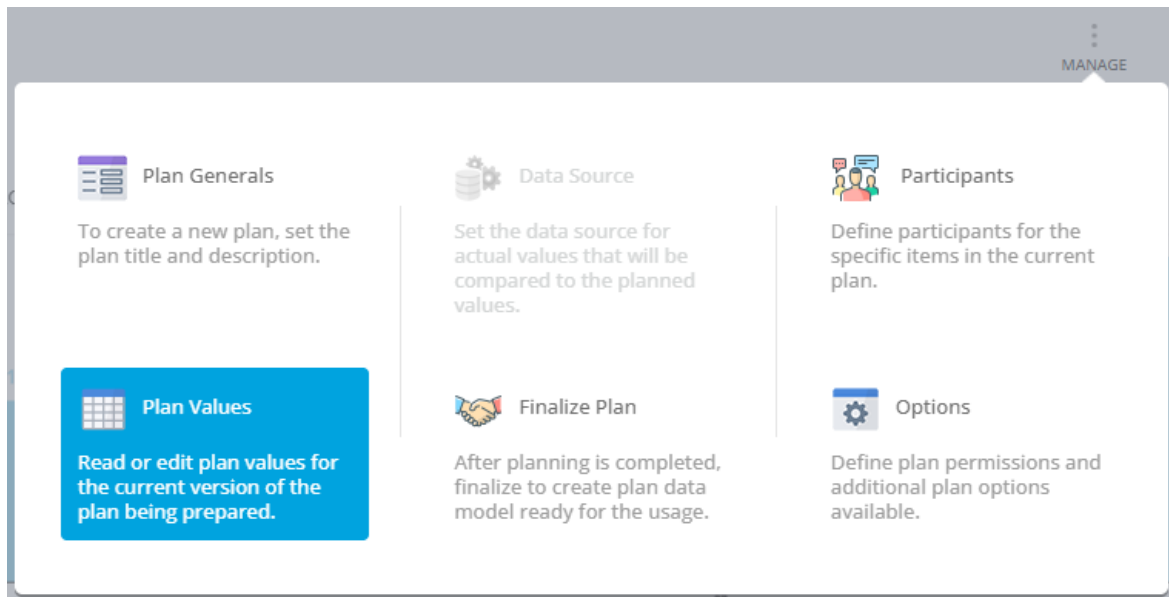
CONTINUE WITHOUT PARTICIPANTS

CLOSE



## 2.5. Providing Plan Values

Up till now, we have been defining our plan data source relation and participants. Now, the plan is ready to accept plan values.



The application section **Plan Values** presents a special place in the application with many handy features making it easy for the users to provide plan values. Planning values could include a large number of cells to be populated and special attention is given so the users could provide plan values with the least effort. Opening the Plan Values will display the full-screen grid with a cell ready to accept plan input values. The grid is designed to mimic the Excel look and feel while editing cells. The grid is organized so the first row and column present aggregated values. Primary dimension items are displayed vertically, while time items are displayed horizontally.

PLAN VALUES

### Bicycle sales 2023

(All Plan)

▼ Hierarchy	PLAN All Periods	PLAN January 2023	PLAN February 2023	PLAN March 2023	PLAN April 2023	PLAN May 2023
All Products						
Bib-Shorts						
Bike Racks						
Bike Stands						
Bottles and Cages						
Bottom Brackets						
Brakes						
Caps						
Chains						
Cleaners						
Cranksets						
Derailleurs						
Fenders						
Forks						
Gloves						

### 2.5.1. Context Dimension

If the plan includes the **Context Dimension** it will be displayed as the drop-down selection on the top. If the plan has participants, only the participants can provide the values for the items assigned to them. Assigned items for the current user are marked with bold text. In that case, select the bolded option to provide the plan values. If the current user is the plan owner, he can see all **Context Dimension** items, but he can provide the values only for items assigned to him.

PLAN VALUES

### Bicycle sales 2023

(All Plan)		
(All Plan)		
<b>Australia</b>	PLAN	PLAN
Canada	All Periods	January 2023
France		
Germany		
United Kingdom		
United States		
Bike Racks		
Bike Stands		
Bottles and Cages		

### 2.5.2. Navigate, edit, update and discard

Navigate with arrow keys or a mouse click to the cell you want to provide plan value in the grid. Edited cells will change the background color. Edited cell values are not automatically saved. When you want to save and apply provided values, click on the **Update** button above the grid. After cell values are updated on the server, they will change the background color to white. Anytime click on the **Discard** button to discard current input and revert back to the last saved values state.


PLAN VALUES

Bicycle sales 2022

Canada

UPDATE

DISCARD

 Hierarchy	PLAN All Periods	PLAN January 2023	PLAN February 2023
All Products	\$56.550	\$56.550	
Bib-Shorts	\$12.500	\$12.500	
Bike Racks	\$14.500	\$14.500	
Bike Stands	\$13.000	\$13.000	
Bottles and Cages	\$16.550	\$16.550	
Bottom Brackets			
Brakes			
Caps			

### 2.5.3. Use Excel-like editing features

The Plan values grid will behave similarly to the Excel grid. Click and hold the cell handle and drag horizontally or vertically to **fill other cells with the same value**.

PLAN February 2023	PLAN February 2023
\$5.500	\$27.500
\$5.500	\$5.500
	\$5.500
	\$5.500
	\$5.500
	\$5.500

Select a horizontal or vertical range of cells, and press CTRL+C and CTRL+V to **copy/paste the cell range** to other cells on another part of the grid. Or press **Del** on the keyboard to **delete cell range values**.

▼ Hierarchy	PLAN All Periods	PLAN January 2023	PLAN February 2023	PLAN March 2023
All Products	\$27.885	\$1.215	\$15.520	\$11.150
Bib-Shorts	\$27.885	\$1.215	\$15.520	\$11.150
Bike Racks				
Bike Stands				
Bottles and Cages				

**Bib-Short** values copied to **Bike Stands**...


▼ Hierarchy	PLAN All Periods	PLAN January 2023	PLAN February 2023	PLAN March 2023
All Products	\$55.770	\$2.430	\$31.040	\$22.300
Bib-Shorts	\$27.885	\$1.215	\$15.520	\$11.150
Bike Racks				
Bike Stands	\$27.885	\$1.215	\$15.520	\$11.150
Bottles and Cages				

## 2.5.4. Views on Previous values, Plan values and Actuals values

A very convenient and handy feature is to display values from the past (or present) while planning values for the future. In the upper right corner of the planning grid, there are options to toggle the display or **Previous**, **Plan**, and **Actual** values. In this sample, we plan the sales for the year 2023. While planning for this year it is often useful to see what were actual values in 2022 for the same items. Just click on the **Previous** button to toggle the display of past actual values. Later in the year 2023, you can also toggle the **Actual** button to display the actual values that happened for our plan and compare vs planned.



In the sample plan, we can see actual values for *Mountain Bikes* and *Road Bikes* in January 2022, so we could better plan for January 2023 for the same items.

 Hierarchy	PREVIOUS All Periods	PLAN All Periods	PREVIOUS January 2022	PLAN January 2023
All Products	\$2.127.687,02	\$112.000	\$123.772,21	\$112.000
Mountain Bikes	\$926.688,49	\$47.000	\$45.258,73	\$47.000
Road Bikes	\$1.195.015,53	\$65.000	\$78.513,48	\$65.000

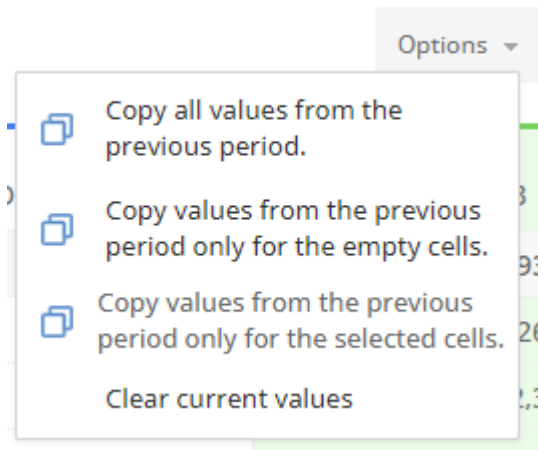
Later in the year 2023 when our data source has actual values from the 2023 year, we can also toggle the **Actuals** button to see how individual cell with planned value compares to the actual. In the picture below, we can see for the Mountain Bikes and Road Bikes plan items what was a) the actual value in January 2022, b) the planned value for January 2023, and c) the actual value in January 2023.

PREVIOUS January 2022	PLAN January 2023	ACTUAL January 2023
\$123.772,21	\$112.000	\$221.585,91
\$45.258,73	\$47.000	\$105.253,5
\$78.513,48	\$65.000	\$96.898,74

Note that the Previous and Actual values are marked with different colors (orange and green), so they could be easily distinguished from the main planned (blue) values. (Normally, while planning the values, actual values still do not exist. Here the actuals are included to give full information on what could be displayed along with the planned values in the plan usage lifecycle.)

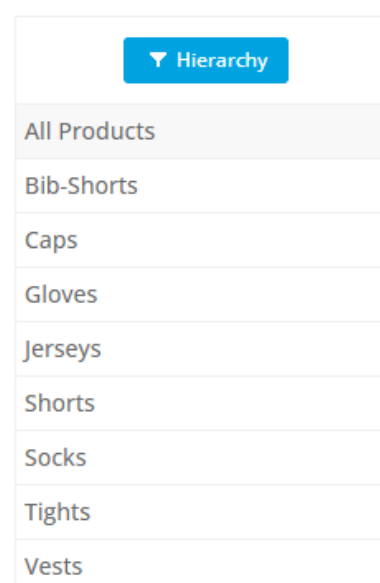
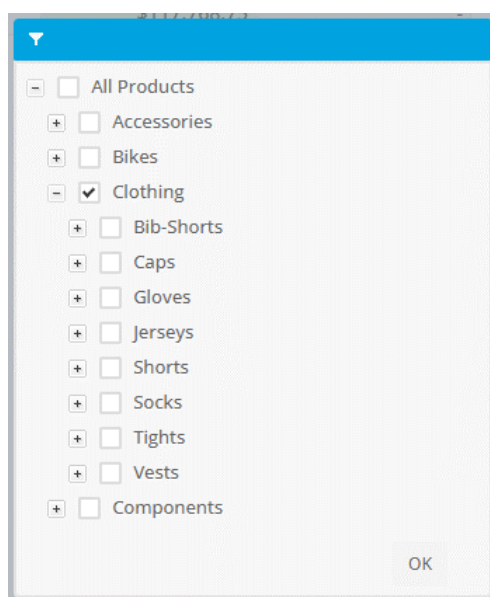
### 2.5.5. Copying values from the past with one click

It is possible to copy all values from the past to the current plan view with one click. In the Options on the upper-right select one of the options from the menu that will do 1) copying of all values, 2) only for empty cells in the current plan view or 3) for the cell range that is currently marked in the planning grid.



### 2.5.6. Narrow the display of plan items by selecting appropriate hierarchy members

In case there are a lot of items (Primary planning dimension) to prepare a plan value and the current user is interested only in some of them to prepare the plan for, the plan items display could be narrowed to appropriate items if the **Primary planning dimension** is based on the hierarchy. In our sample, the **Primary planning dimension** is set to **Subcategory**, which is a part of the **Product** hierarchy (which consists of Category > Subcategory > Products levels). If the current user needs to prepare a plan only for **Subcategory** items related to **Clothing**, click on the **Hierarchy** button and select **Clothing** from the hierarchy view to display only **Subcategory** items related to **Clothing**.



## 2.5.7. Completing the plan values input

If the plan doesn't include the participants, then there is no need to mark the completion of the plan inputs. A single user (Plan owner) will provide values he decides are necessary and finalize the plan at any point of plan input he decides all values are provided.

If the plan includes the participants, each participant has to click on the **Marked as Completed** button to mark his providing values for the given item completed. After the item is marked as completed, it cannot be edited further. (If an item is marked as completed, by mistake, the plan owner can Revert the item back to the pending status).

PLAN VALUES

### Bicycle sales 2023

Australia ▾	Mark as Completed ✓		
Hierarchy	PLAN All Periods	PLAN January 2023	PLAN February 2023
All Products	\$1.298.075,57	\$154.424	\$186.334
Bib-Shorts	\$		\$515
Bike Racks	\$21.346,65	\$350	
Bike Stands	\$38.491,65	\$400	\$15.520
Bottles and Cages	\$23.735,75	\$420	\$555
Bottom Brackets	\$	\$20	\$2
Brakes	\$	\$120	\$211

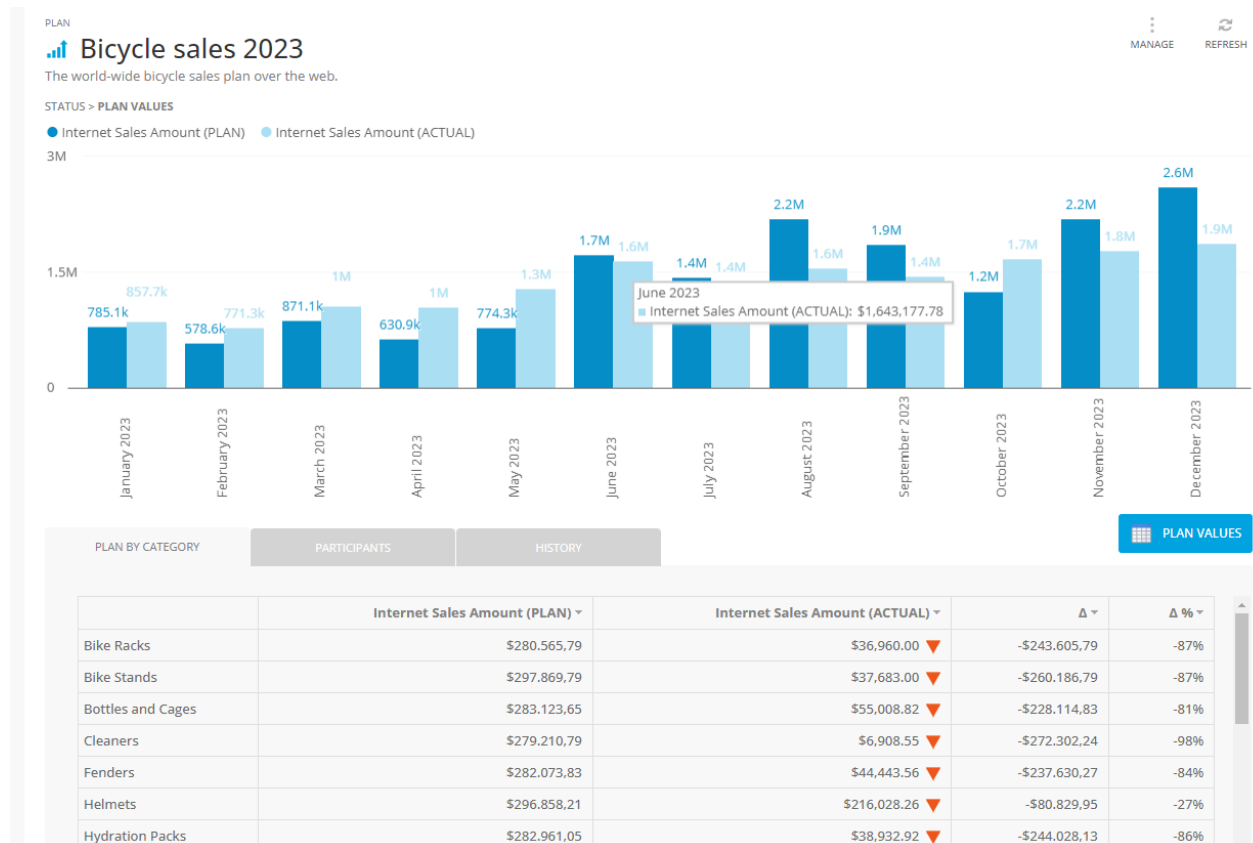
The plan owner can see on the plan home page what plan assignments are completed by participants. Moving the mouse over the completed assignment, the Revert button is displayed to optionally return the assignment to the Pending state.

PLAN BY CATEGORY	PARTICIPANTS	HISTORY	PLAN VALUES
Item	Participant	Completed	
Australia	David Johnson	-	
Canada	John Adams	7.11.2022. ✓	
France	John Adams	7.11.2022. ✓	REVERT

If the plan includes participants when all participants mark their assignments completed, the plan owner receives an email from the application with the information that all participants have finished their assignments and the plan is ready to be finalized.

## 2.5.8. Observing the process of gathering plan values

While plan values are being provided by the participants, Plan owner (and all other users with read permissions on the plan) can observe what values are already provided and who's plan assignments are still pending. After opening the plan home page, in the upper-right corner is refresh button, that could be used to refresh current plan values provided. On the left-upper side the current plan status is indicated. First upper chart show plan vs actuals over the plan time dimension level (in this case Months). In the lower table chart, plan values are aggregated per Plan Primary dimension (in this case Subcategory) and also presenting difference between plan and actual values (if actuals exists).



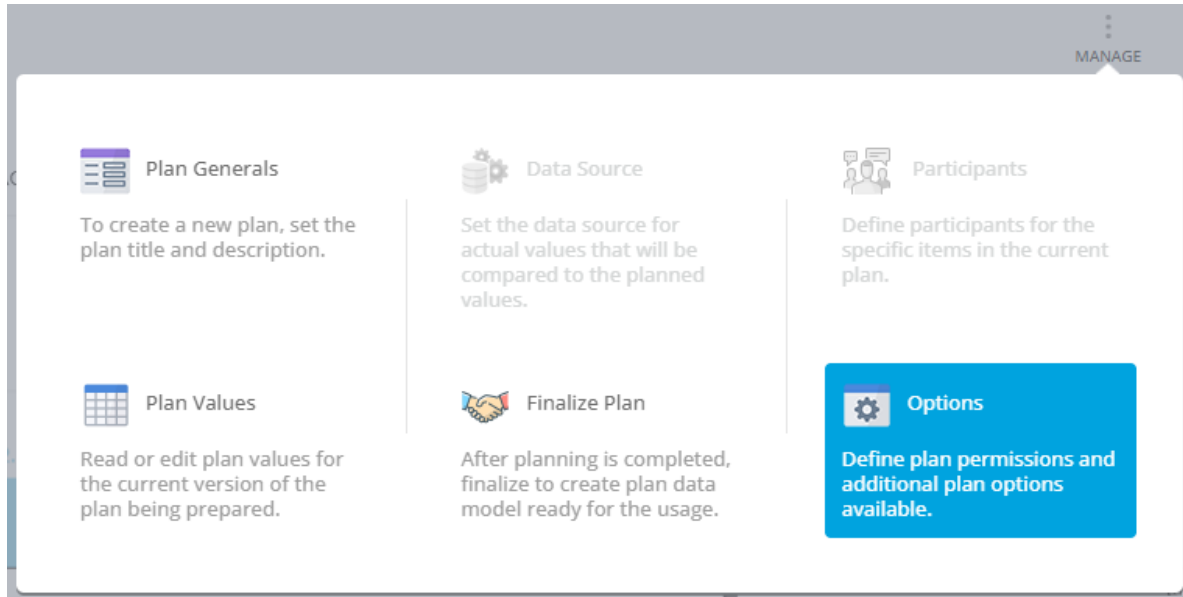
## 2.5.9. Plan History

All plan actions in the plan lifecycle are registered in the plan history with action user and action time. Visible on the plan home page in the middle tab.

PLAN BY CATEGORY	PARTICIPANTS	HISTORY
PLAN VALUES		
Plan assignment completed by the participant (Canada)		
Plan assignment completed by the participant (France)		
Input values submitted.		
Input values submitted.		
Input values submitted.		
Input values submitted.		
Input values submitted.		
Plan ready for the input values.		
Participants Selection Completed		
Plan Data Configuration Ready		
Plan values discarded.		
Plan Data Configuration Ready		
John Adams		
7.11.2022. 15:24:00		
John Adams		
7.11.2022. 15:24:00		
John Adams		
7.11.2022. 15:23:00		
John Adams		
7.11.2022. 15:22:00		
David Johnson		
7.11.2022. 15:16:00		
David Johnson		
7.11.2022. 14:08:00		
David Johnson		
7.11.2022. 11:10:00		
David Johnson		
7.11.2022. 11:10:00		
David Johnson		
7.11.2022. 10:39:00		
David Johnson		
7.11.2022. 10:12:00		
David Johnson		
4.11.2022. 16:13:00		

## 2.6. Plan Permissions and including plan observers

Besides the plan owner and optional plan participants, it is possible to include other users to follow what is happening with the plan on the plan home page. To add **observers** add **Read** permission on the plan for any Kyubit user who will be able then to open the plan and observe plan values and other details (without the option to change anything). To add additional **Plan owners** (users with full permissions on the plan) add **Read-Write** permission on the plan for existing Kyubit users. To add plan permissions, click on Manage > Options > Permissions.

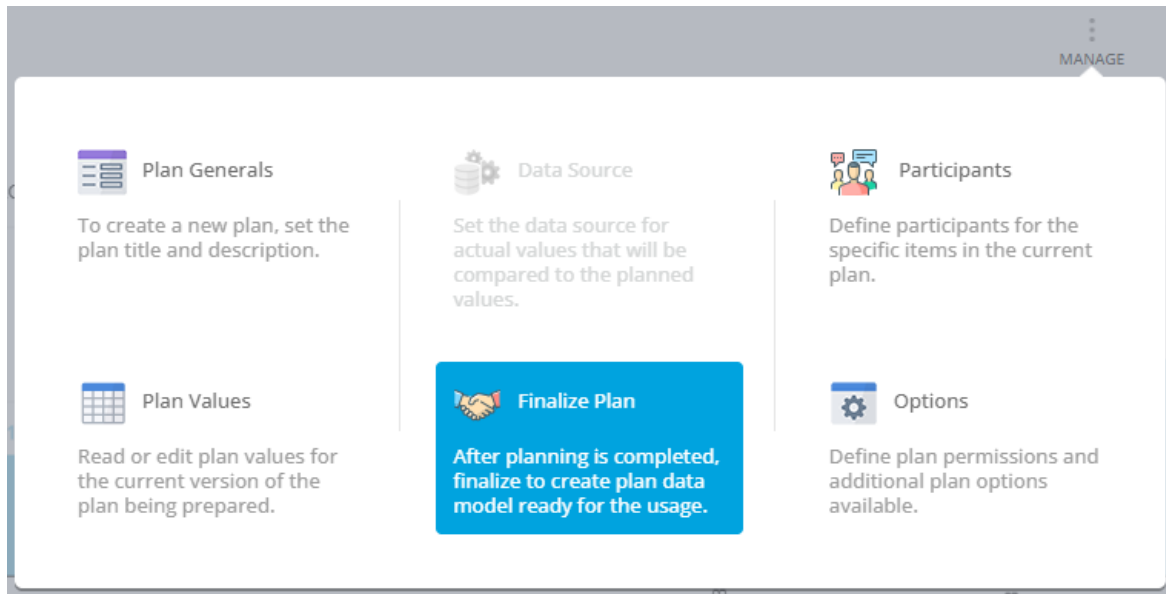


## 2.7. Discarding current plan values

Before the plan is finalized, the complete plan values could be discarded and the plan status will return to step Plan Data Source Configuration by the plan owner by selecting the option Manage > Options > Discard Plan Values.

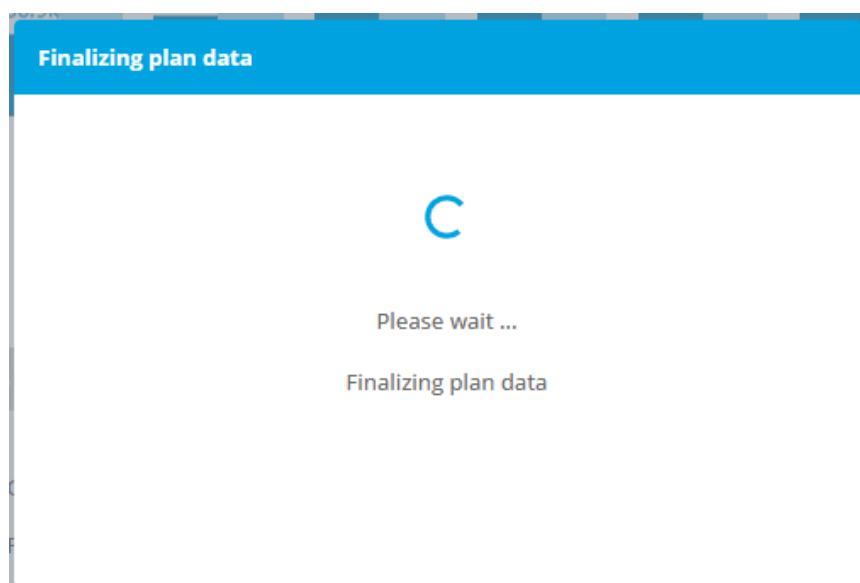


## 2.8. Finalizing the plan



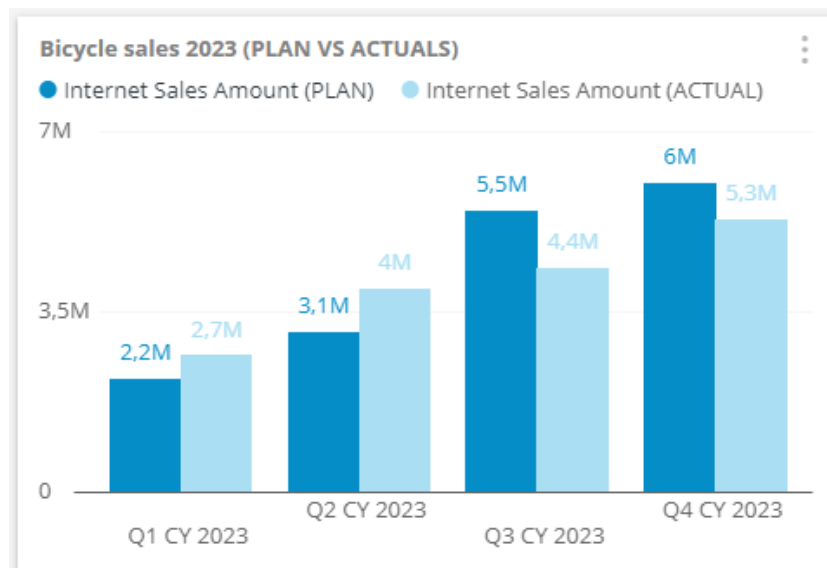
When all required plan values are provided, the plan can be **Finalized** by the plan owner. Finalizing the plan means a couple of things. First, this plan **version is final**, there could be no more changes whatsoever (it is possible to create a new version of the plan which will be discussed in a later chapter). Second, the plan input values are used in the **process of distributing the values** a) across all time dimension hierarchy levels and b) across parent levels of the primary and context dimension (if exists). The plan is ready to be used on dashboards and monitors planned values vs actual values (described in chapter 3.) by all authorized Kyubit users (also users who do not use planning features).

Depending on the number of members in the related dimension hierarchy levels, the plan finalization and plan values distribution and aggregation could take up to several minutes.

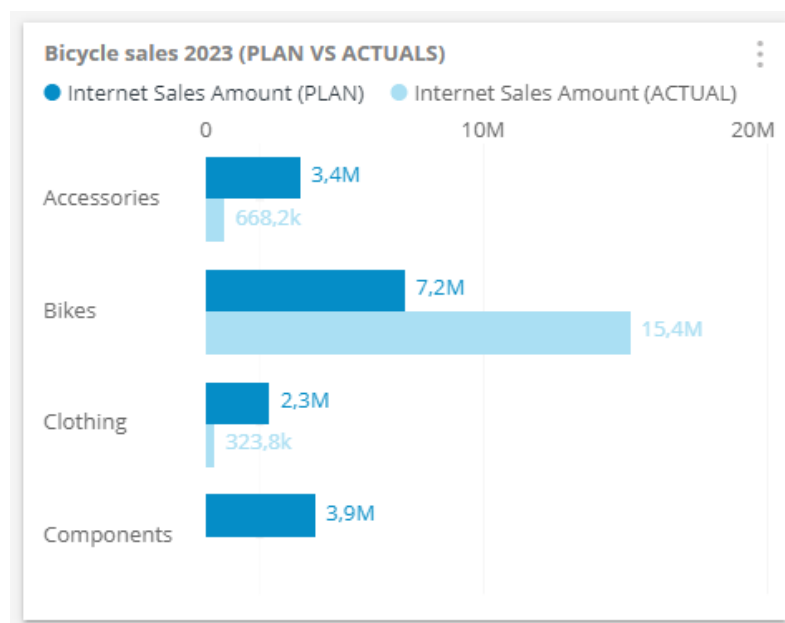


### 2.8.1. Distributing plan input values to other dimension levels

Let's explain what means distributing plan input values and what are the benefits. Regarding the **Time** dimension, input values are distributed to all levels of the existing time dimension. For example, in our sample plan, plan input values are provided for each Month. Because the related hierarchy **Date.Calendar** consists of the following levels: Calendar Year, Calendar Semester, Calendar Quarter, Month, and Date. The monthly plan values will evenly distribute or aggregate for each member in the existing time hierarchy levels. So, while observing plan values on the dashboard we can present/analyze plan values for quarters, semesters, years, or a day in a particular month, depending on the interest (even though the values are not explicitly given for those time structures). The values for quarters will be the results of the month values aggregation, while values for days (or any other lower level of the plan level) will be populated by even distribution of the plan value for the given month.



For the Primary and Context plan dimension plan values are aggregated on the upper levels of the hierarchy (if the hierarchy is used). So, the plan values are provided for the product **Subcategory**, while in the process of finalization, the values will be aggregated on the product **Category** level.

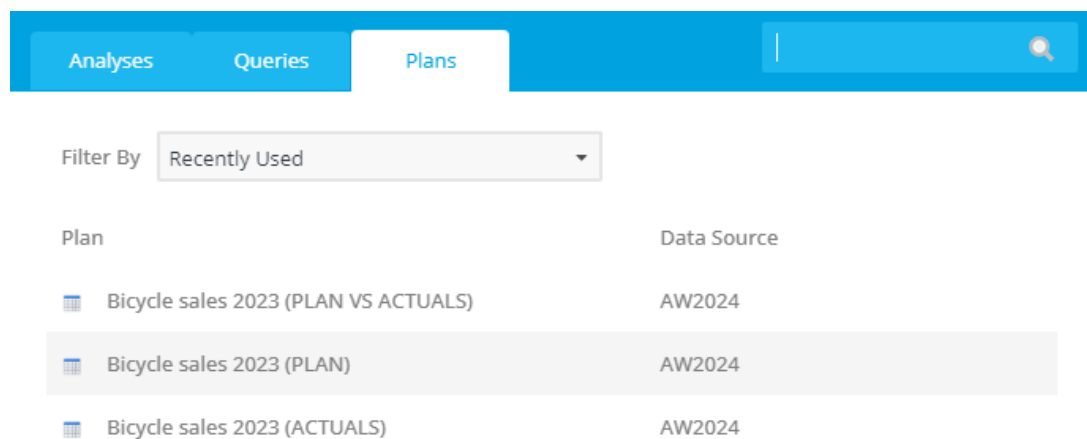


### 3. Using prepared Plan on the dashboard

After the plan finalization, we can consider the plan as prepared for the usage to continually monitor planned vs actual values in the time scope defined by the plan. Besides the plan home page, plan values vs actuals could be monitored and analyzed on the dashboards in various ways to best match the interest of the observers. It could be a high-level plan success monitoring or daily insights to catch the day or hour success comparing plan vs actual values on particular products, cities, or any other dimension member associated with the plan. In this chapter, we will show some of the most interesting aspects of plan analysis and monitoring.

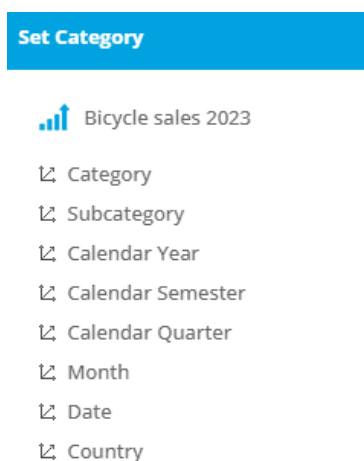
#### 3.1. Adding the Plan vs Actuals data to a dashboard chart

Any Kyubit chart can accept Plan data to visualize it appropriately. To add **Plan vs Actuals** data in the dashboard design mode, add a chart to the dashboard surface. In the chart design > data, select the **Plan** tab and select the appropriate plan data set. Plan data is available in 3 forms, **Plan Vs Actuals** (as a single data set), **Plan values**, or **Actual values** (related to the plan). We will describe and show the usage of all 3 Plan data sets.



Analyses   Queries   Plans	
Filter By	Recently Used
Plan	Data Source
Bicycle sales 2023 (PLAN VS ACTUALS)	AW2024
Bicycle sales 2023 (PLAN)	AW2024
Bicycle sales 2023 (ACTUALS)	AW2024

After selecting the plan data, optionally select the **Category** to display plan values aggregated on any of the available plan dimension levels on the chart category axis. Select the Category in Chart > Design > Options tab. The Category could be any other plan-related dimension levels that exist after the plan finalization.



Here are some of the example charts based on the **Plan Vs Actuals** data set and our sample plan **Bicycle Sales 2023**. Note that when the **Plan Vs Actuals** data set is selected chart series of values are always **PLAN** and **ACTUAL**. The **Plan** data set is related to provided plan values during the planning phase, while **Actuals** data set are data displayed from the related OLAP data source.

Chart Category set to **(product) Category** plan dimension level. Even though planning values are provided on the (product) Subcategory, after the finalization process, values are aggregated and available for the (product) Category level as well...

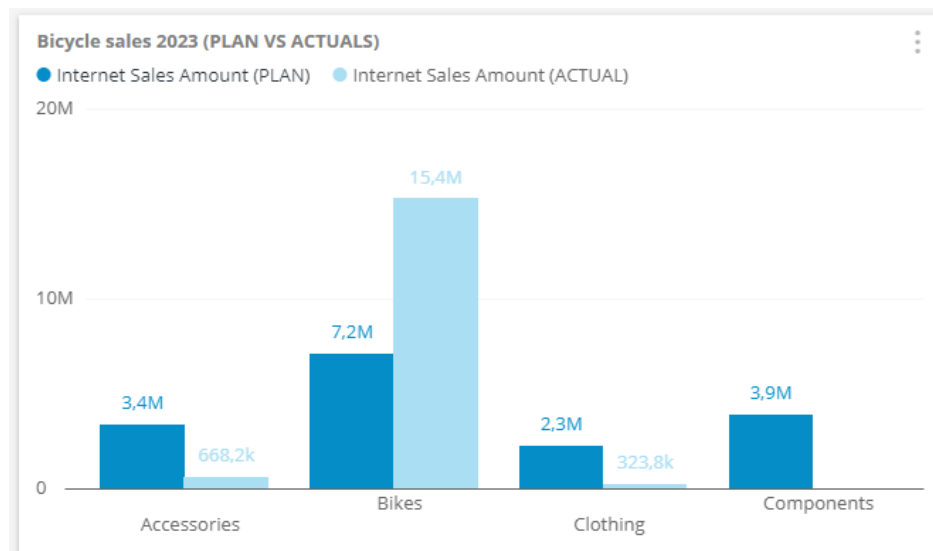


Chart Category set to **Country** plan dimension level ...

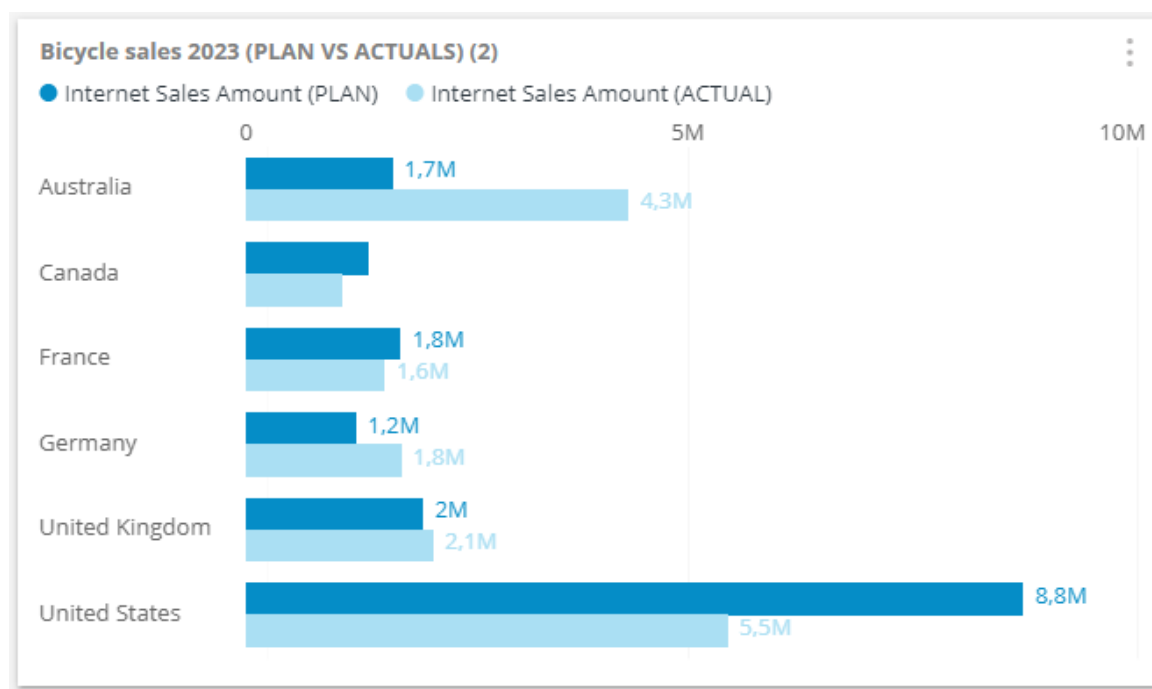
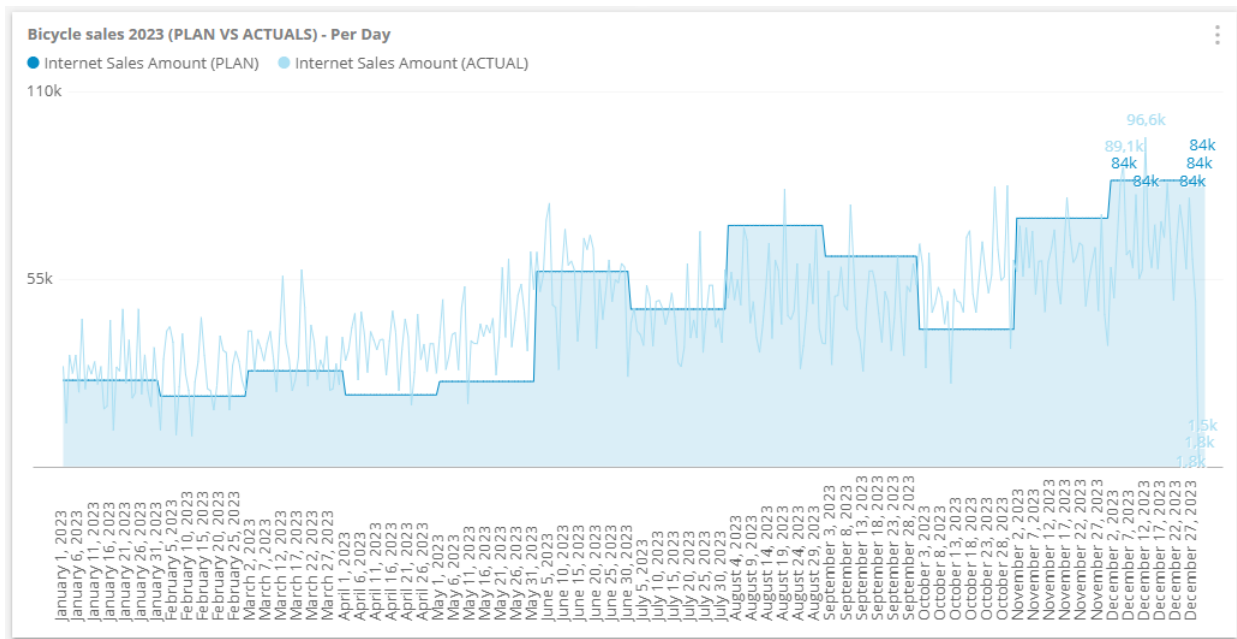
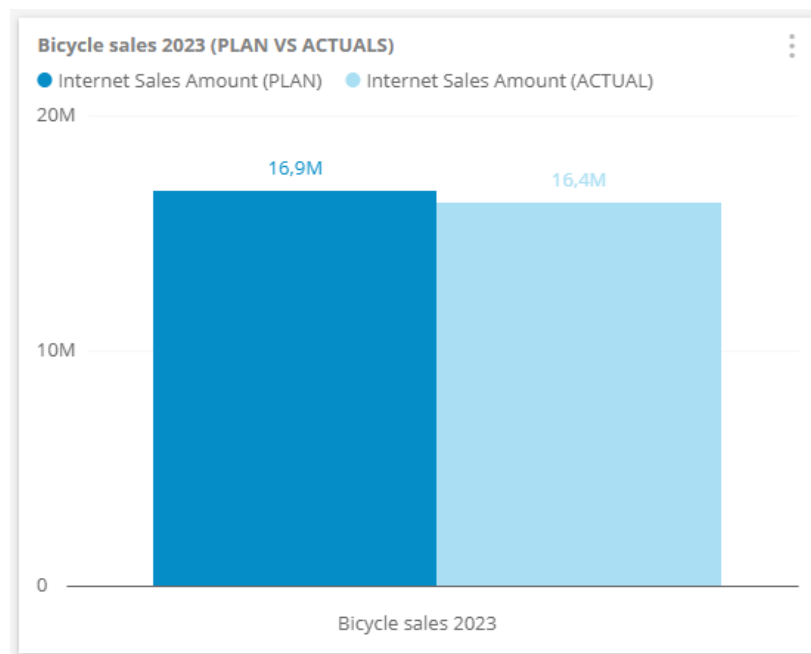


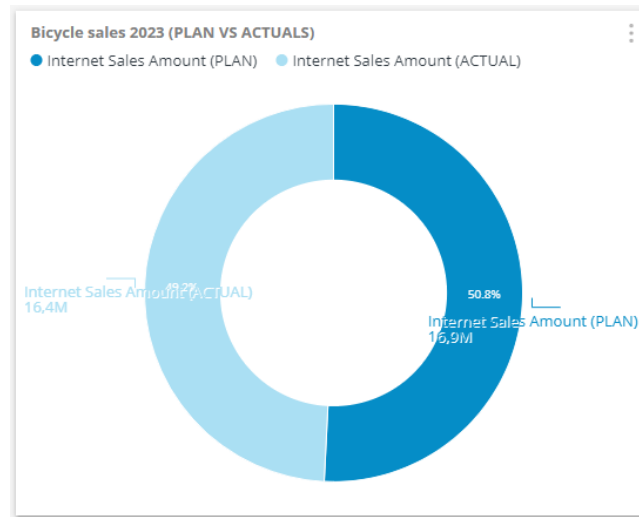
Chart Category set to **Day** plan dimension level. In this line chart, we can see the **plan vs actual** value for each day in a year ...



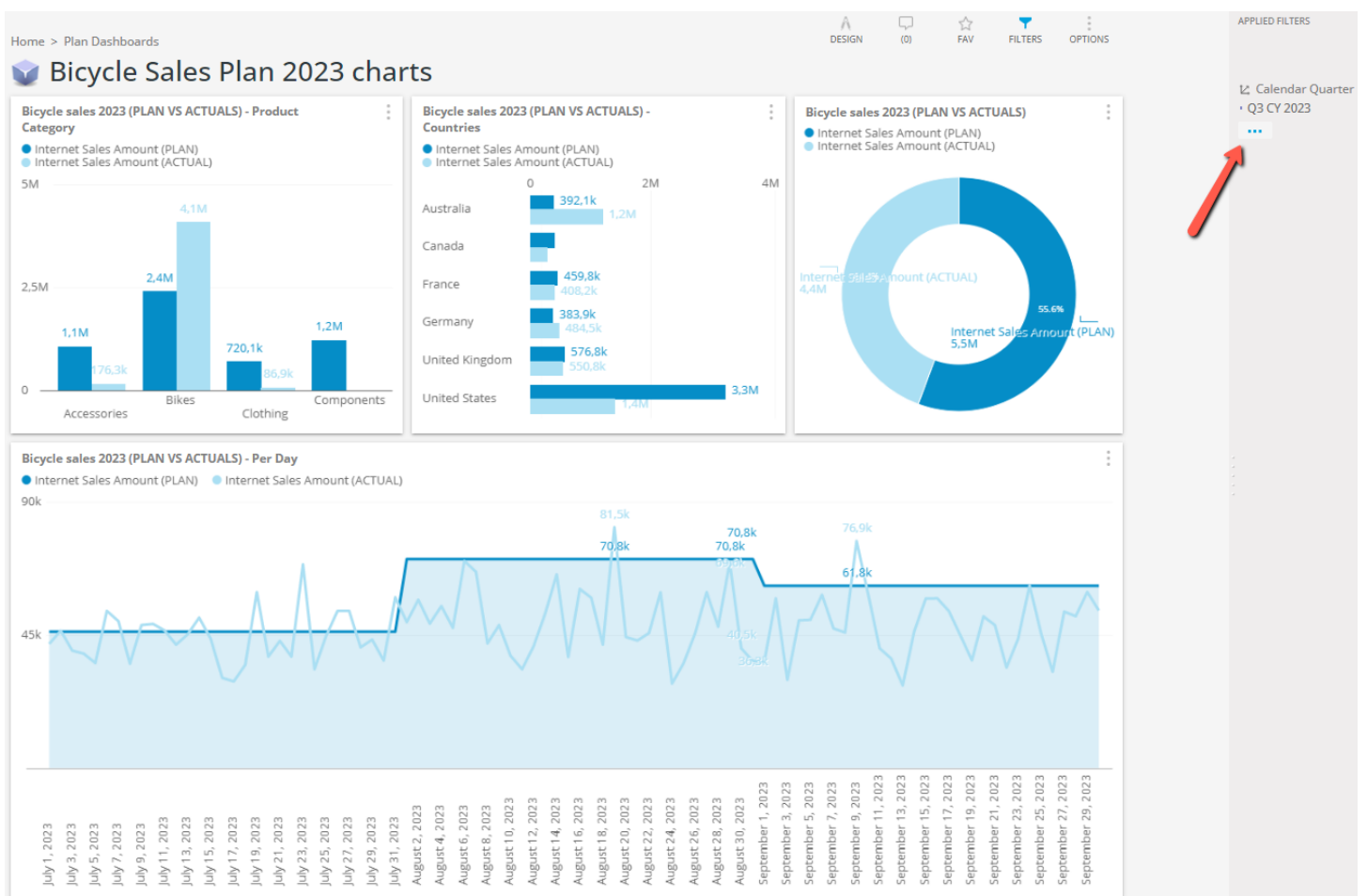
If we do not set the chart category, we will get a single chart item with 2 series presenting plan total vs actual total.



Include the pivot option to display the complete plan total vs the actual total on the pie chart.



If we create a dashboard with the above charts, it will present the success of the plan with the whole year's Plan Vs Actual data. However, if we set the dashboard filter to a specific dimension member related to the plan (Such as time member, specific country, or specific group of products or similar), all these charts will be sliced with such selection turning the dashboard plan view to a particular interest of the user related to the plan. In the below example, all charts are presenting Plan vs Actual data only for the third quarter of the year. It could be as well Bike group of products, a specific continent, or any other dimension member that the plan is 'aware' of.



With all available plan dimension levels, it is possible to create endless combinations of charts and filtering on dashboards that should cover almost every plan aspect and a business requirement that may be related to the whole Planning, Budgeting & Forecasting idea.

## 3.2. Plan vs Actual on the dashboard Table chart

When Plan vs Actual data is added to a Table chart there are some additional benefits. First, the table chart will also display **delta (difference) values** between plan and actual value in the form of the pure difference and difference percent compared to the planned value. If delta values are not wanted, remove them in the chart > Options > *Specific Series* field.

Furthermore, the Table chart has the option to display **expanded (drill-down) data** by setting two chart category dimension levels in the chart > Options > Category field (just click twice to select an additional category dimension level).

Category Country > Category ...

Below is an example of a table chart with the **Bicycle Sales 2023** plan. Note that the table chart includes a success icon that is related to the **Plan Success Tolerance** field defined on the plan's general data.

Bicycle sales 2023 (PLAN VS ACTUALS)					
Country > Category					
	Internet Sales Amount (PLAN) ▼	Internet Sales Amount (ACTUAL) ▼	Δ ▼	Δ % ▼	
Australia	\$1.661.197,52	\$4,339,443.38 ▲	\$2.678.245,86	161%	
Accessories	\$313.683,07	\$132,763.21 ▼	-\$180.919,86	-58%	
Bikes	\$799.119,01	\$4,139,720.96 ▲	\$3.340.601,95	418%	
Clothing	\$231.060,21	\$66,959.21 ▼	-\$164.101	-71%	
Components	\$317.335,23	- ▼	-\$317.335,23	-100%	
Canada	\$1.395.292,24	\$1,085,632.65 ▼	-\$309.659,59	-22%	
Accessories	\$443.998,56	\$96,922.04 ▼	-\$347.076,52	-78%	
Bikes	\$137.296,94	\$938,654.76 ▲	\$801.357,82	584%	
Clothing	\$295.999,04	\$50,055.85 ▼	-\$245.943,19	-83%	
Components	\$517.997,7	- ▼	-\$517.997,7	-100%	
France	\$1.755.120,28	\$1,578,511.80 ●	-\$176.608,48	-10%	
Accessories	\$536.883,6	\$60,599.81 ▼	-\$476.283,79	-89%	
Bikes	\$233.950,38	\$1,491,724.96 ▲	\$1.257.774,58	538%	
Clothing	\$357.922,4	\$26,187.03 ▼	-\$331.735,37	-93%	
Components	\$626.363,9	- ▼	-\$626.363,9	-100%	
Germany	\$1.248.031,7	\$1,761,876.36 ▲	\$513.844,66	41%	
Accessories	\$404.766,84	\$59,388.39 ▼	-\$345.378,45	-85%	
Bikes	\$101.191,71	\$1,679,892.32 ▲	\$1.578.700,61	1560%	
Clothing	\$269.844,56	\$22,595.65 ▼	-\$247.248,91	-92%	
Components	\$472.228,59	- ▼	-\$472.228,59	-100%	
United Kingdom	\$2.006.760,42	\$2,124,007.29 ▲	\$117.246,87	6%	
Accessories	\$572.669,92	\$73,967.62 ▼	-\$498.702,3	-87%	

Another example of the table chart with different Plan dimension levels expanded (product) Subcategory > Quarter ...

Bicycle sales 2023 (PLAN VS ACTUALS)				
	Internet Sales Amount (PLAN) ▾	Internet Sales Amount (ACTUAL) ▾	Δ ▾	Δ % ▾
Fenders	\$282.073,24	\$44,443.56 ▼	-\$237.629,68	-84%
Q1 CY 2023	\$33.908,24	\$7,714.98 ▼	-\$26.193,26	-77%
Q2 CY 2023	\$55.189,32	\$11,671.38 ▼	-\$43.517,94	-79%
Q3 CY 2023	\$90.332,4	\$11,649.40 ▼	-\$78.683	-87%
Q4 CY 2023	\$102.643,28	\$13,407.80 ▼	-\$89.235,48	-87%
Helmets	\$296.857,43	\$216,028.26 ▼	-\$80.829,17	-27%
Q1 CY 2023	\$36.248,91	\$37,089.40 ▲	\$840,49	2%
Q2 CY 2023	\$61.349,76	\$55,004.28 ●	-\$6.345,48	-10%
Q3 CY 2023	\$96.615,48	\$56,753.78 ▼	-\$39.861,7	-41%
Q4 CY 2023	\$102.643,28	\$67,180.80 ▼	-\$35.462,48	-35%
Hydration Packs	\$282.960,44	\$38,932.92 ▼	-\$244.027,52	-86%
Q1 CY 2023	\$33.508,23	\$7,313.67 ▼	-\$26.194,56	-78%
Q2 CY 2023	\$55.771,59	\$9,348.30 ▼	-\$46.423,29	-83%
Q3 CY 2023	\$91.037,34	\$11,052.99 ▼	-\$79.984,35	-88%
Q4 CY 2023	\$102.643,28	\$11,217.96 ▼	-\$91.425,32	-89%
Lights	\$294.357,9	- ▼	-\$294.357,9	-100%
Q1 CY 2023	\$33.860,08	- ▼	-\$33.860,08	-100%
Q2 CY 2023	\$68.796,86	- ▼	-\$68.796,86	-100%
Q3 CY 2023	\$89.057,68	- ▼	-\$89.057,68	-100%
Q4 CY 2023	\$102.643,28	- ▼	-\$102.643,28	-100%
Locks	\$283.640,85	- ▼	-\$283.640,85	-100%
Q1 CY 2023	\$38.107,93	- ▼	-\$38.107,93	-100%
Q2 CY 2023	\$53.831,96	- ▼	-\$53.831,96	-100%

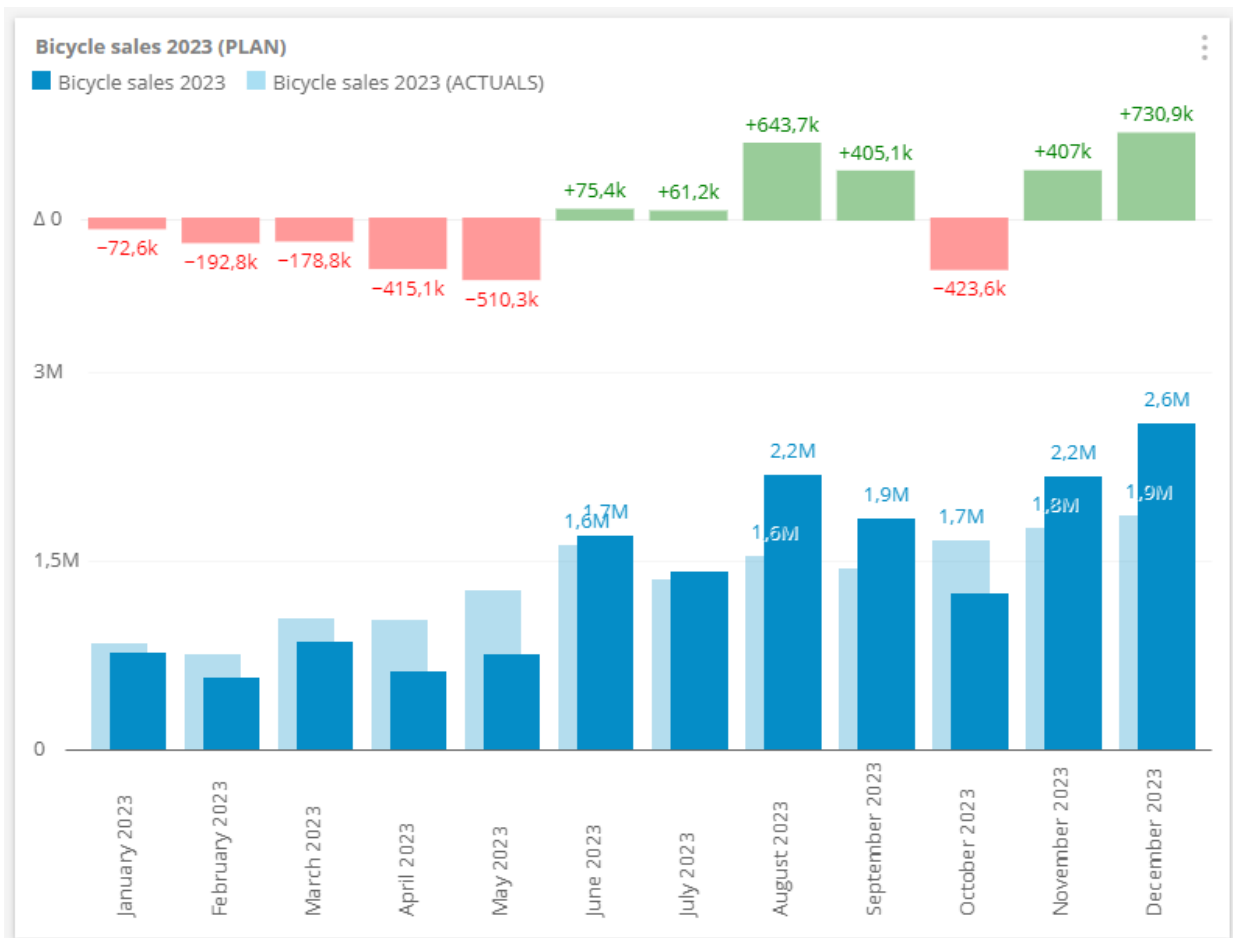


### 3.3 Plan Combo chart

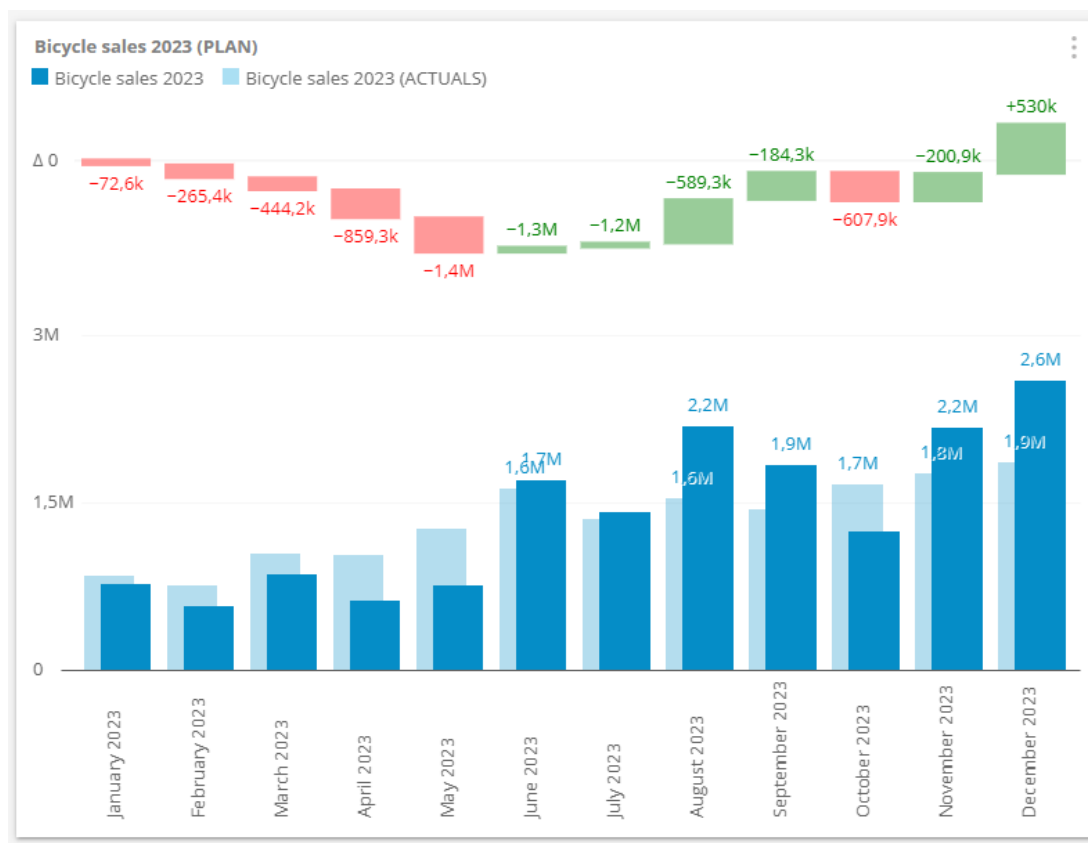
A Combo chart is a chart that compares two data sets that have the same chart category items. To visualize plan data on the Combo chart we will not select the **Plan vs Actual** data set (because we need two sets of data to compare and plan vs actual is a single set), but we will choose **Plan data** as the primary data set and **Actual data** as compare data set while choosing data for the chart in the chart > Data > Chart Data > Plans tab.

Analyses		Queries	Plans		
Filter By		Recently Used			
Plan		Data Source			
Bicycle sales 2023 (PLAN VS ACTUALS)		AW2024			
Bicycle sales 2023 (PLAN)		AW2024			
Bicycle sales 2023 (ACTUALS)		AW2024			

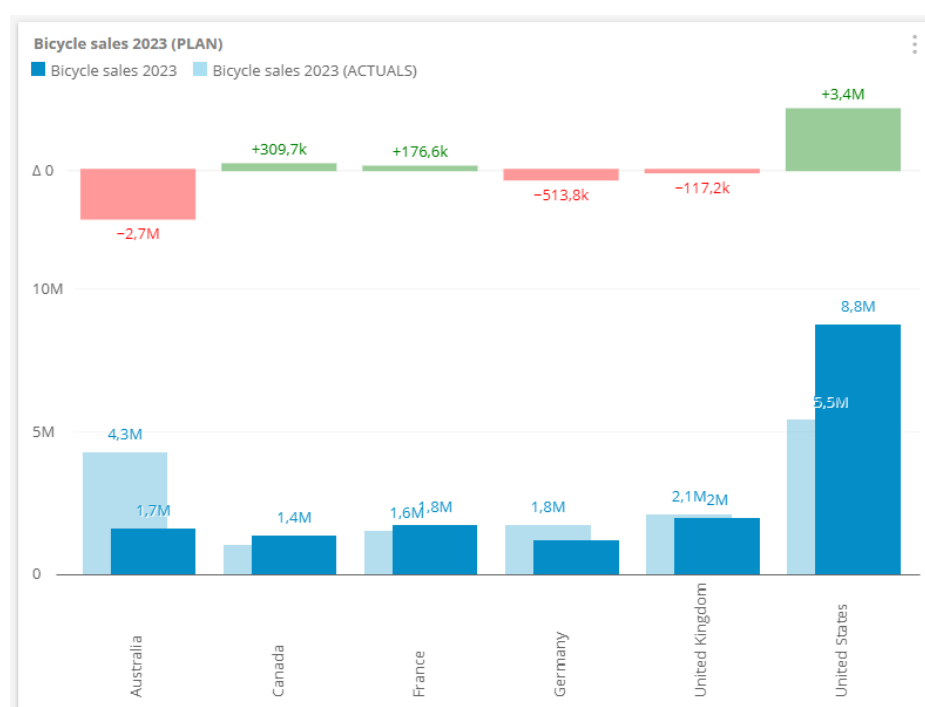
The result is the combo chart with optional delta chart on the top that give nice insight into the plan vs actuals differences (per defined chart category, in this case months) ...



Here is the Combo chart with cumulative differences that also answers the whole plan's success. We see that the plan was unsuccessful in the first part of the year, but the second part leads to the overall plan vs actual success.

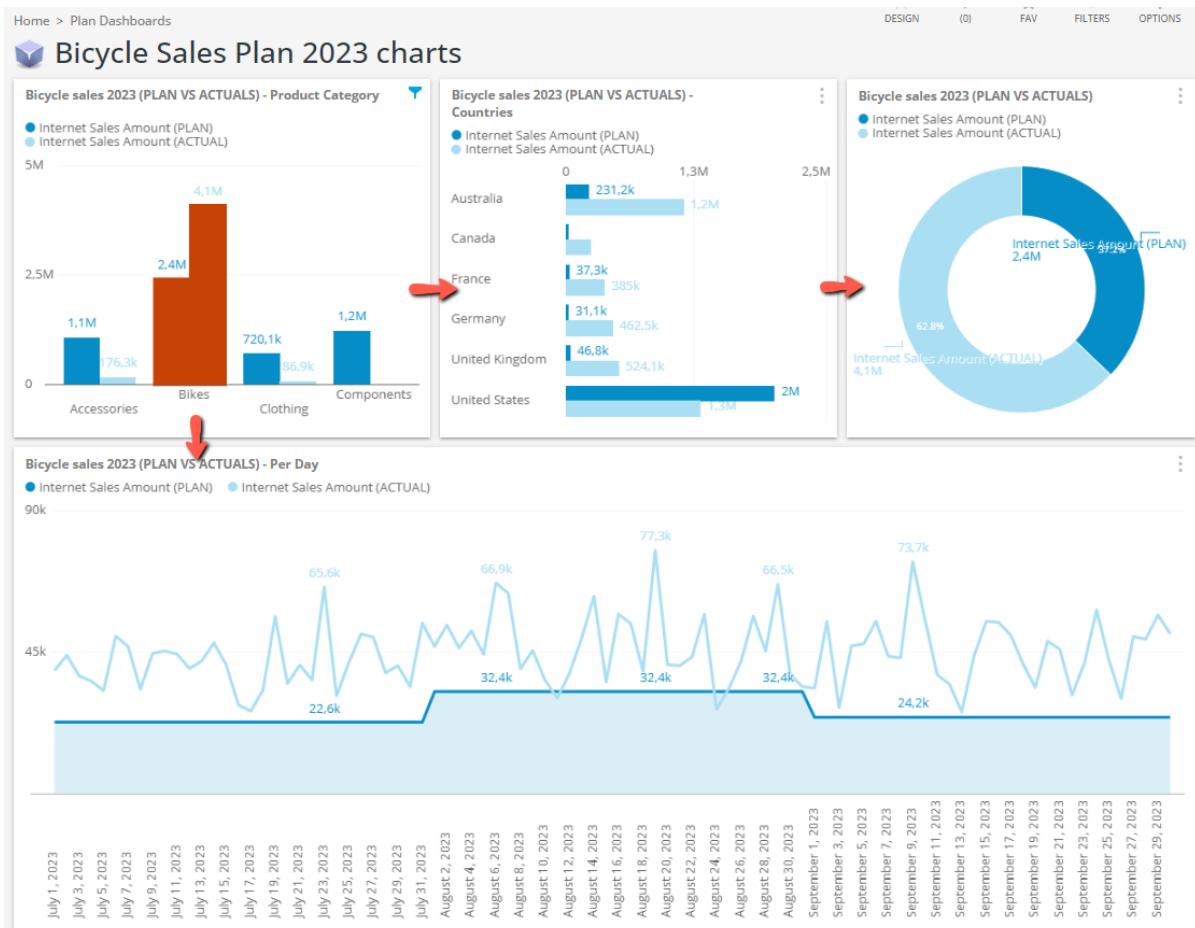


Of course, the Combo chart could compare plan values based on any other plan dimension level. In this example, we visualize Plan vs Actual success per country...



### 3.4. Slicing the Dashboard chart values

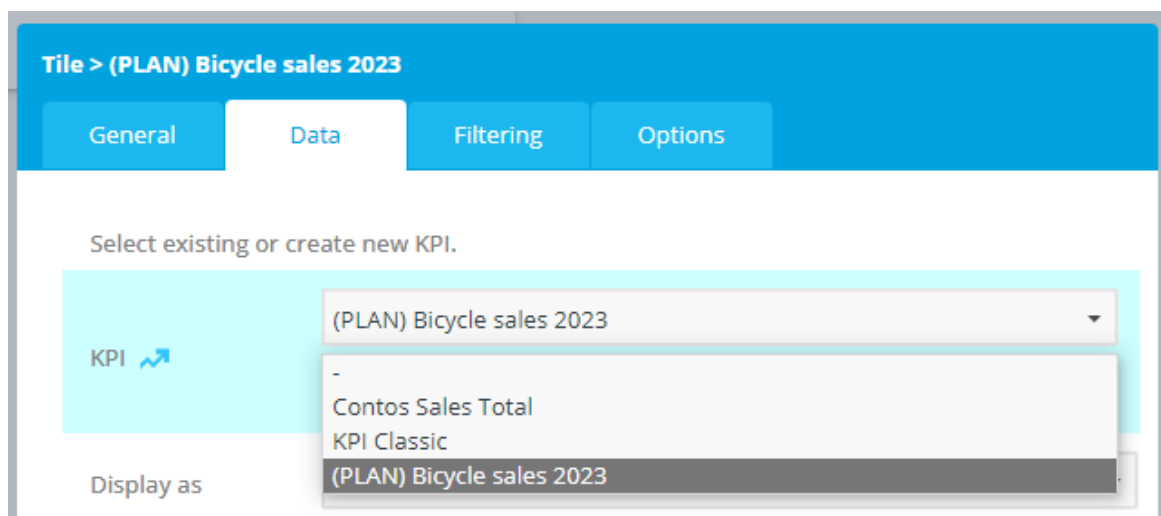
You can always add another dashboard filter to slice further plan data, but an even better way is to enable dashboard auto-slicing which will slice the rest of the dashboard charts with a single click on any of the plan chart values. In this case, we click on the **Bikes** which will slice other charts and present data only related to the Bikes product category.



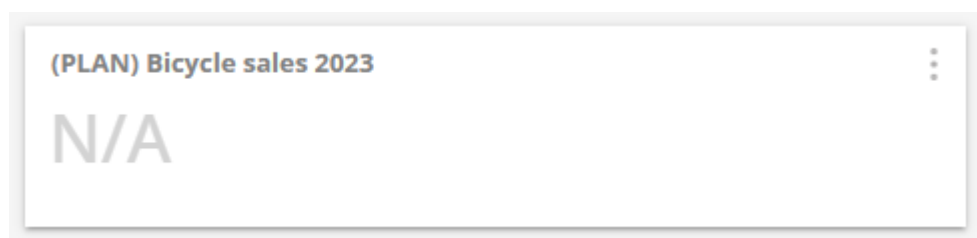
### 3.5. Plan KPIs, Goal-meters and Gauges

The prepared plan is actually a huge resource from which various KPIs could be extracted. For a start, the complete 'plan values vs actual values' status is the KPI for itself. In our sample plan, it would be Internet Sales Amount Plan vs Internet Sales Amount Actual values. However, numerous smaller certain aspect-related KPIs could be quickly utilized on a plan basis. The Plan KPI would tell us the **success status** of the plan **up-to-date** (from the plan start to this day). It is understandable that users related to the plan are certainly interested to open a dashboard to quickly see the plan success status on this day (the complete plan or certain aspects of the plan). Here we will describe some plan KPI usage samples and some prerequisites to work with plan KPIs.

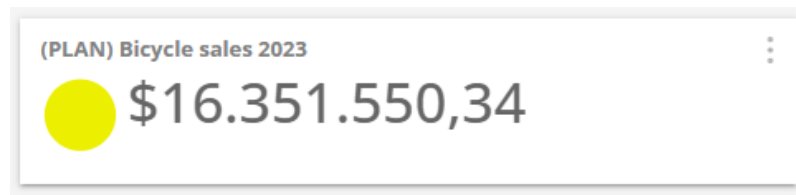
Add the KPI chart on the dashboard and select chart > edit > Data > KPI. A list of existing KPIs will appear and at the end, all active plans will be listed to choose from. All active plans will be automatically listed when selecting the KPI source (It is not required to create a previous KPI object in the Kyubit KPI/Scorecard section).



If you add a Plan KPI before the plan starting date you will get an empty KPI chart (N/A) as the Plan KPI is always looking at Actual values up to the current date. Even if you have Actuals values in the OLAP cube they will not be included if they are not related to the plan time scope to the current date. The plan is for the year 2023, the current date in this example is November 2022 and there is nothing to display related to the plan KPI.



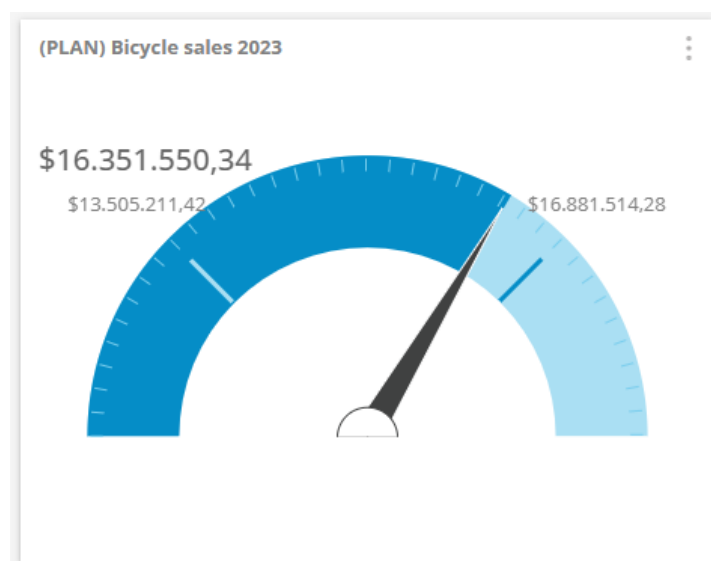
Now, imagine that it is now November 2023. Since there are Plan vs Actual values that are relevant for the current date, the Plan KPI will render values and success status. The value displayed on the KPI is the **actual value only up until today** (including today). It is then **compared with plan values until today** and the success icon is displayed. (Note that Success and Fail thresholds are defined by the **plan success tolerance** value in the plan data.)



You can display the same Plan KPI as a **Goal Meter** chart that also displays the percent of the plan success ...



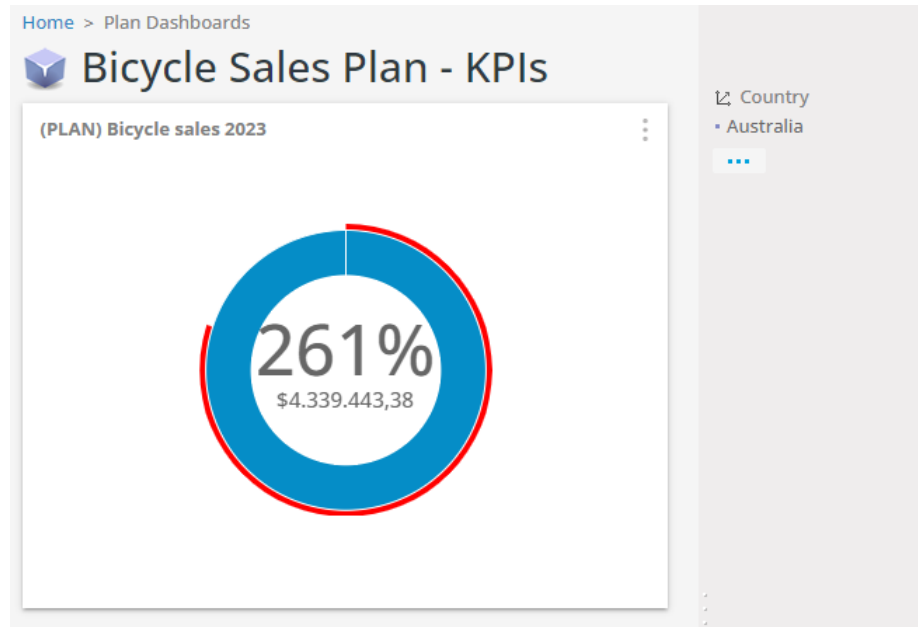
... or a **Gauge** chart that visually indicates how far the plan is from the fail or success threshold...



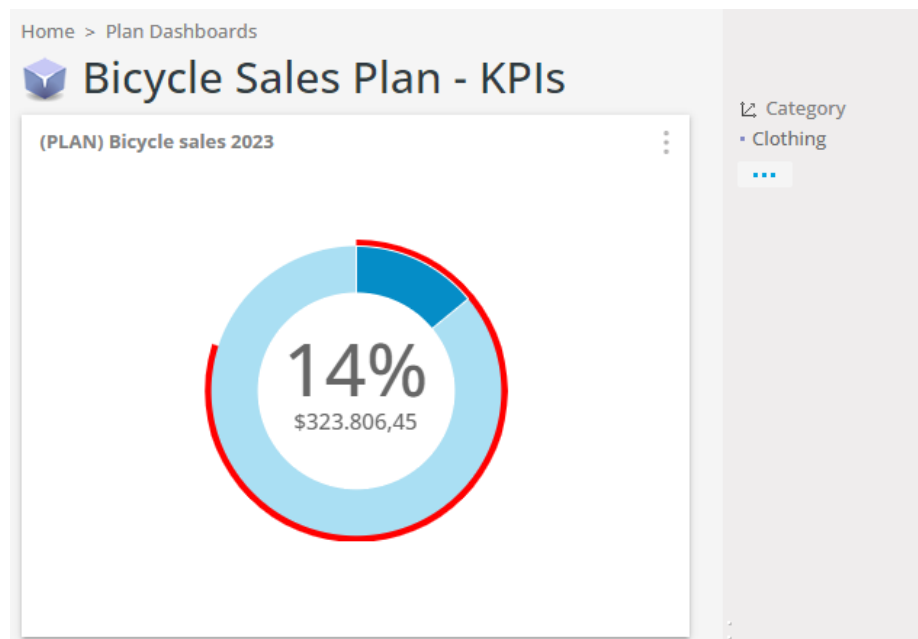
### 3.5.1. KPI, Goal meter of Gauge for certain aspect of the plan

In the previous example, the Plan KPI shows the value and status of the complete plan until today. To display the same for a specific aspect of the plan add a dashboard filter that is related to Plan Dimension Levels.

In the following example, we observe the Plan KPI for **Australia**, which shows very successful plan status for the plan vs actual until today.



On this example we see plan failure related to (product) Category set to **Clothing** and value we have until today...



### 3.5.2. Using standard Kyubit dashboards features with Planning, Budgeting & Forecasting

For users who are not familiar with **Kyubit dashboard features** here are some important features that could be of significant benefit and used with planning and monitoring of Plan vs Actual values. Please read Kyubit Dashboard features user manual to see all dashboard options available and how to use them.

#### 3.5.2.1. Dashboard Subscription

After the dashboard with Planning, Budgeting & Forecasting data is created. All users could subscribe to receive the same dashboard with fresh values on email at the scheduled time.

#### 3.5.2.2. Embedding dashboard to another HTML base page (external web application)

The dashboard could be embedded with a simple HTML/JavaScript into another web page.

#### 3.5.2.3. Mobile view on the dashboard

The dashboard could be opened in mobile-friendly view on the mobile browsers on the URL [http://\[Kyubitapp\]/Mobile](http://[Kyubitapp]/Mobile)

#### 3.5.2.4. Export dashboard to PDF file

All charts and values are exported to a PDF file.

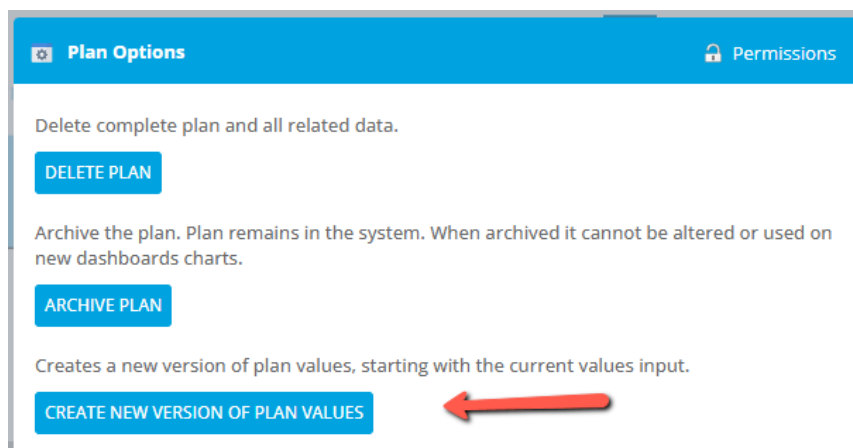
#### 3.5.2.5. Display dashboard charts as slides (slideshow)

Displays each dashboard chart in the full-screen mode for a defined amount of time.

## 4. Creating a new plan version and archiving

### 4.1. New Plan Version

Once the plan is finalized, plan values cannot be changed. If there is a conclusion that circumstances have changed and plan values need revision, it is possible to create a new version of the plan (no application limits the number of new versions). Updating plan values for the new version will start with old/previous inputs that are provided in the previous planning stage (no need to enter all values from the scratch). If the plan includes participants, they will not all automatically get the action to update their plan values, but the plan owner needs to revert plan assignments for those he decides need revision. To create a new version of the finalized plan navigate to the plan home page > manage > options > Create new version.



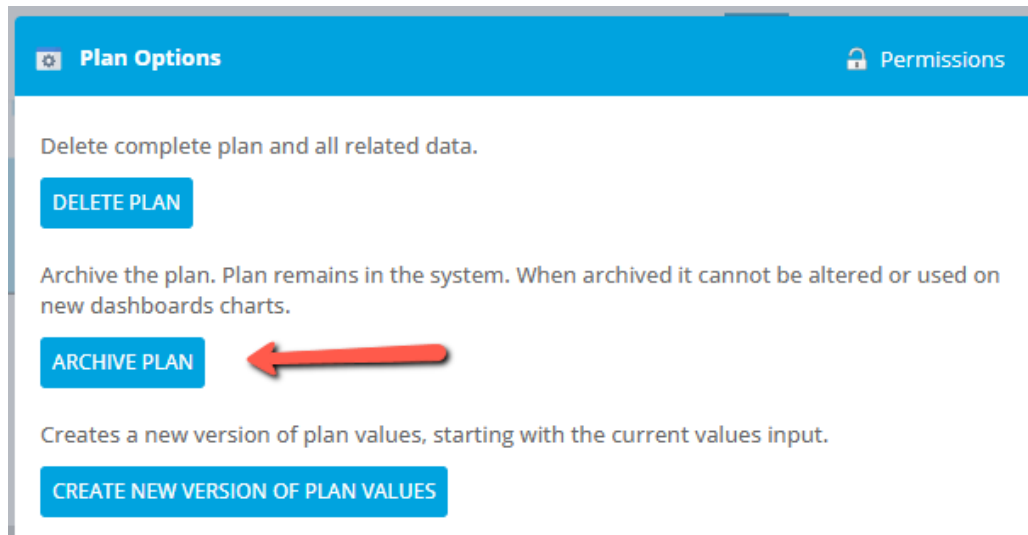
The plan will be returned to **Plan Values** status. After updating the plan with new values, again plan owner decides when to finalize the plan and which will again process all input values to distribute and aggregate over all plan dimension levels. Once the plan has a new version, old version plan values are still in the system and can be observed on the plan home page > Versions (that will appear on the right side).



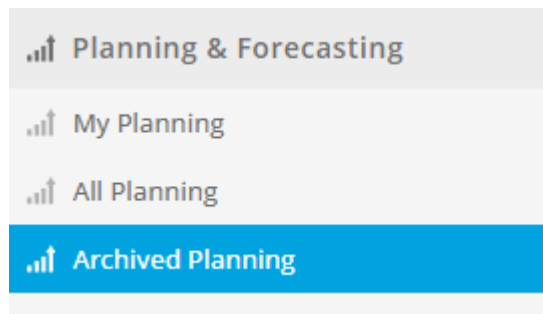


## 4.2 Plan Archiving

After the plan is completed (not relevant anymore) or does not have significance to be listed among other active plans, the plan owner can choose to archive the plan. To archive the plan navigate to the plan home page > manage > options > Archive plan.



Archived plans can be listed with a click on the Archive plans link in the Planning section of the application. Archived plans will not be listed while choosing the dashboard data for the new charts.



## 5. Including processed plan values to existing Data Warehouse (Advanced)

This chapter explains how you can include all plan values (distributed on all plan dimension levels) back into your existing data warehouse database, so you could a) create an OLAP cube with planned values distributed over related dimension levels, and b) use planned values outside the Kyubit application. All planned values are saved in the Kyubit **SQL** database **KyubitAnalyticModels** as the plan features are using **Kyubit Analytic Model** technology for quick multidimensional analysis. To return plan vs actual data Kyubit application in parallel is running MDX queries with OLAP cube to return actual values and running Analytic model analysis to return planned values. Two data sets are merged and presented on Kyubit charts. If you are interested to include planned values as an additional measure in your OLAP cube structure, so you could analyze it within Kyubit OLAP grid features or any other OLAP front-end solution here are some technical insights that should be of help.

### 5.1. Plan values in KyubitAnalyticModels database

Table **Models** holds data for all Analytic Models (Plan values are saved in the form of an Analytic Model). Discover the **ModelID** value related to the plan that is visible by the plan name.

3305	T2T AM 3	T2T AM 3
3306	_October's plan	NULL
3308	_Bicycle sales 2023	NULL

In our plan sample, the **ModelID** identifier is **3308**. This means that plan values exist in the fact table **Model3308**. After opening this table, you will see all plan values distributed per all plan dimension levels. To get the full processed (distributed/aggregated) plan values filter with the value **KYFinalized = 2**.

	Plan	CategoryID	SubcategoryID	CalendarYearID	CalendarSemesterID	CalendarQuarterID	MonthID	DateID	CountryID	KYFinalizedID
1	1516.13	2	13	1	1	1	1	1	1	2
2	1516.13	2	13	1	1	1	1	2	1	2
3	1516.13	2	13	1	1	1	1	3	1	2
4	1516.13	2	13	1	1	1	1	4	1	2
5	1516.13	2	13	1	1	1	1	5	1	2
6	1516.13	2	13	1	1	1	1	6	1	2
7	1516.13	2	13	1	1	1	1	7	1	2
8	1516.13	2	13	1	1	1	1	8	1	2
9	1516.13	2	13	1	1	1	1	9	1	2
10	1516.13	2	13	1	1	1	1	10	1	2
11	1516.13	2	13	1	1	1	1	11	1	2
12	1516.13	2	13	1	1	1	1	12	1	2
13	1516.13	2	13	1	1	1	1	13	1	2

The first column presents the plan value distributed on the leaf time level (in this sample, the Date). Other columns refer to Plan dimension levels. All dimension levels table names start with Level{ModelID} in our sample this is **Level3308**.

- + `dbo.Level3308_CalendarQuarter`
- + `dbo.Level3308_CalendarSemester`
- + `dbo.Level3308_CalendarYear`
- + `dbo.Level3308_Category`
- + `dbo.Level3308_Country`
- + `dbo.Level3308_Date`
- + `dbo.Level3308_Month`
- + `dbo.Level3308_Subcategory`

Open the dimension table to see related dimension level details. If the dimension ,level members in the OLAP cube include **MemberKey**, this value will be visible under the **ExternalKey** column in this table. Using the values from the model fact table and **ExternalKey** value from dimension tables you could create a SQL query that takes plan values that exactly match dimension members that exist in the OLAP cube.

	ID	Name	Key	Unique	ExternalKey
	1	Accessories	1	[Product].[Product Categories].[Categ...	4
	2	Bikes	2	[Product].[Product Categories].[Categ...	1
	3	Clothing	3	[Product].[Product Categories].[Categ...	3
	4	Components	4	[Product].[Product Categories].[Categ...	2
	NULL	NULL	NULL	NULL	NULL

Diagram of plan (Analytic Model) tables relationship in the case of sample plan prepared in this document...

