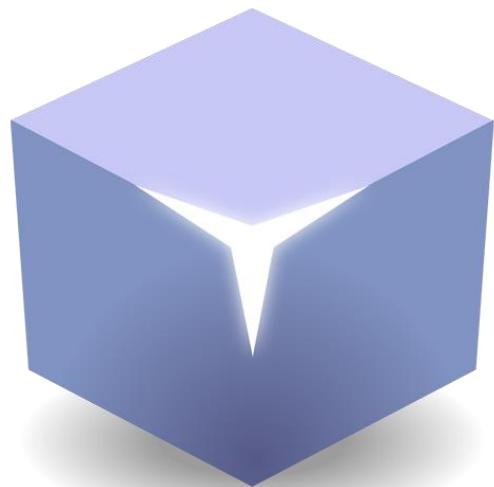


Dashboard Tools and Features with Kyubit Business Intelligence

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Dashboard Tools and Features - User Manual

Using dashboard features with Kyubit Business Intelligence

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1. Dashboard features overview

Kyubit dashboard features are designed to present data from **OLAP/SQL** databases and **CSV** files, to give simple and comprehensive feedback about important business values and trends. While creating a dashboard, the user has various visual options to present data most efficiently regarding the nature of data and business requirements. Easy drag-and-drop features make dashboard design and creation simple and straightforward task, which is easy to adopt by any user. To retrieve data for dashboard chart elements, existing analyses or SQL/MDX queries could be created. Dashboards could be also delivered to users using **Mobile devices**, **Scheduled Subscriptions** or as **Embedded Analytics** integrated within any HTML page. To work with dashboard features, select ‘Dashboards’ tab on the top of the Kyubit Business Intelligence application.

SET DASHBOARD TILES DATA FROM EXISTING ANALYSIS

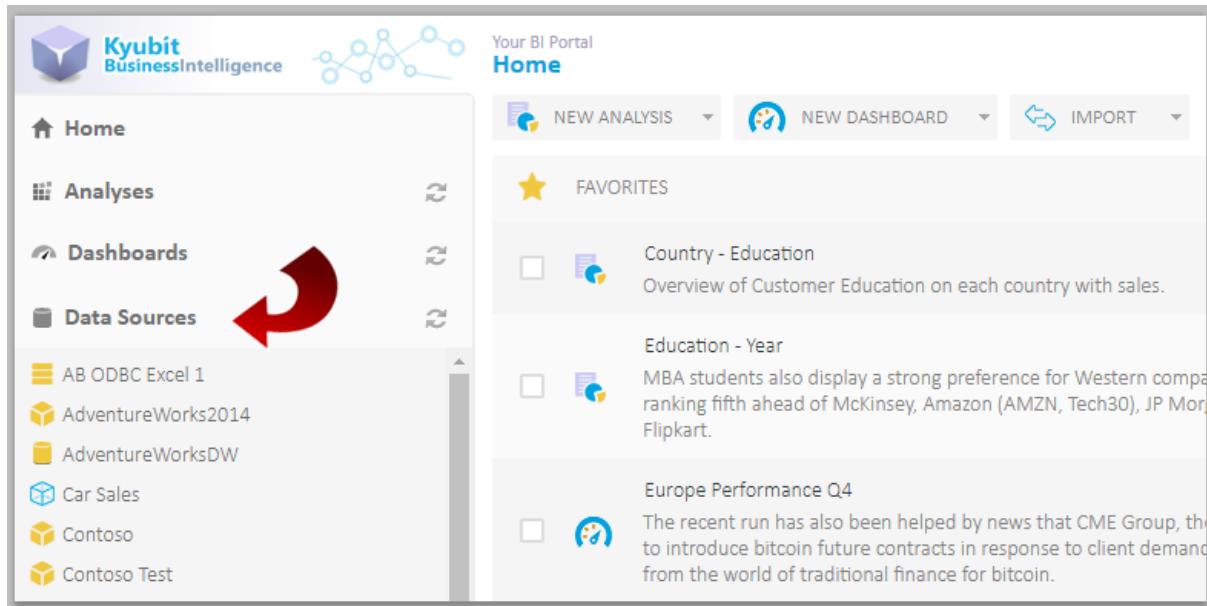
Fiscal Year	FY 2010	FY 2011	FY 2012	FY 2013
Country	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.
+ Australia	\$644.860,84	\$1.149.125,31	\$1.486.658,16	\$1.249.995,57
+ Canada	\$88.560,85	\$317.326,64	\$219.194,76	\$311.413,91
+ France	\$85.007,58	\$265.048,12	\$449.028,15	\$427.874,70
+ Germany	\$108.419,75	\$301.463,90	\$536.647,40	\$555.272,08
+ United Kingdom	\$138.450,31	\$280.568,72	\$630.791,16	\$510.849,87
+ United States	\$529.472,07	\$1.092.529,37	\$1.398.093,85	\$1.525.585,31
Sum	€ \$1.589.771,40	€ \$3.406.062,05	€ \$4.720.413,47	€ \$4.580.991,44

Drop Series Here	Internet Sales Amou.
Country	Internet Sales Amou.
+ Australia	\$4.530.639,87
+ Canada	\$936.496,16
+ France	\$1.226.958,55
+ Germany	\$1.496.803,13
+ United Kingdom	\$1.560.660,05
+ United States	\$4.545.680,61
Sum	€ \$14.297.238,37

2. Managing Data Sources

All data for dashboard elements is retrieved from data sources that contain interesting business data for the presentation and metrics. Once created, data sources are used from multiple queries and analysis. To see all existing data sources in Kyubit Business Intelligence, open Dashboards -> Data Source (tab).

It is possible to create **OLAP**, **SQL**, **ODBC** data sources. ('**Analytic Models**' as a separate data source could be created using any of the above-mentioned data sources.)

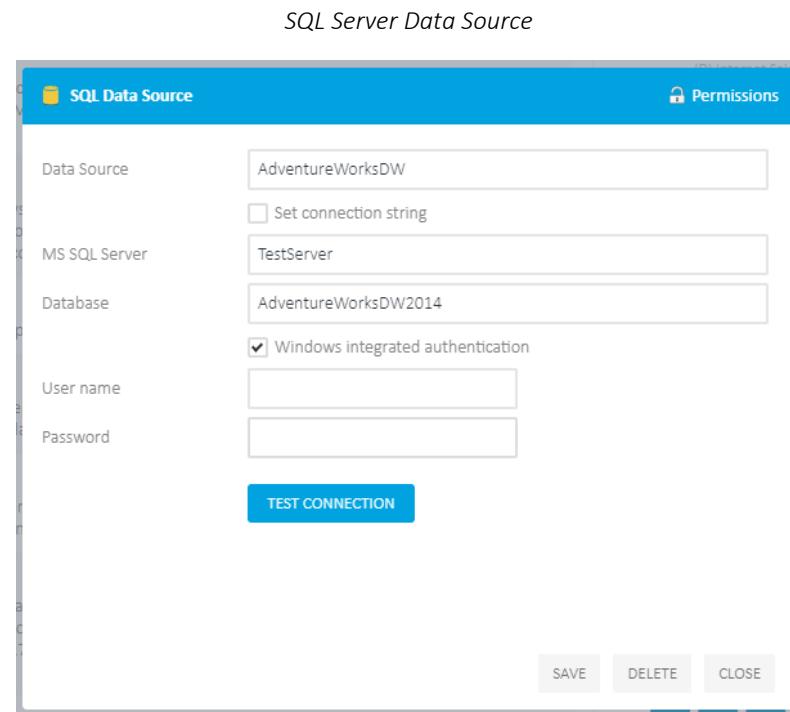


2.1. OLAP and SQL server data sources

Create a new OLAP or SQL data source to be used for queries and analyses. Once created 'Data source' can be used on multiple objects in Kyubit Business Intelligence application and by the users who are given permission to work with.

OLAP Data Source

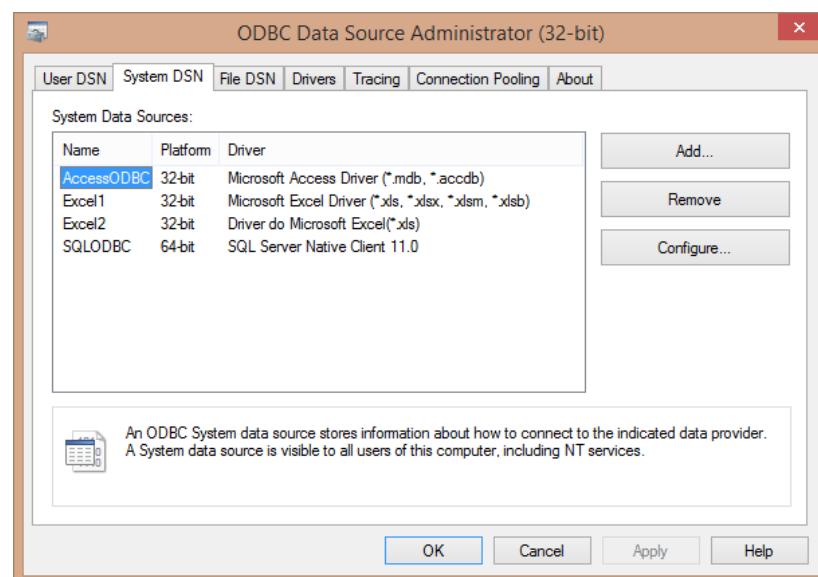
This is a screenshot of the 'OLAP Data Source' configuration dialog. It has a blue header bar with the title 'OLAP Data Source' and a 'Permissions' button. The main area contains four input fields: 'OLAP reference name' (AdventureWorks2014), 'Server (Data source)' (TestServer), 'OLAP database (Catalog)' (AdventureWorks2014Play), and 'Cube name or Tabular model' (Adventure Works). Below these is a checkbox for 'Set custom connection string' with a help icon. At the bottom are buttons for 'TEST CONNECTION', 'SAVE', 'DELETE', 'REFRESH CUBE CACHE', and 'CLOSE'. A note at the bottom states: 'Provide data for Analysis Services OLAP data source. Once created, other users will be able to use 'OLAP Data Source' for analysis, based on their permissions in the OLAP role-based security.'

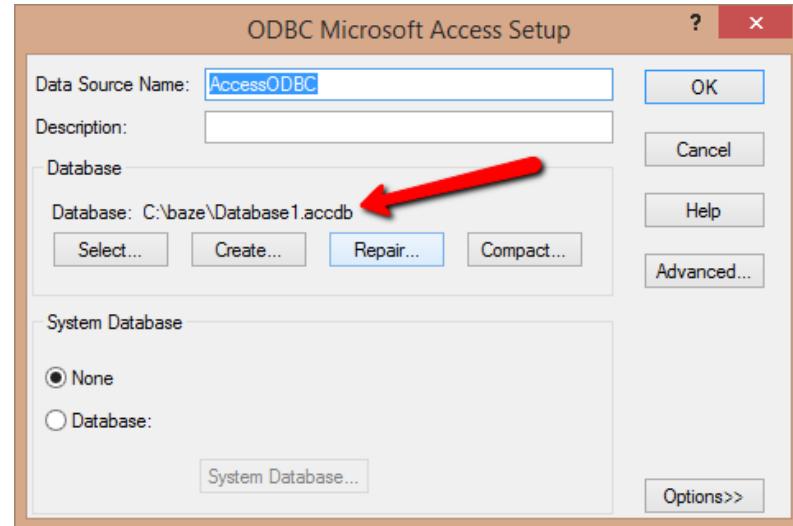


For both, OLAP and SQL data sources, custom connection strings could be set and connection could be tested before the data source is saved.

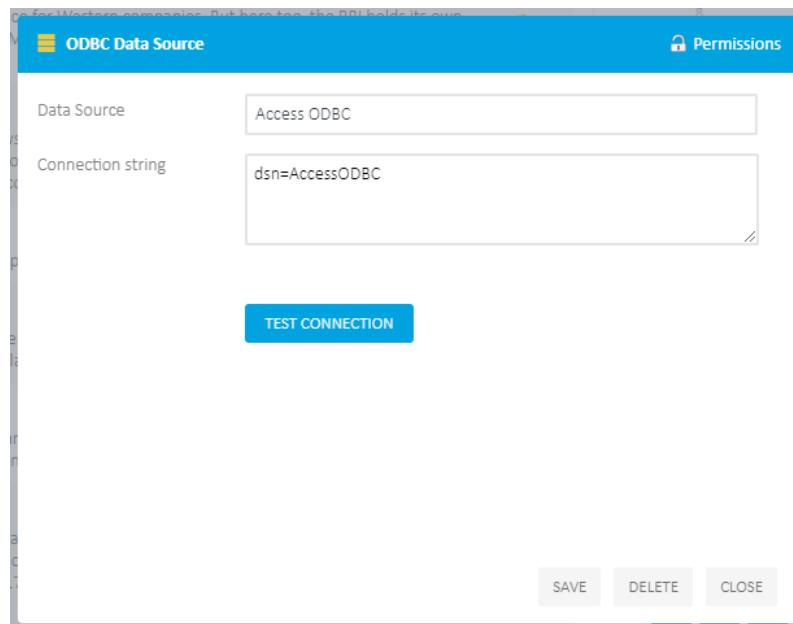
2.2. Set up ODBC data source

To create an ODBC data source, first configure an ODBC connection on your machine. For example, create an ODBC connection to Excel or Access files on your system.

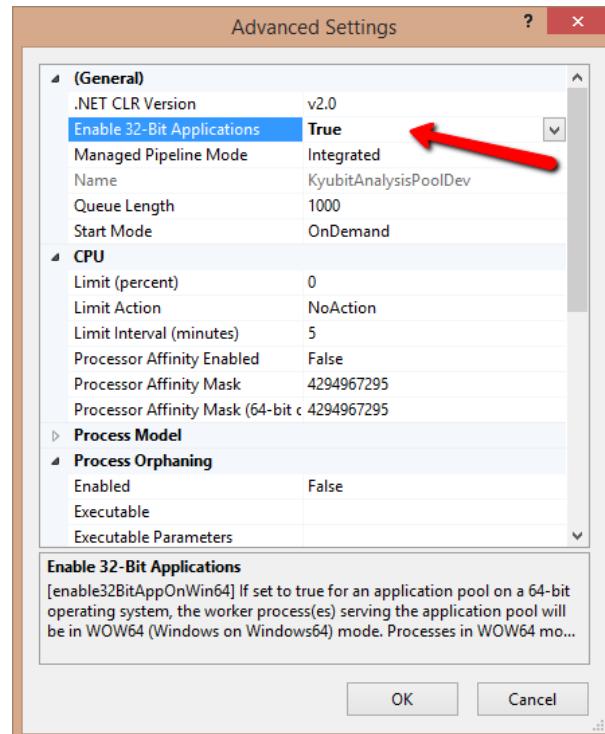




'Data Source Name' that is used for the ODBC connection on the operating system level, use to create new Data Source in Kyubit BI application.

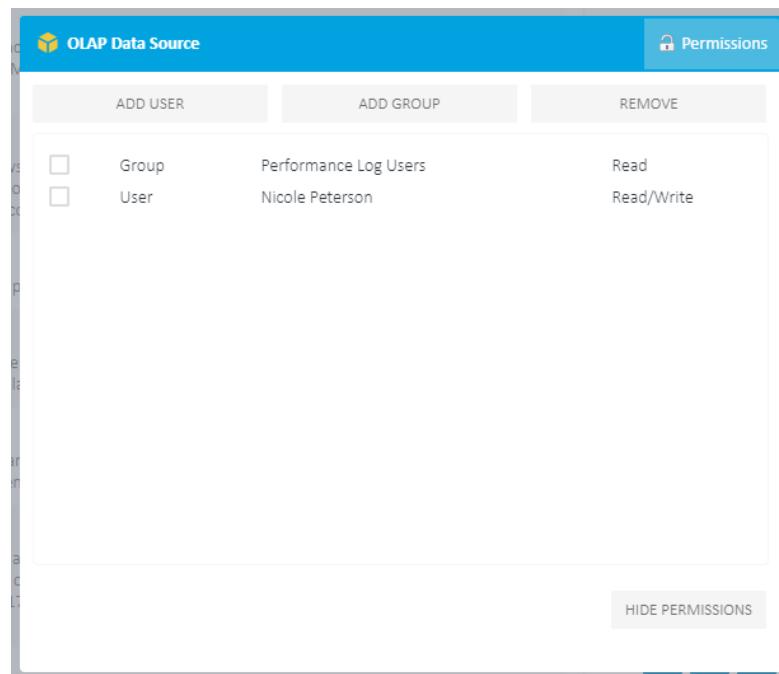


To set up an ODBC data source for MS Office applications, which are available only for 32-bit ODBC configuration, it is also required to configure Kyubit application to work in 32-bit mode. Open IIS Manager -> Application pools -> "KyubitAnalysisPool" -> Advanced Settings and set "Enable 32-bit application" to "True".



2.3. Set 'Data Source' permissions

If the 'Data Source' should be visible to other users, click on the 'Permissions' options in the upper-right corner and add appropriate **Active Directory/Windows** or **Kyubit** users and groups to have '**Read**' or '**Read/Write**' permissions or set **Unrestricted** access to created Data Source. (See chapter 7.1. for more details)



If a user does not have 'Read' permission on the data source, he will not be able to create new queries and analyses based on same 'Data Source', but he will be able to open dashboard with queries and analyses based on the same 'Data Source'.

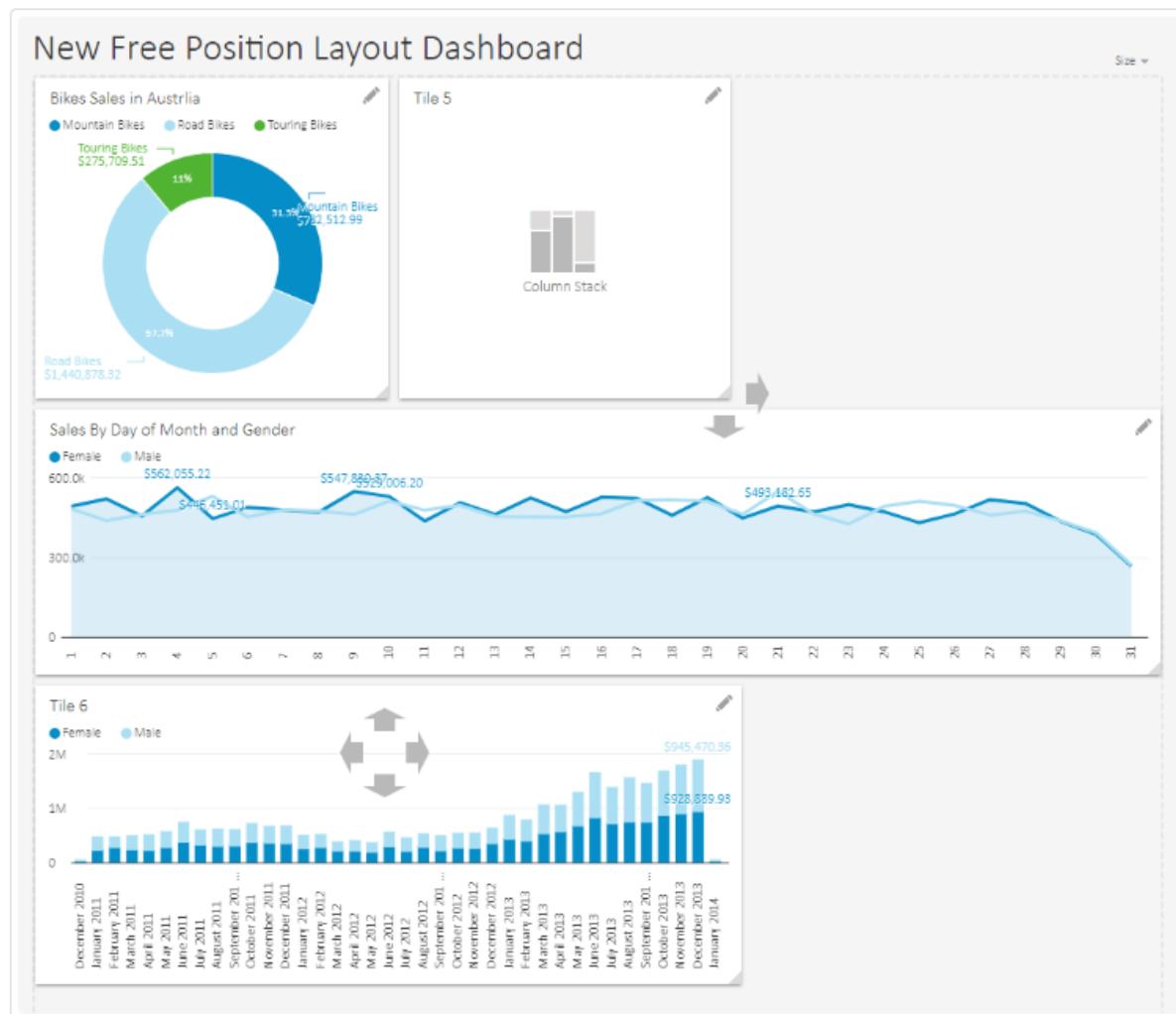
3. Creating and designing dashboards

All users with access to Kyubit Business Intelligence application could create new dashboards. To start creation of new dashboard, click 'Create New Dashboard' button on the dashboards view. New Dashboard will be opened in a design view, ready to be designed and configured.

3.1. 'Free Position' based dashboard layout

The dashboard consists of one area where dashboard tiles (charts) are positioned in any preferred way. Drag-and-drop any visualization tile from the charts toolbar on the dashboard and set its position and size on the dashboard 'Area'. To resize a tile, click on the resizing handle (arrow) on the tile lower-right side. While moving around and resizing a particular tile, element size indicator is displayed on the lower-right side of tile element, indicating tile size in pixels, so a dashboard designer could easily compare and organize content on the dashboard. Tiles are moved and resized by 10px step, making it easy to align among other dashboard tiles.

Dashboard 'Area' is always positioned centrally on the dashboard page and at any time set 'Area' size with the button on the right. Arranged positions and sizes of dashboard tiles are respected while exporting dashboard to PDF (Simple Export). To remove tile from the dashboard, click on the tile edit and trash icon.



3.2. Working with dashboard charts

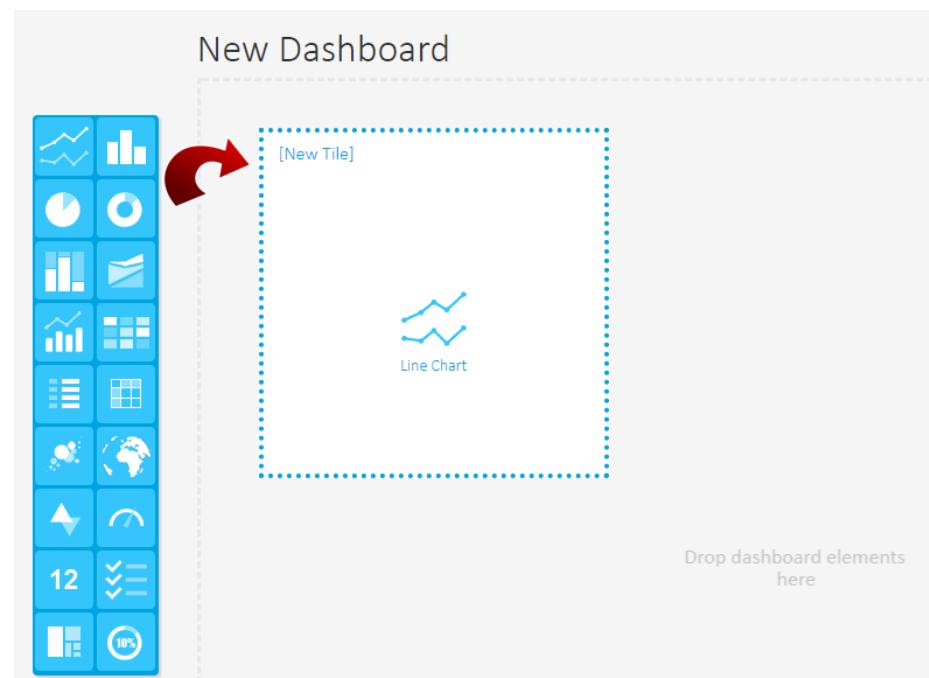
On every dashboard, user can choose to add more than 20 different charts and visualizations (tiles) that present some kind of data visualization. On the dashboard toolbar on the left, visualization (chart) types are presented with descriptive icons. On a dashboard tile, visualization type can be changed on Tile -> design -> ‘Chart Type’ attribute.



- Line chart
- Column chart
- Column chart stacked
- Column chart 100%
- Area chart
- Area chart stacked
- Area chart 100%
- Pie chart
- Doughnut
- Bubble/Scatter chart
- Table
- KPI
- Gauge meter
- List
- Geo Map
- Card
- Small Card
- Combo chart
- Tree Map chart
- Goal Meter
- HeatMap chart

3.2.1. Add a tile to the dashboard

To add tile to dashboard, drag-and-drop preferred tile type (visualization) from toolbar on the left to the dashboard area on the right.

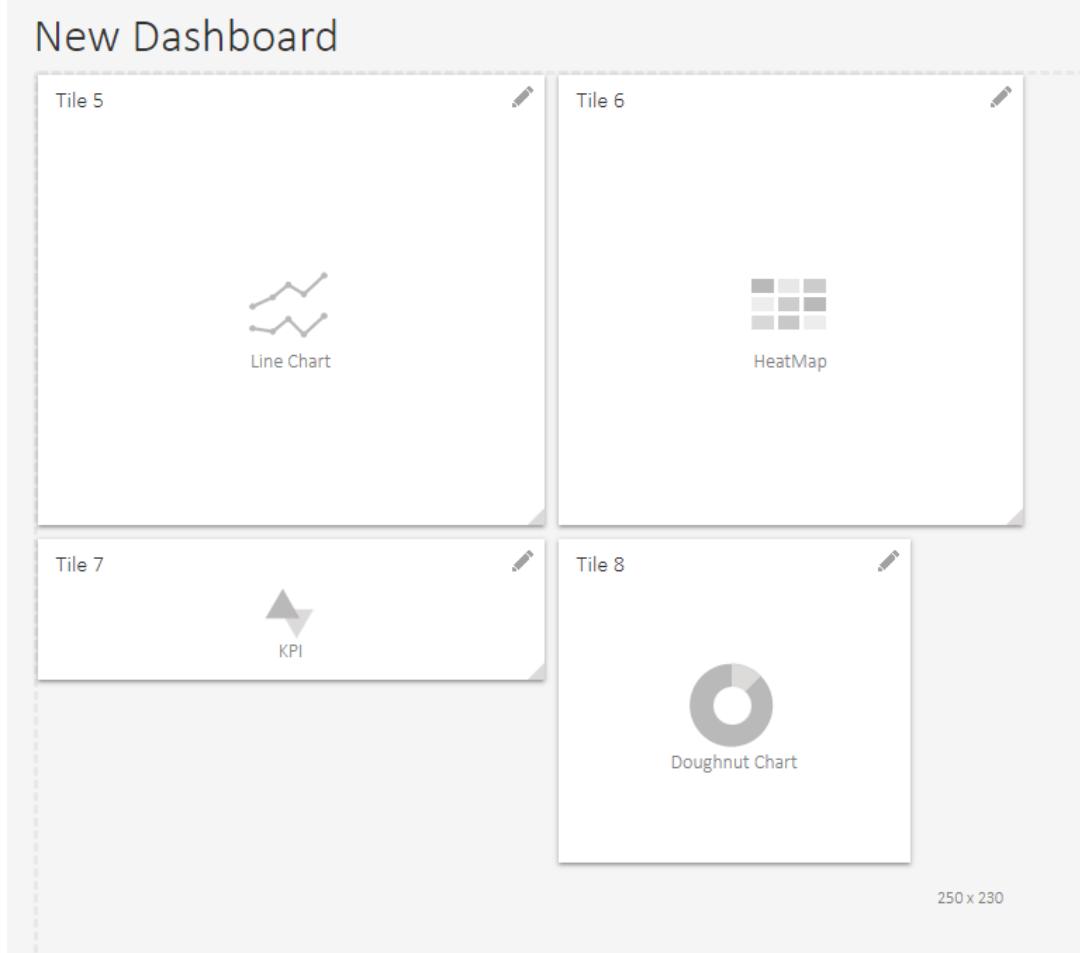


3.2.2. Remove tile from the dashboard

To remove tile (delete) from the dashboard, click on the dashboard tile **edit** icon and choose '**Delete**' button.

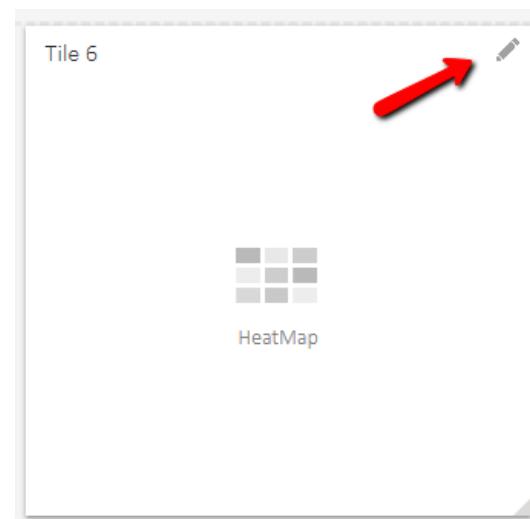
3.2.3. Rearrange tiles on the dashboard

At any time in the design view, tiles could be rearranged or moved to any position. Simply drag-and-drop tiles to preferred location or resize dashboard tile with resize handle on the lower right corner of the tile.

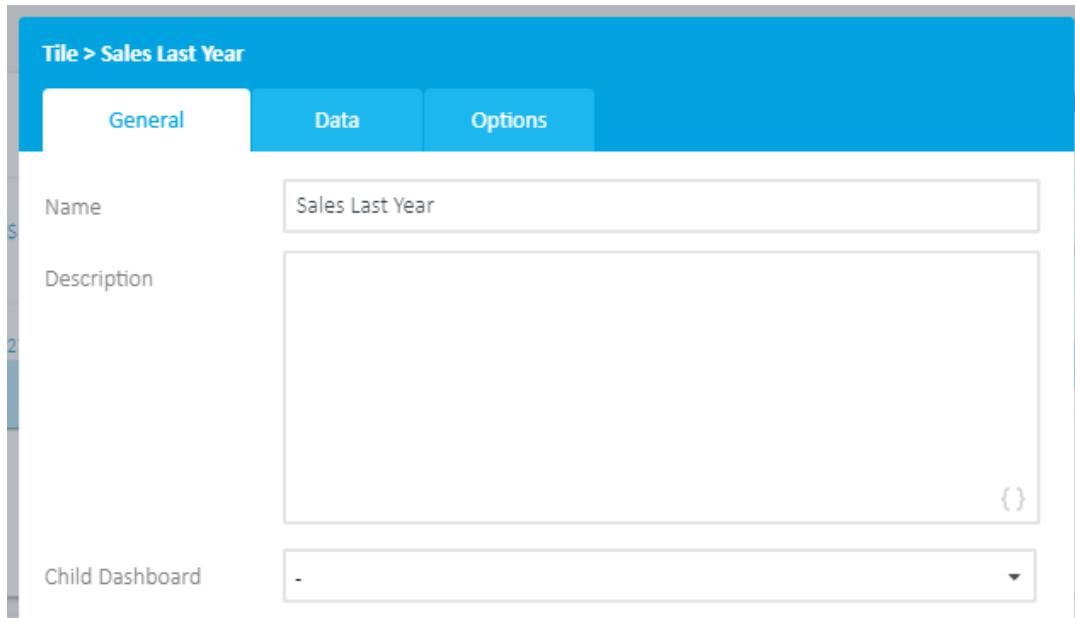


3.2.4. Configure tile to show visualization

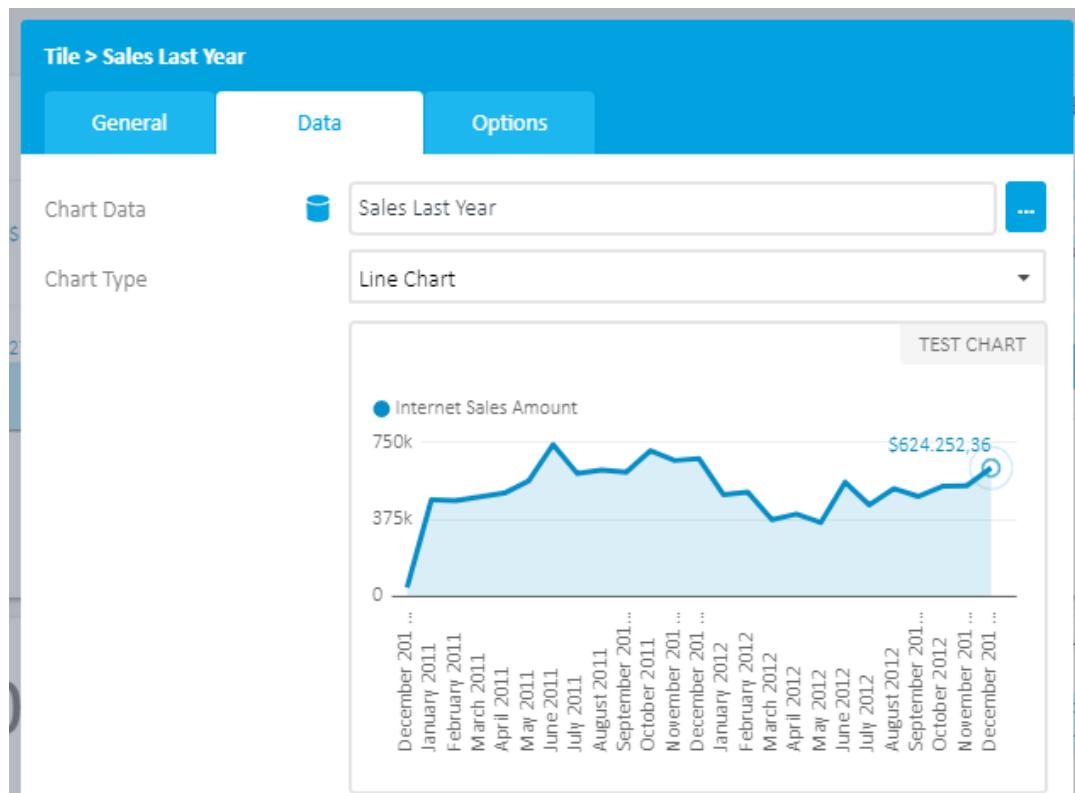
When moving mouse over tile (while dashboard is in design mode) 'Pen' icon is displayed, which allows user to click and open tile configuration form.



Enter dashboard general information: like ‘**Title**’, ‘**Description**’ and, if you like, set ‘**Child dashboard**’ that will be opened as a more detailed view of the same data, enabling users to have ‘drill-down’ experience while using dashboards.



‘**Data**’ is second tab on the tile form, where data for visualization will be defined.

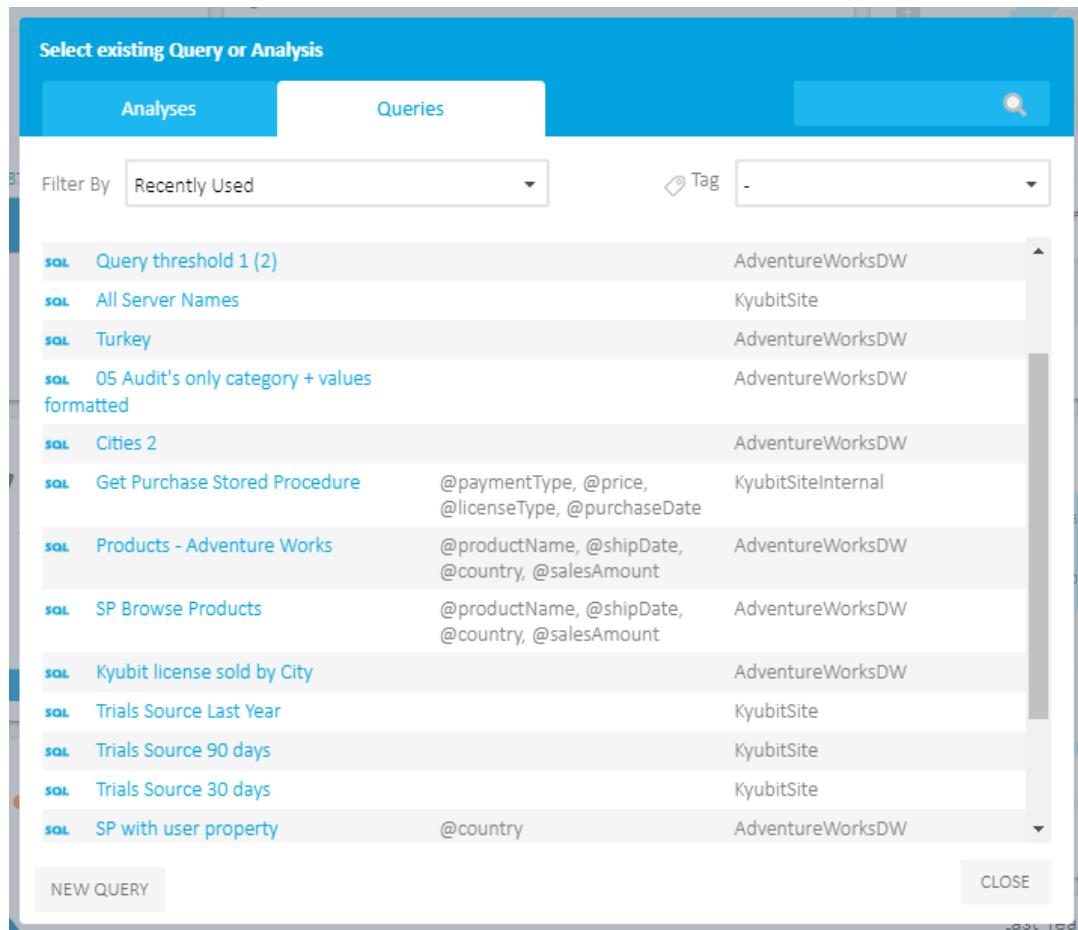


'Chart Data' is input where user selects existing Analysis or Query (TSQL or MDX) previously created in Kyubit BI application to retrieve data and show in this tile visualization ('Line chart' in this case). **Existing Analysis** means that analysis is created in 'Analysis' part of Kyubit Business Intelligence application (OLAP or 'Analytic Model' analysis) and that current user has at least permissions 'Read' permission on the folder containing the analysis. **Existing Query** (TSQL or MDX) means, that query is previously created in 'Dashboards' part of Kyubit Business Intelligence application and current user has at least 'Read' permissions on the folder containing the analysis. If the Query which user requires still does not exists in the application, a user could click on 'New' button immediately from tile form and create new MDX or TSQL query to be used on this tile chart/visualization. To select an existing analysis or query, click on the 'Select' button and selection form of existing Analyses and Queries will be displayed. Quickly find required analysis/query for chart visualization using the **Search** option or filtering by the particular data source or **Recently Used** view.

Analysis selection...

Name	Data Source
Quick Explore Analysis	AdventureWorks2014
Education - Year	AdventureWorks2014
Country - Education	AdventureWorks2014
Tabular Example	Tabular
Friday Report	AdventureWorks2014
Product Properties	AdventureWorks2014
Products by Education	AdventureWorks2014
Sales Amount vs Years	Kyubit Sales All
Partners Share with Years	Kyubit Sales All
Contract Name vs Year	Kyubit Sales All
Municipios	Valencia
Comarcas	Valencia
Valencia Test Data	Valencia
Product Category by Calendar Month 2	Contoso
Product Category by Calendar Month	Contoso

Query selection...



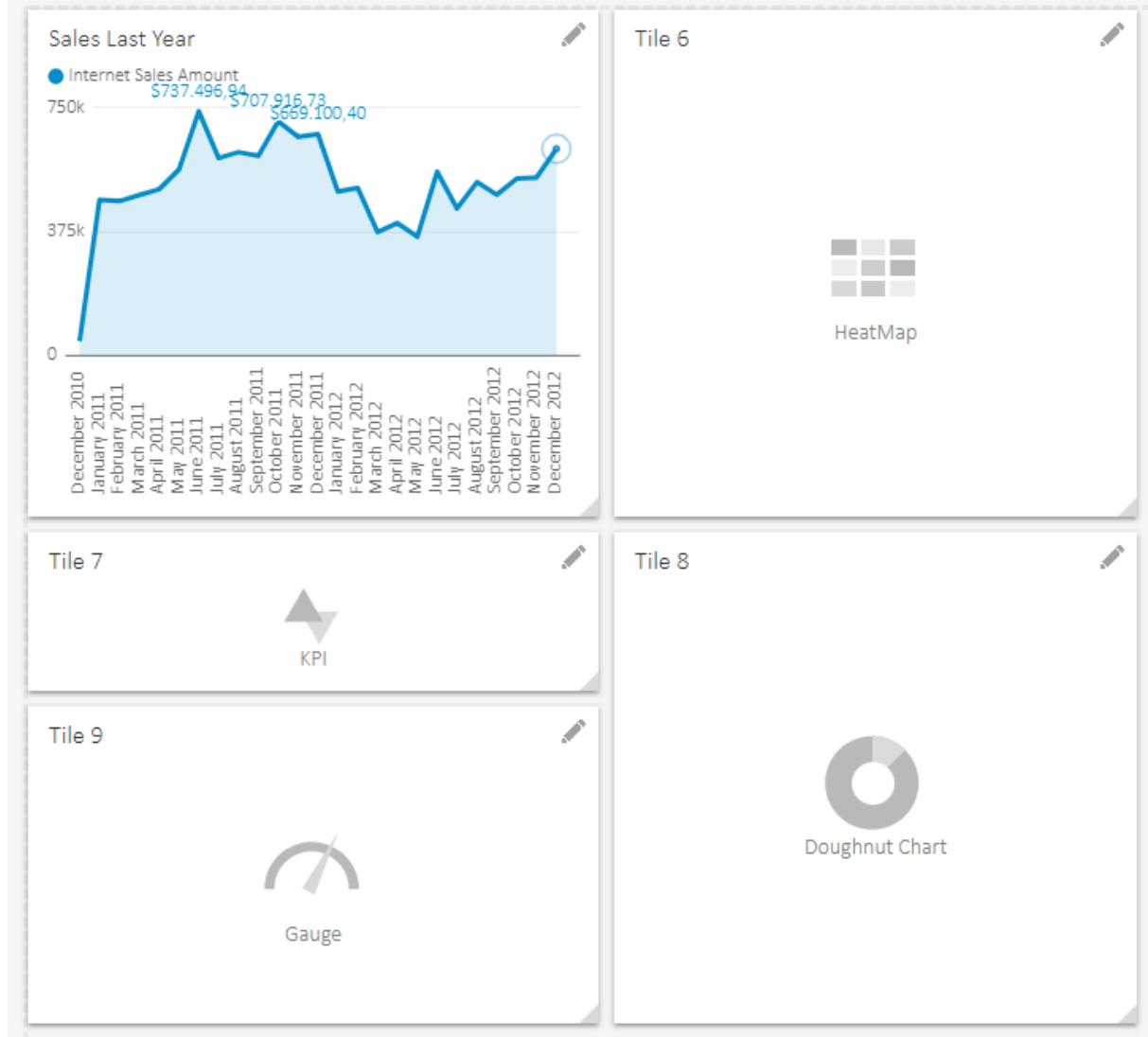
All analysis created within Kyubit BI application for which current user has at least ‘Read’ permission are displayed in selection form. Displayed list could be filtered by ‘Data Source’ for environments with many analyses. Same principles work for Query selection.

After Analysis/Query is selected, click on ‘**Test**’ button in tile form to test visualization with selected analysis/query data.

In tile configuration form, a user still can change tile (visualization) type, if concludes that given data is more appropriate to show with different chart type.

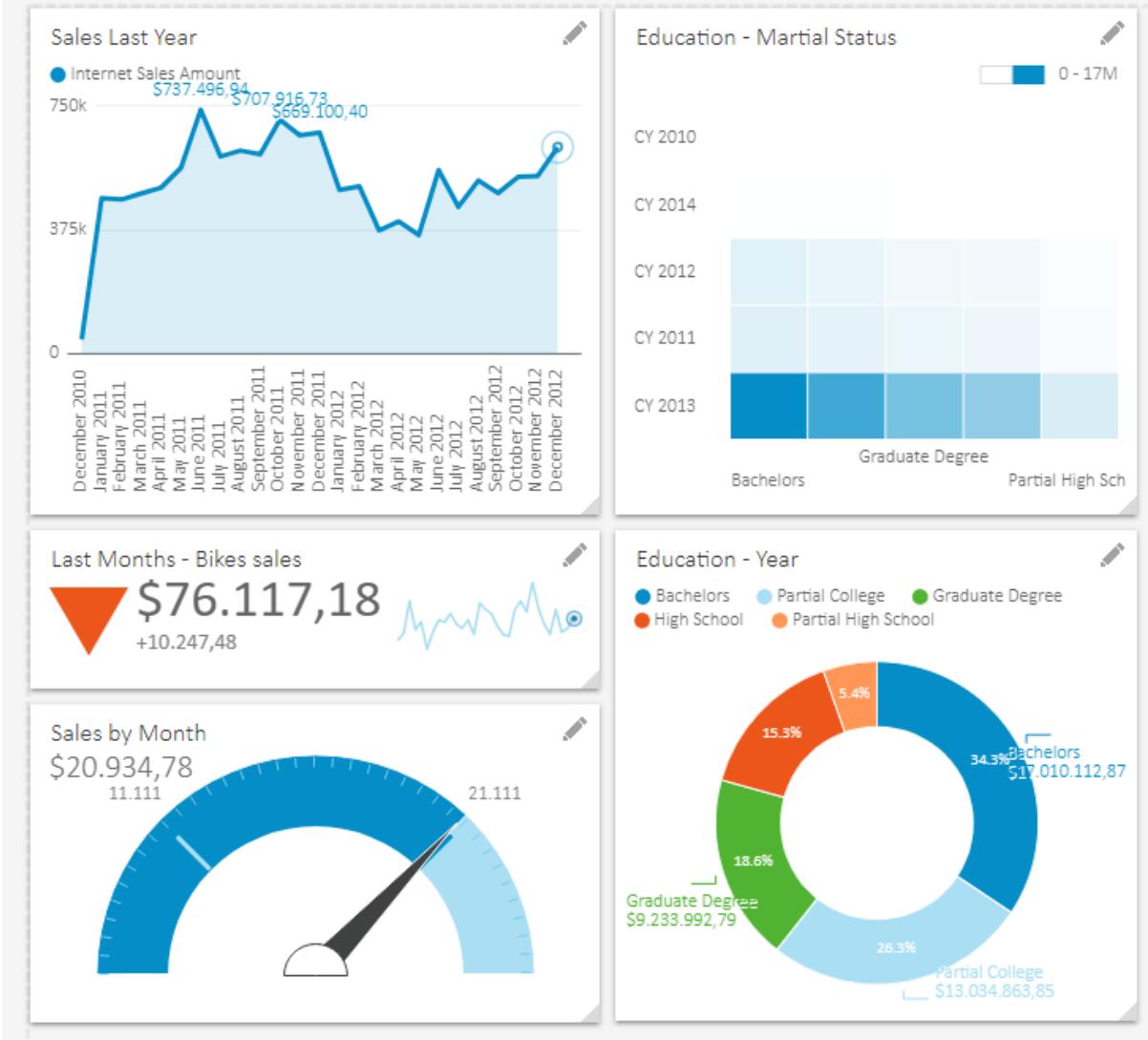
Finally, click ‘**OK**’ in tile configuration form and tile will present data within the dashboard area.

New Dashboard



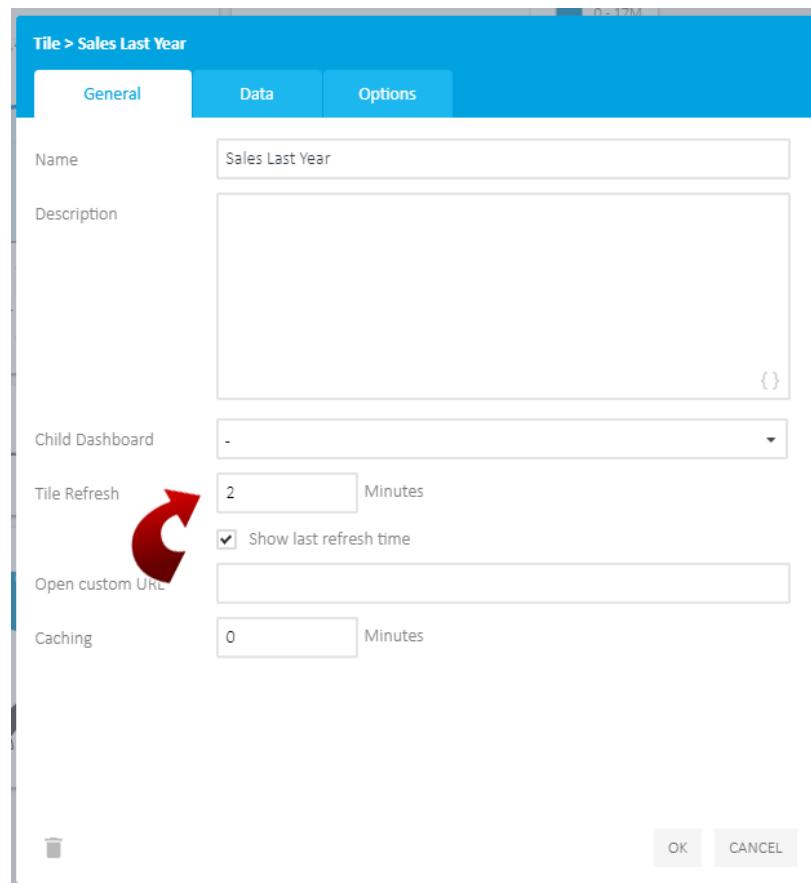
Using the same principles configure other tiles to appropriate visualize other relevant business data on the dashboard...

New Dashboard

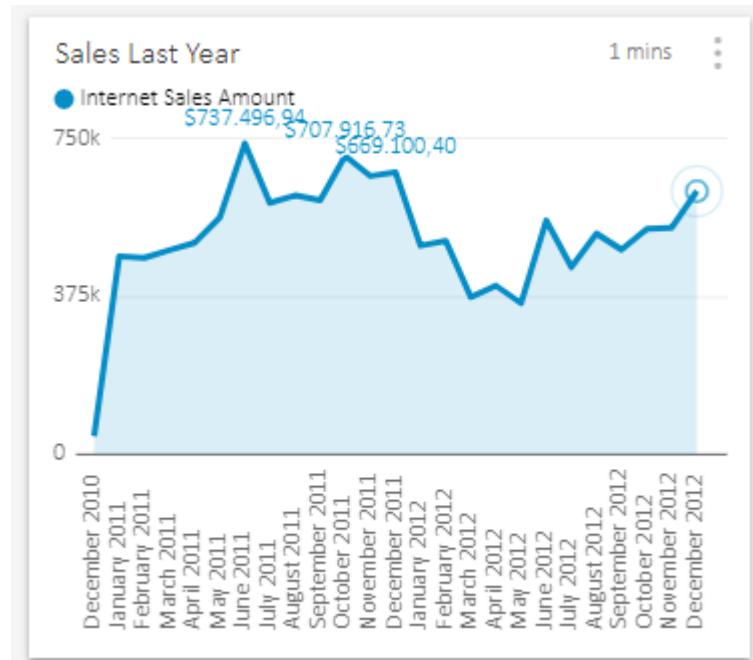


3.3. Chart automatic data refresh

Every dashboard tile could be configured to automatically refresh data in a defined period of time in minutes. Only tiles with defined 'Tile Refresh' attribute will be refreshed with a new data.

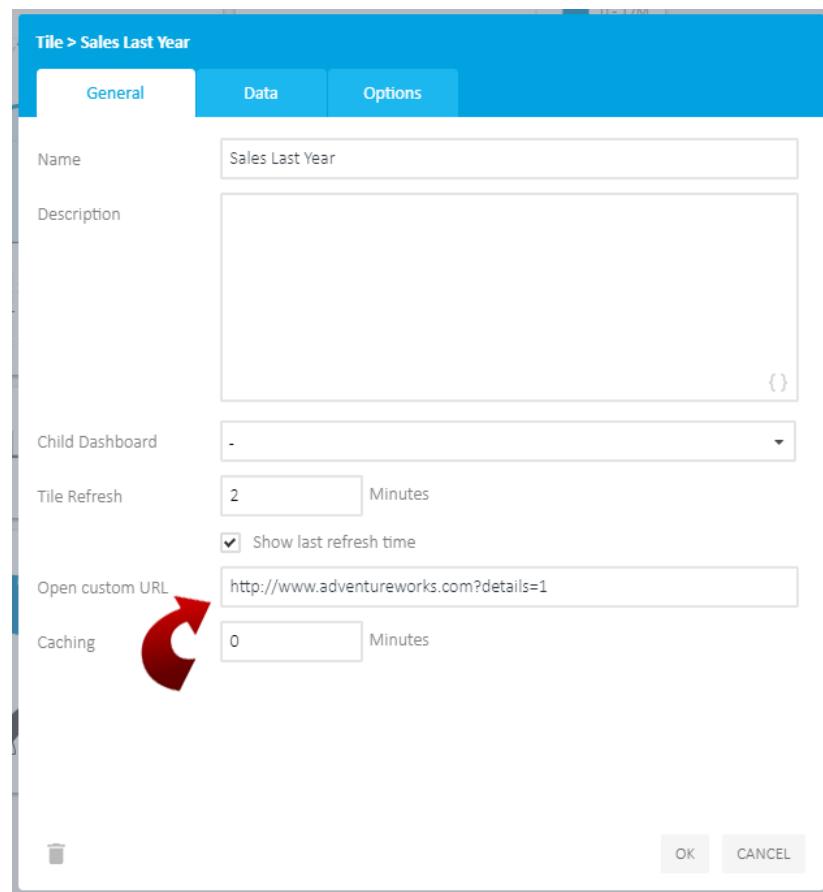


If option 'Show last refresh time' is checked, dashboard tile will display time passed since last data refresh in the dashboard.



3.4. Open custom URL in a context of chart selection data

To open custom URL when a user clicks on a dashboard chart, set ‘Open custom URL’ attribute of the tile.



By clicking on a dashboard tile element, new browser tab will be opened with URL that is defined, but also with an additional URL query string that is created within the context of point/bar/wedge which is actually clicked/selected.

For example:

`http://www.adventureworks.com?Details=1&pointName=United States&pointUnique=[Geography].[Geography Hierarchy].[Region Country Name].&[United States]`

If the dashboard contains added OLAP filters, they will be also part of the create URL in a separate parameter.

If the data source is based on SQL data, the added query string will be based category id defined in the query object.

If the chart is based on SQL query. Custom link URL will open “Category name” defined in query or “Category ID” if it is defined within query column that represents “Category ID”.

Custom URL Placeholders for OLAP data:

To fine-tune what you would like to get in the final URL related to the chart click event, use placeholders to include specific elements about the selected chart segment to the final URL opening external content.

Available placeholders are:

- {CategoryDimensionLevelName} - Level name of the selected chart point on the category axis.
- {CategoryDimensionLevelUniqueName} - Level unique name of the selected chart point on the category axis.
- {CategoryMemberUniqueName} - Member unique name of the selected chart point on the category axis.
- {CategoryMemberName} - Member name of the selected chart point on the category axis.
- {SeriesDimensionLevelName} - Level name of the selected chart point on the series axis.
- {SeriesMemberUniqueName} - Member unique name of the selected chart point on the series axis.
- {SeriesMemberName} - Member name of the selected chart point on the series axis.
- {MeasureName} - Measure Name of the selected chart point.
- {PointValue} - Value of the selected chart point.

Custom URL Placeholders example:

<https://www.kyubit.com?categoryName={CategoryDimensionLevelName}&measureName={MeasureName}&country={CategoryMemberName}&value={PointValue}>

Opens final URL on the chart click:

<https://www.kyubit.com/?categoryName=Country&measureName=Internet%20Order%20Count&country=Australia&value=1.934>

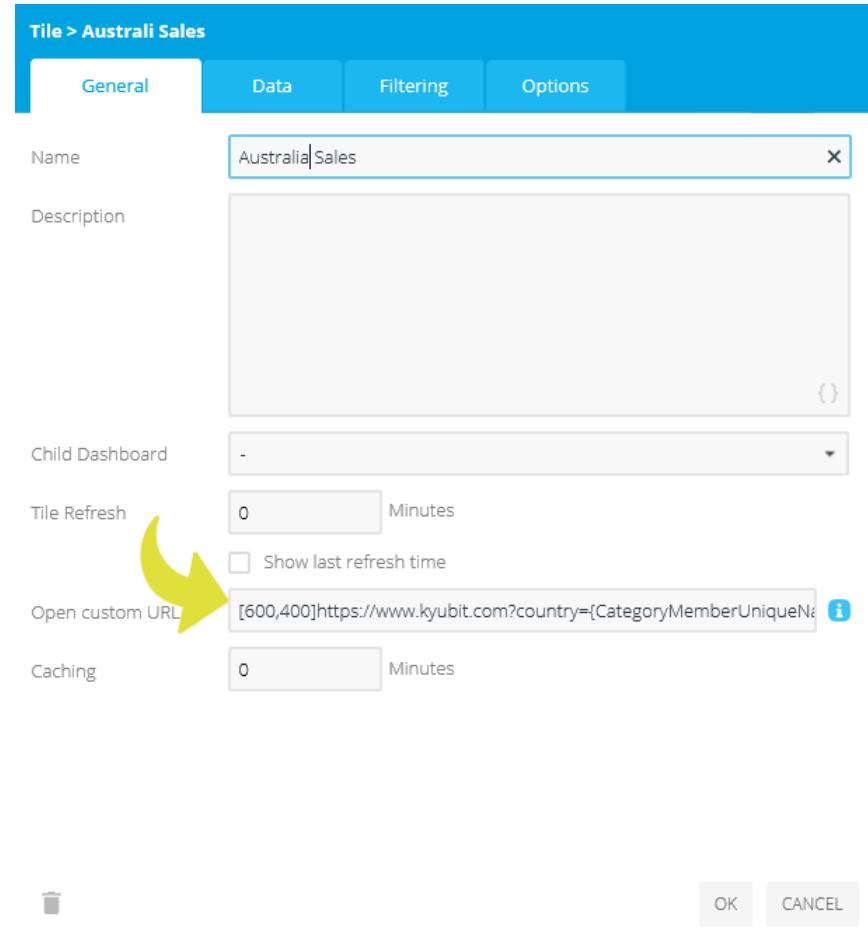
3.5. Open custom URL in the quick frame

Set a dashboard chart to open a quick custom URL frame at the moment the chart point is clicked within the same dashboard page. Opening a custom URL in a frame is much faster (and sometimes more convenient) compared to then opening a custom URL in a new browser tab.

Add dimension of the frame before the URL to direct opening URL in the frame within the same page.

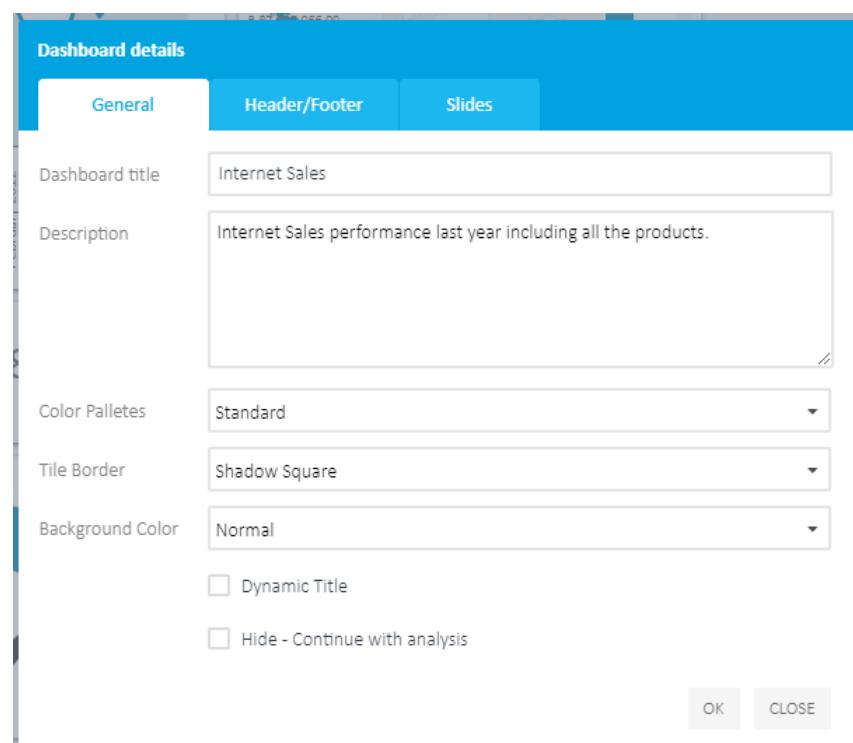
For example: [500,400] <https://www.kyubit.com>



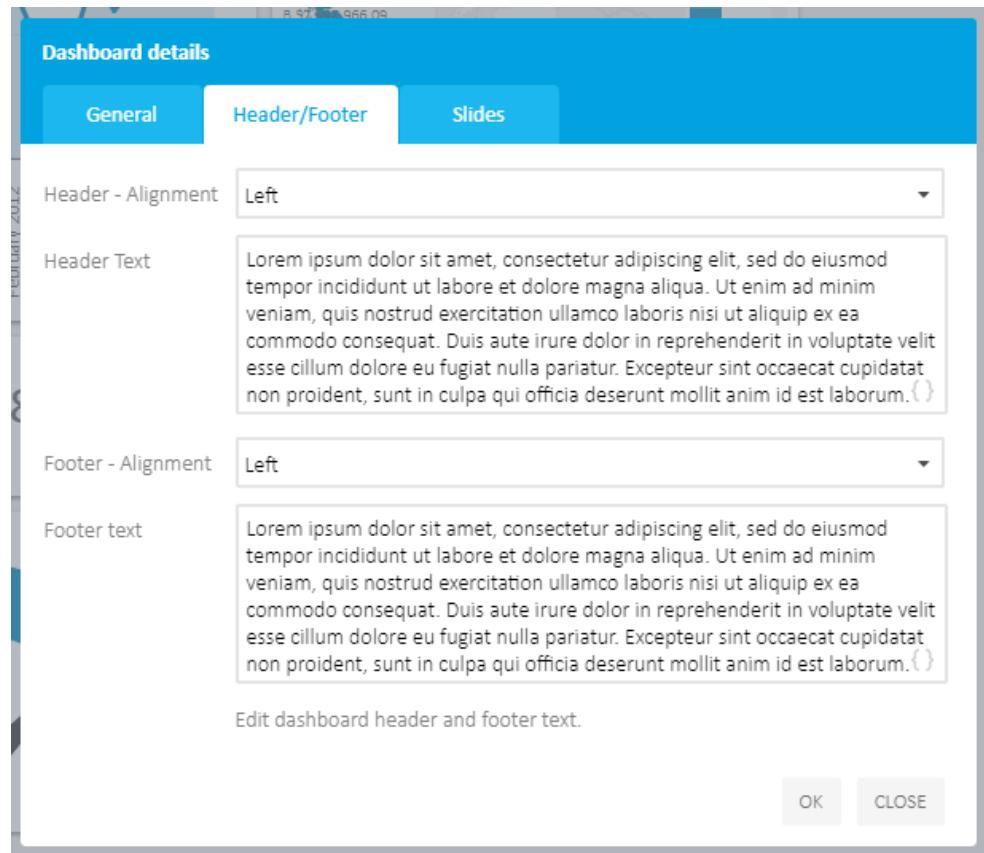


3.6. Dashboard title, header and footer

While in the dashboard ‘design view’ click on the ‘Details’ button to define dashboard ‘Title’, ‘Description’ on the ‘General’ tab.

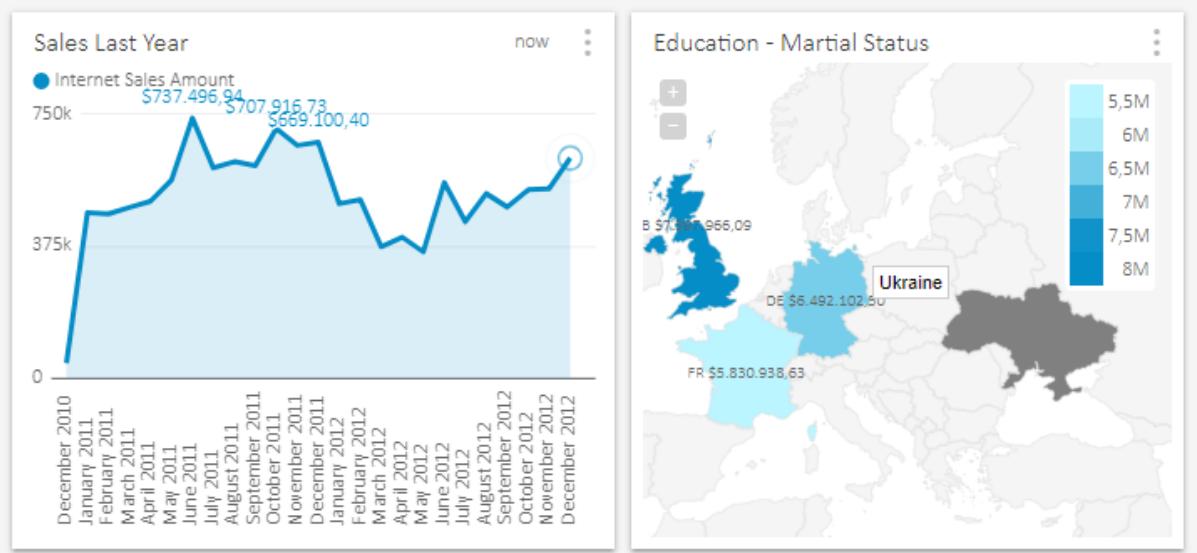


On the '**Header/Footer**' tab set appropriately dashboard header and/or footer and its alignments text and alignments...



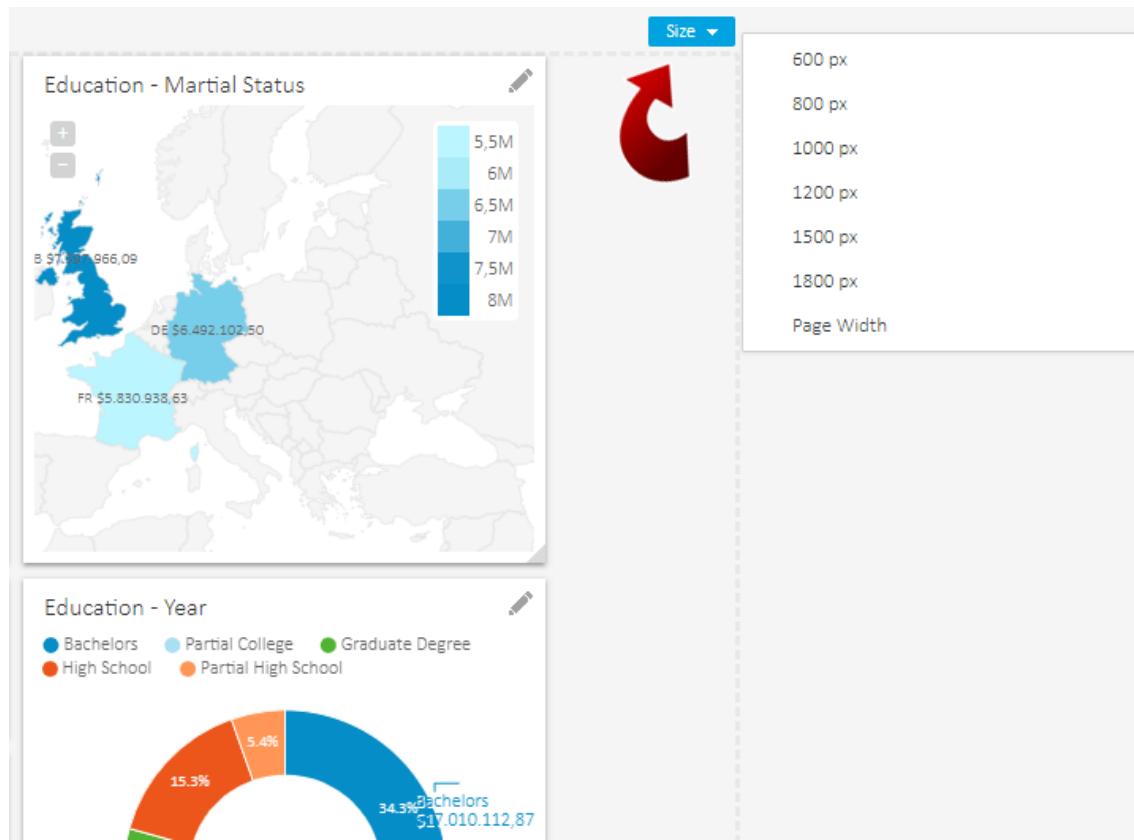
Internet Sales

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.



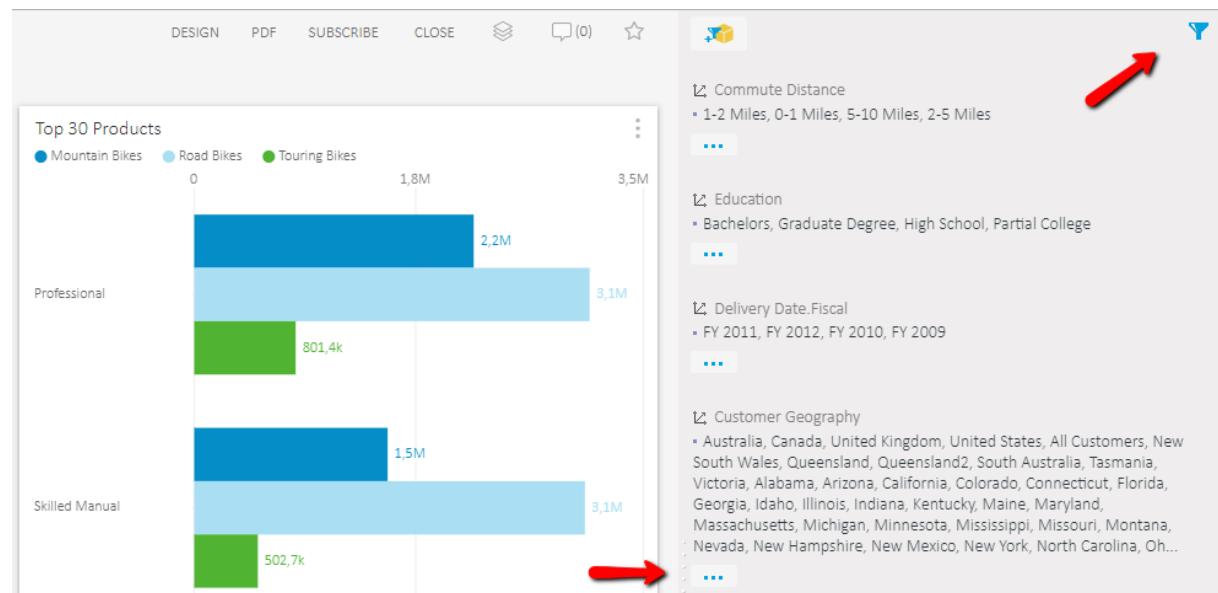
3.7. Manage dashboard area size

To change size (width) of the dashboard area, in the dashboard design mode select one of the predefined values on the **Size** menu.



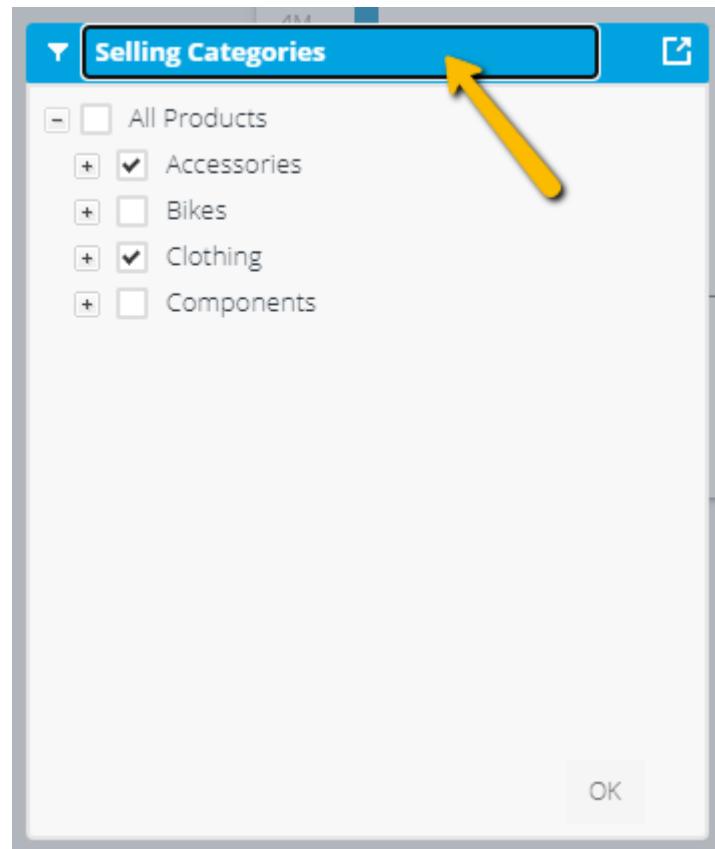
3.8. Dashboard filters panel

Filters panel area is on the right side of the dashboard, where a dashboard designer could set filters that would apply to all dashboard charts. Click the filter icon to **toggle** the display of the dashboard panel. If saved with hidden filters panel, the dashboard will open every time for end-user with hidden filters panel. To **resize** the width of the filters panel, drag the left edge (handle) to the required position, which will be saved for the future dashboard openings.



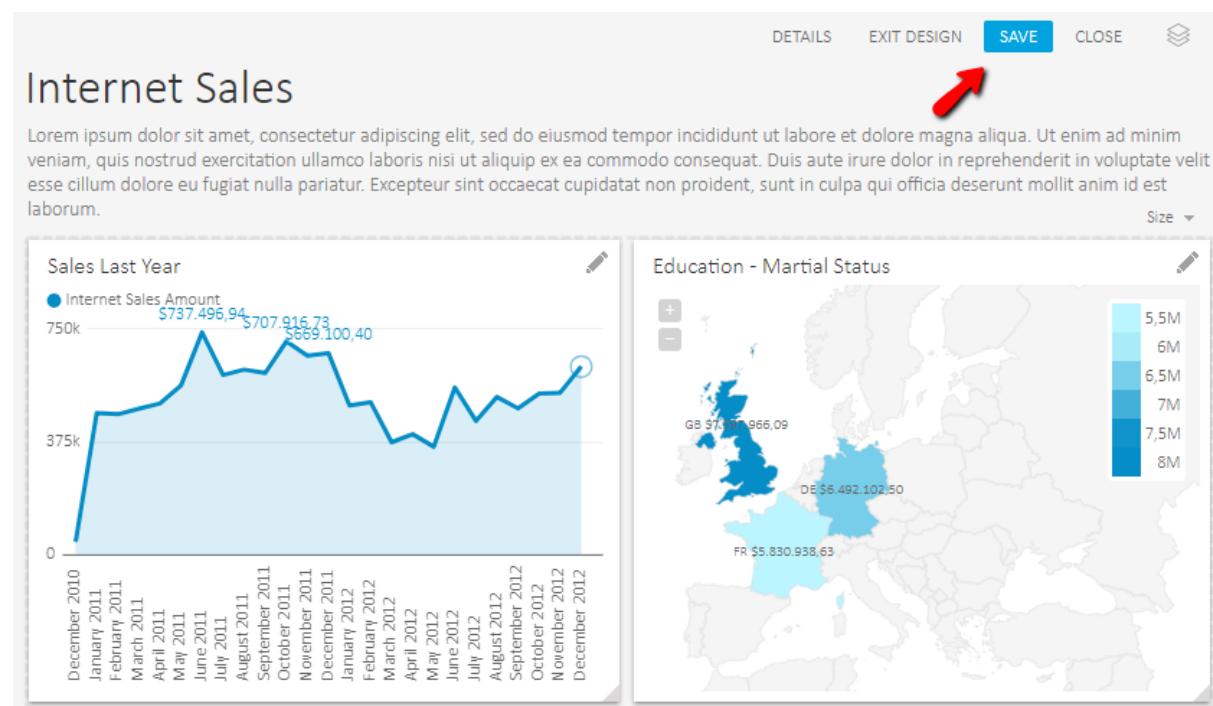
3.9. Rename Dashboard Filter

Sometimes, dashboard filter title based on selected dimension level is not completely appropriate for a given dashboard. To customize dashboard filter title, click on the edit filter button and while in the ‘simple’ filter view, click on the title and set any other title for this dashboard filter.

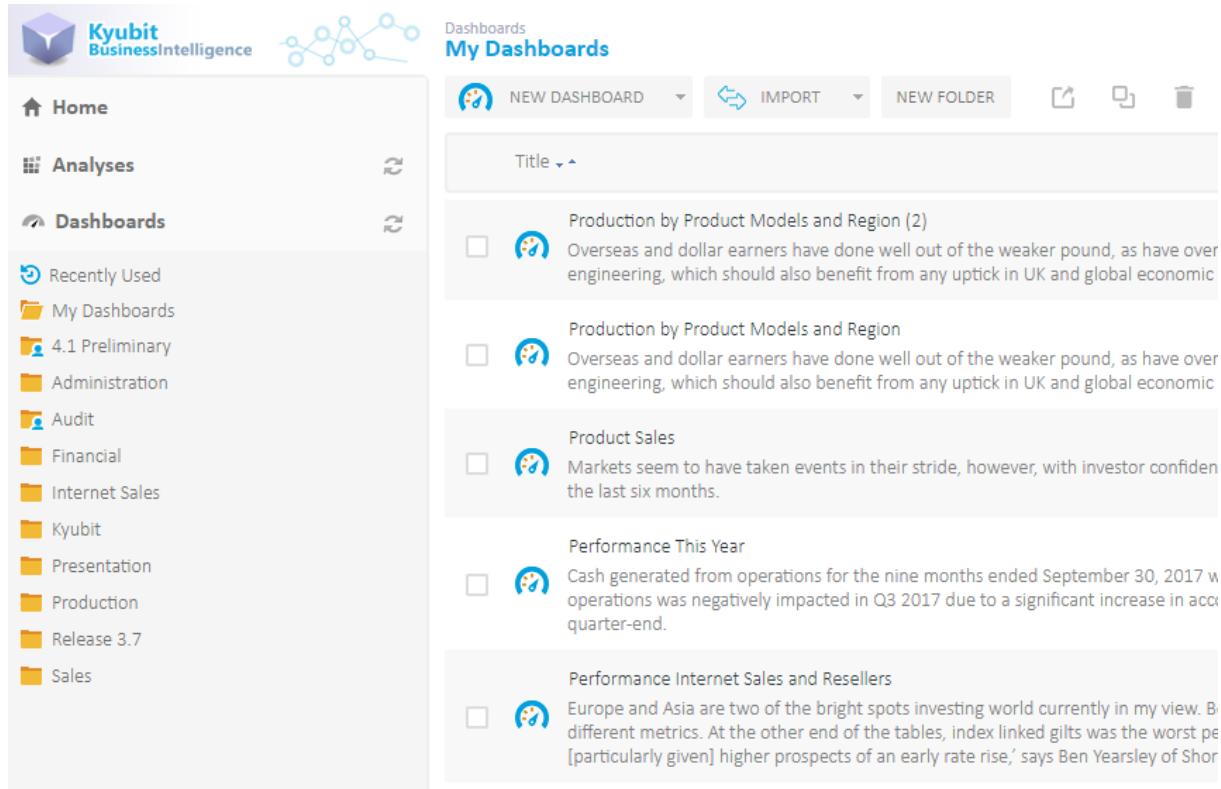


3.10. Saving the dashboard

All work in design mode needs to be saved with the ‘Save’ button in the upper-right area of the dashboard. With ‘Save’ action all tiles, their settings and arrangements are saved for future dashboard openings.



Saved dashboard immediately appears in ‘My Dashboards’ list, ready to be used.



The screenshot shows the Kyubit Business Intelligence interface. On the left is a sidebar with navigation links: Home, Analyses, Dashboards, Recently Used, My Dashboards (which is selected), 4.1 Preliminary, Administration, Audit, Financial, Internet Sales, Kyubit, Presentation, Production, Release 3.7, and Sales. The main area is titled 'My Dashboards' and contains a list of dashboards. The first two items in the list are collapsed, while the third item, 'Product Sales', is expanded. The expanded view shows a title 'Production by Product Models and Region (2)' followed by a detailed description: 'Overseas and dollar earners have done well out of the weaker pound, as have over engineering, which should also benefit from any uptick in UK and global economic'. Below this is another collapsed item 'Production by Product Models and Region'. The third item, 'Product Sales', is also collapsed. The fourth item, 'Performance This Year', is collapsed. The fifth item, 'Performance Internet Sales and Resellers', is collapsed.

3.11. Enter and exit ‘Design view’ for the dashboard

After the existing dashboard is opened, design options are disabled and only users with ‘Read/Write’ permissions on the dashboard could choose to continue design work on the dashboard (or with Administrator rights). While the user is not in a ‘**Design**’ view, the dashboard data, tiles and all dashboard arrangements are not available to change. ‘**Design**’ mode is just slightly visually different than ‘**Regular**’ view, so at the end of design, the user should ‘Exit design’ to see exactly how other users will see the dashboard while consuming prepared dashboard details.

3.12. URL to access dashboards

Kyubit Business Intelligence offers more than one way to access dashboards and particular dashboard.

To access available dashboards, use:

<http://yoursite/dashboards>

or

<http://yoursite/forms/dashboards.aspx>

To access single dashboard, use:

<http://yoursite/dashboard/123>

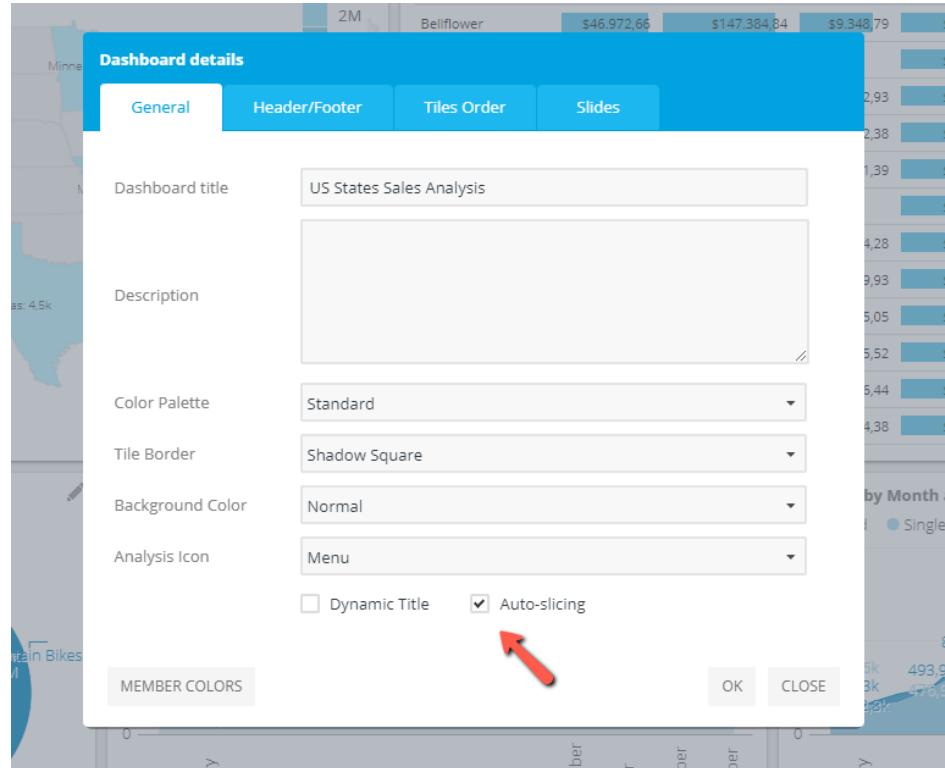
or

<http://yoursite/forms/dashboard.aspx?dashboardID=123>

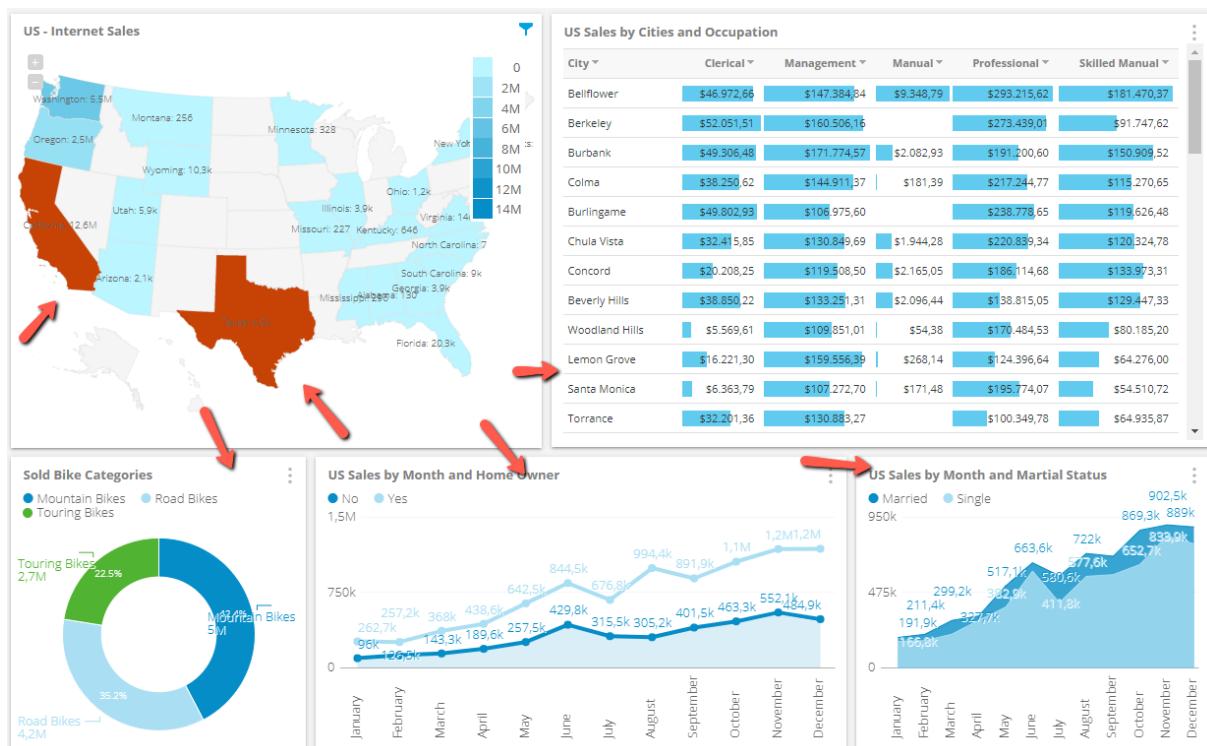
3.13. Dashboard Auto-slicing

A dashboard with auto-slicing sets any chart to be used as a slicer for other chart data without opting for 'Use as slicer' on the individual chart. As soon as the dashboard is opened, selecting any chart segment/bar/slice will slice other chart data with the selection.

- 1) Open Dashboard > Design > Details and optionally set Auto-slicing.



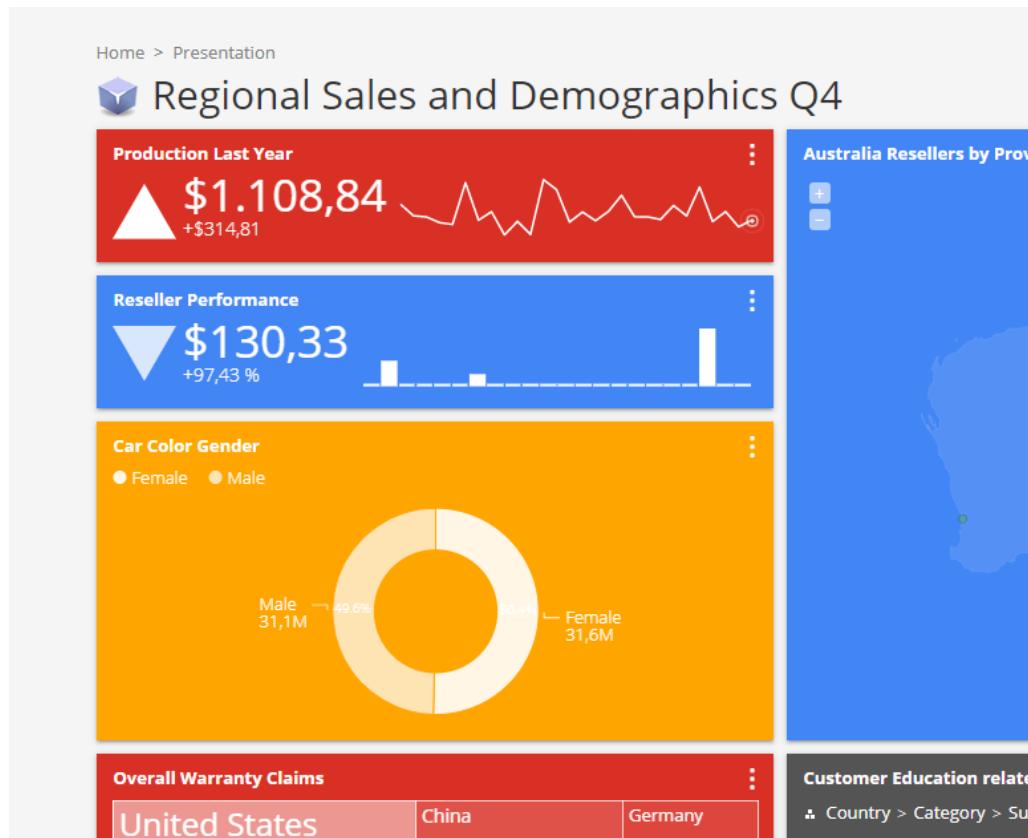
- 2) Slice the dashboard with one click on any chart.



3.14. Dashboard Company Logo Box

A logo box is displayed on the dashboards and reports when using the 'Company' or 'Enterprise' edition license. The logo box could be hidden or set to an alternative image. When using the multitenant license a logo box could display the different logo for each tenant in the application.

- 1) To display the image of your company/organization, replace the CompanyLogoBox.png image with yours (same or similar dimensions) in the Kyubit "WhiteLabel" folder.



- 2) To hide Logo box, set "LogoBox" value to "0" in Kyubit web.config file (C:\Program Files\Kyubit\BusinessIntelligence)

4. Configuring dashboard charts

After adopting general dashboard design and construction details, this chapter describes how to create all visual details on the dashboard elements (tiles) to best reflect business data situations and give end-users clear and easy-to-understand status of business important values and indicators. The dashboard could display 2 groups of the visual elements, the chart and the Key Performance Indicators (KPIs).

Charts:

- **Line/Spline** chart, most appropriate to show time-related data.
- **Column** chart, most appropriate to show multiple series of data.
- **Pie/Doughnut** chart, most appropriate to show single data with one-series data.
- **List**, most appropriate to show an ordered list with names and numbers.
- **Geo Map**, most appropriate to show data related to geography (world countries and regions)
- **Bubble/Scatter** chart, most appropriate to show several measures for the same item
- **Area** chart
- **Stacked Column** chart
- **Column chart 100%**
- **Stacked Area chart**
- **Area chart 100%**
- **Combo** chart, most appropriate to compare values from 2 different sets of data
- **HeatMap** chart, most appropriate to visually identify patterns and highlights in your data
- **Card/Small Card**, quick insight into important values
- **TreeMap** chart, most appropriate to identify proportions
- **Table** chart, show data in rows and columns with various visual features

KPIs:

- Standard **KPI visualization** shows KPI icon, KPI value, last change and optionally a small line chart that describes KPI values in the past to the current one.
- **Gauge Meter**, is KPI presentation with Gauge visualization, giving feeling to end user, how much current value is successful.
- **Goal Meter** presents KPI with circle visualization that describes expectation and result.

4.1. Data usage within tiles (Categories and series)

After drag-and-drop a tile to the dashboard, click on edit tile (Pen icon), choose dashboard title and select or create analysis/query that will feed current tile with data we would like to visualize.

Essentially, each dashboard tile is receiving data in the format of categories and series. Column and line charts could accept many series of values, list chart accepts one or two series of values, while Pie chart, KPI and Gauge meter accept only one series of values to visualize the data.

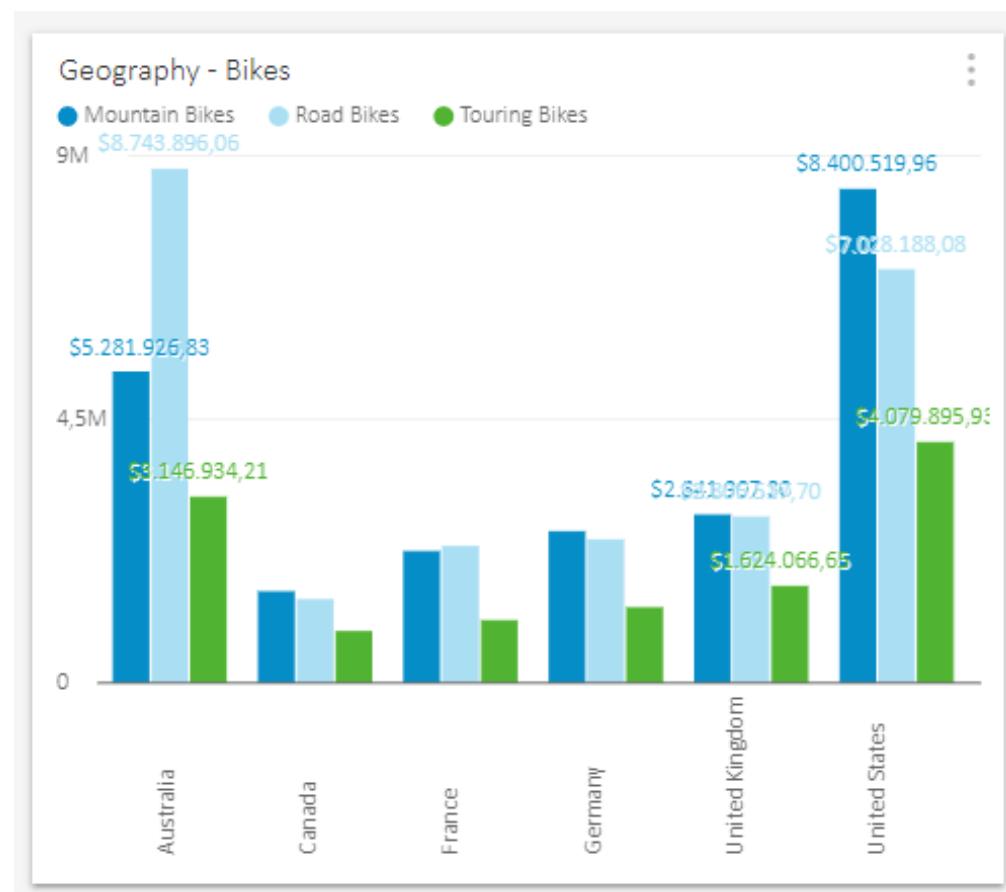
4.2. ‘Analysis’ data for the dashboard tiles

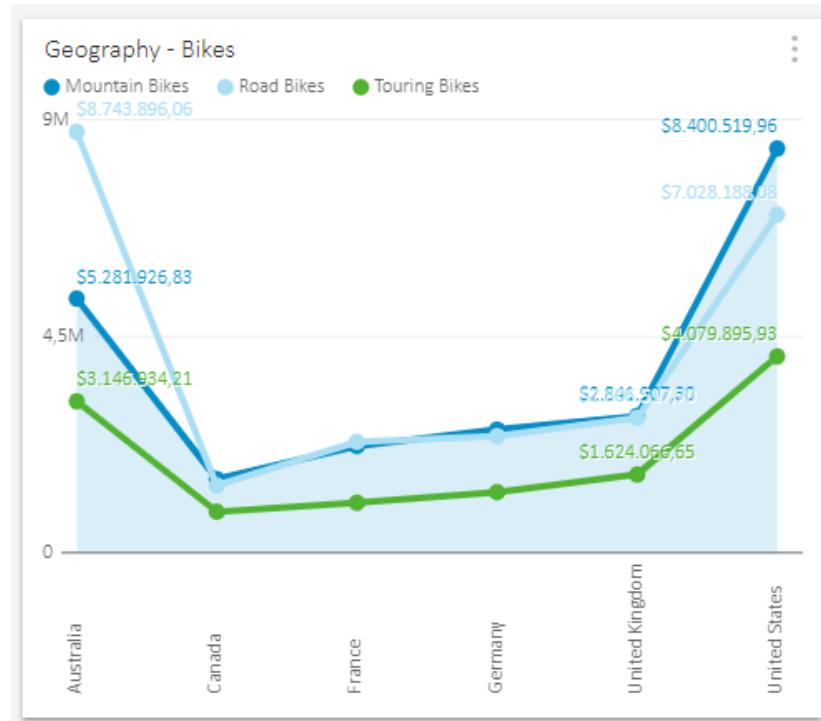
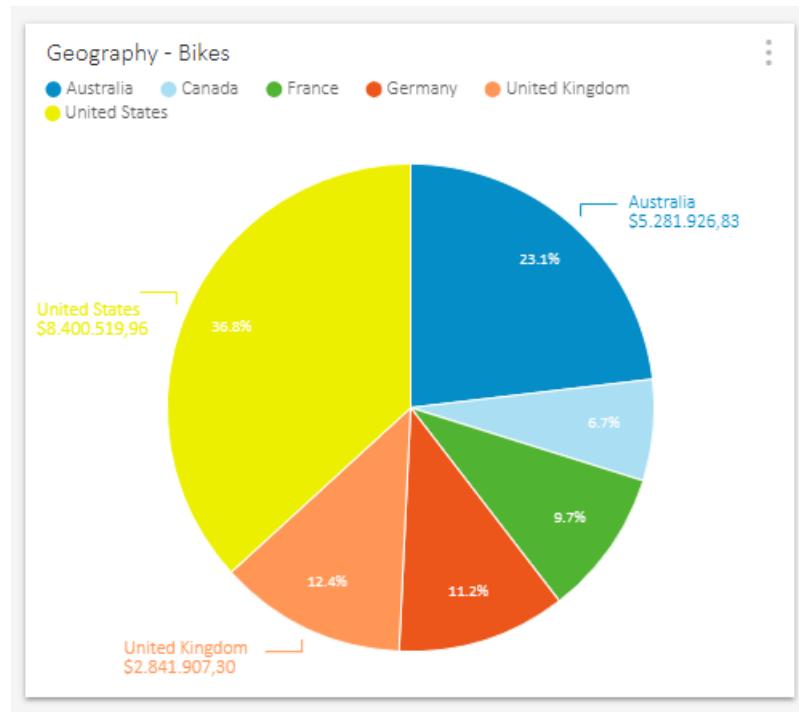
Analysis created in Kyubit Business Intelligence could be used as data for dashboard tile. Analysis rows presents are categories while columns in analysis present series. In this example, ‘Country’ presents categories, while ‘(Product) Subcategories’ present series of values (‘Mountain bikes’ and ‘Road Bikes’).

Internet Sales Amount				
Country	Subcategory	Mountain Bikes	Road Bikes	Touring Bikes
Australia		\$5.281.926,83	\$8.743.896,06	\$3.146.934,21
Canada		\$1.530.511,34	\$1.396.239,98	\$850.078,15
France		\$2.218.824,80	\$2.302.615,67	\$1.039.208,43
Germany		\$2.557.675,16	\$2.419.676,54	\$1.257.322,35
United Kingdom		\$2.841.907,30	\$2.806.517,70	\$1.624.066,65
United States		\$8.400.519,96	\$7.028.188,08	\$4.079.895,93
Total		\$22.831.365,38	\$24.697.134,03	\$11.997.505,72
				\$59.526.005,13

When this analysis data is defined for dashboard tile, it will be presented on these different ways using different visualizations (charts).

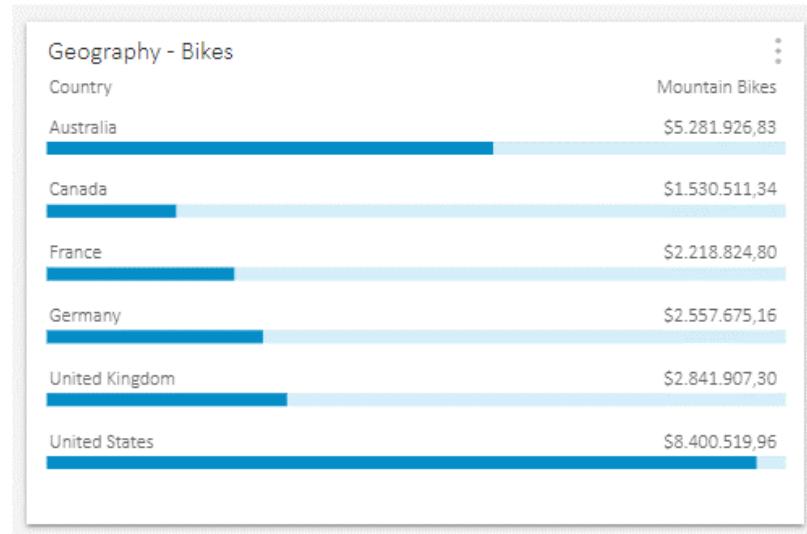
Column chart ...



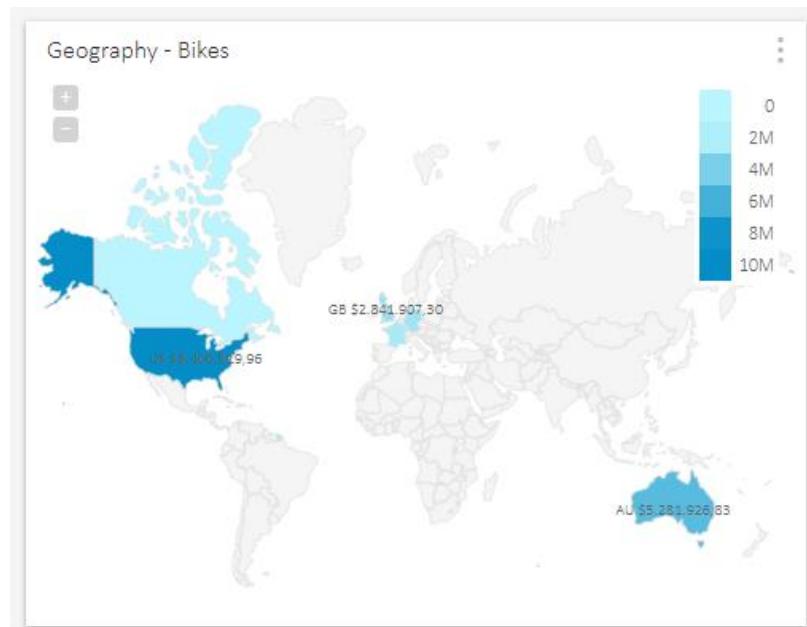
Line chart...*Pie Chart ...*

(Note: pie chart shows only first series)

List chart ...



Geo map ...

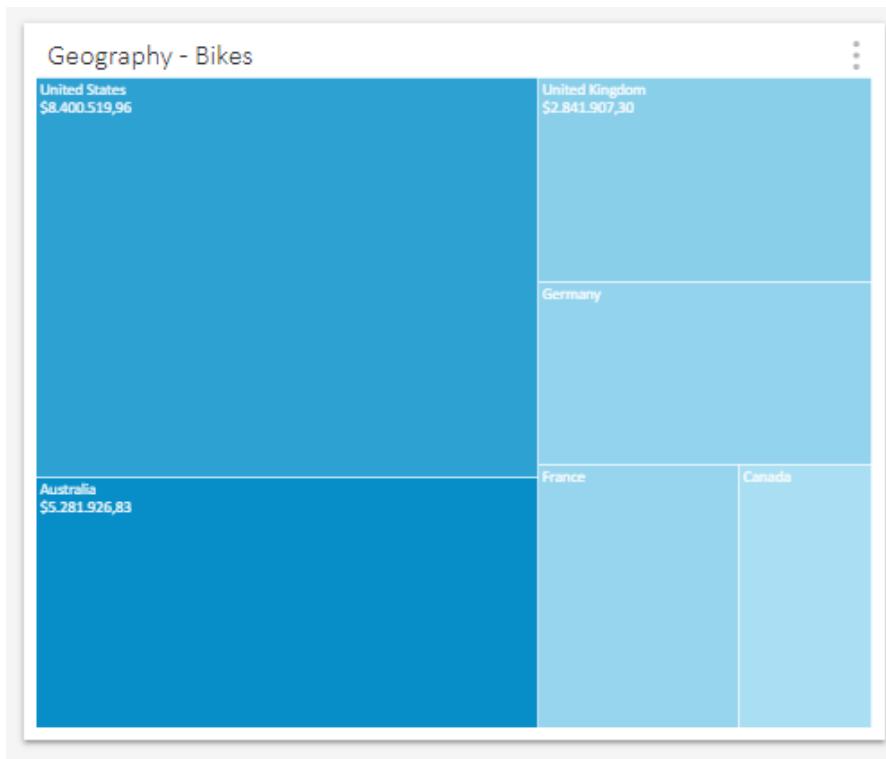


Data Table ...

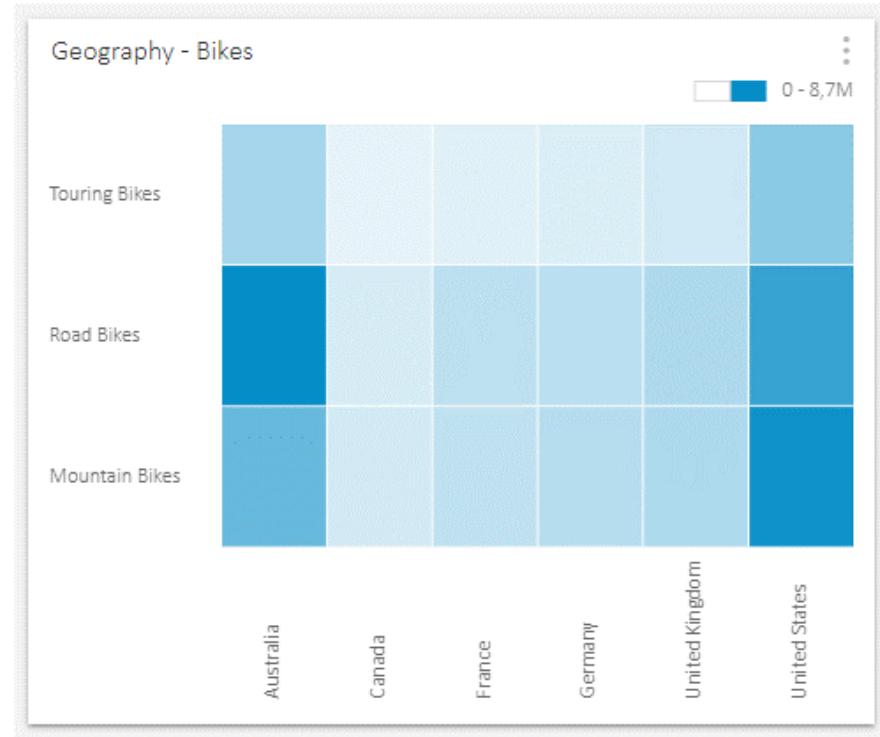
Geography - Bikes

Country	Mountain Bikes	Road Bikes	Touring Bikes
Australia	\$5.281.926,83	\$8.743.896,06	\$3.146.934,21
Canada	\$1.530.511,34	\$1.396.239,98	\$850.078,15
France	\$2.218.824,80	\$2.302.615,67	\$1.039.208,43
Germany	\$2.557.675,16	\$2.419.676,54	\$1.257.322,35
United Kingdom	\$2.841.907,30	\$2.806.517,70	\$1.624.066,65
United States	\$8.400.519,96	\$7.028.188,08	\$4.079.895,93

TreeMap chart ...

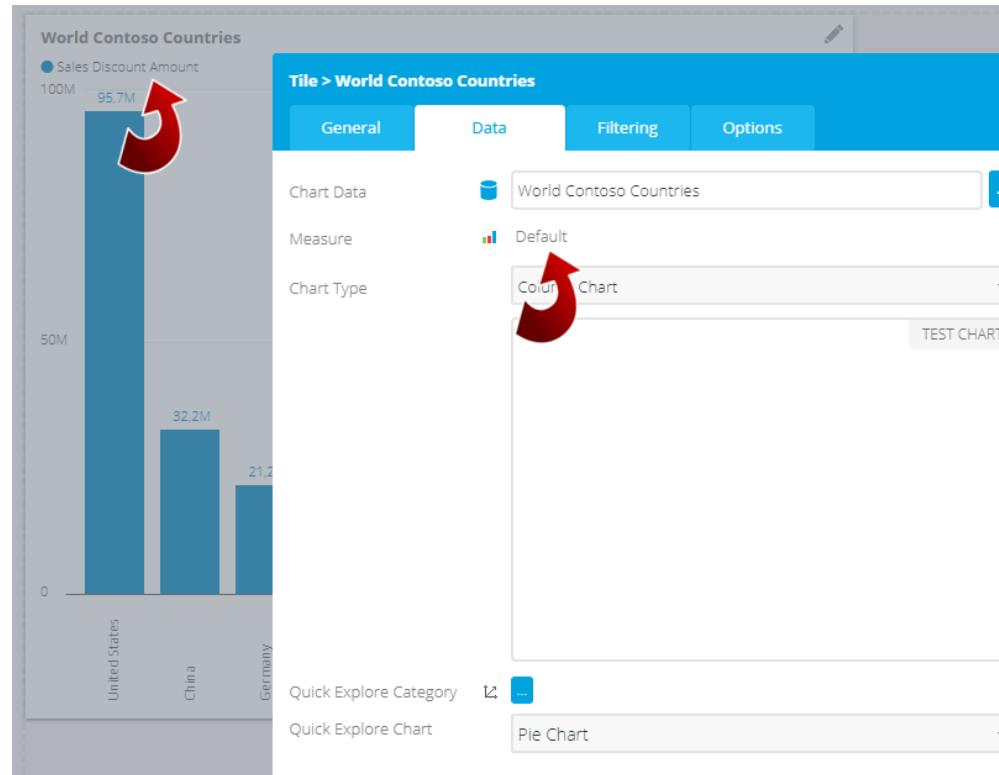


HeatMap chart ...

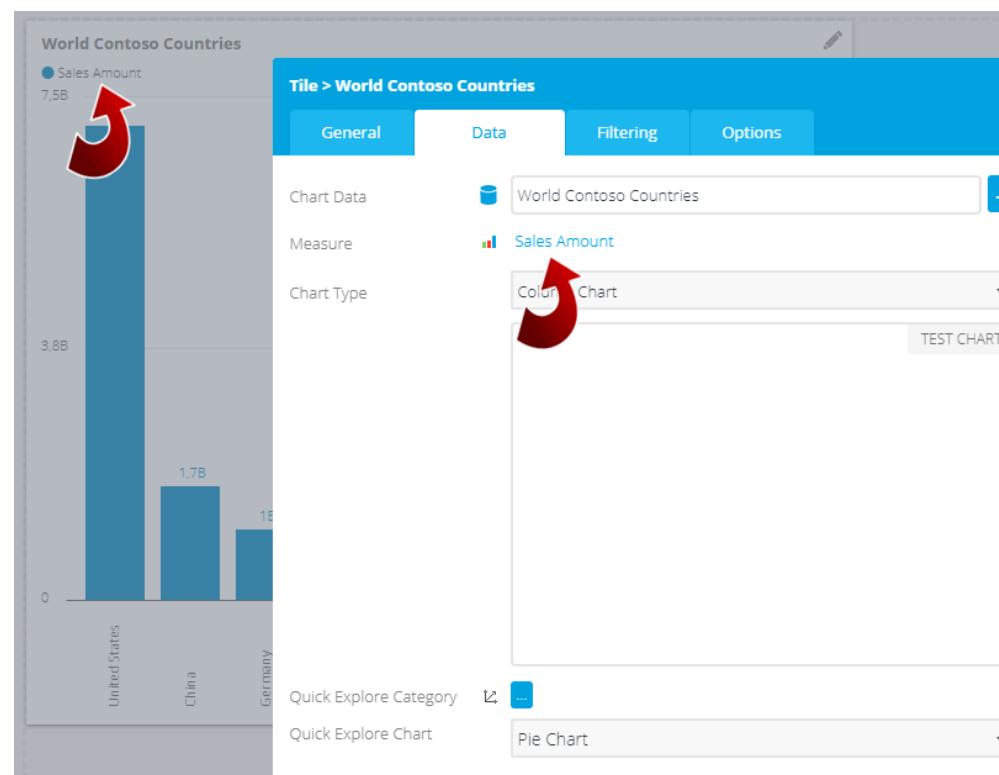


4.3. Alternative Measure for analysis data (OLAP or Analytic Model)

If the chart is based on analysis data (OLAP/Analytic Model) a user can choose different (alternative) measure than already existing in the analysis to display a chart or a KPI for other measures, not having to create a new separate analysis for that purpose.



With alternative measures feature, create a single analysis and many charts based on the same analysis and different measures.



4.4. ‘Geo maps’ configuration and usage

‘Geo Maps’ displays data related to world countries, regions and locations (cities) in a geographical context. Geo maps are designed for quick visual perception of the data on the geographical map. To correctly relate retrieved data to ‘countries’ or ‘regions’, data results should have the first column value in a row that match country/region name on the Geo-map, while the second column value presents the value that should be visualized for the country/region. If you are not sure what are the names, simply load the map in the dashboard with no data and move the mouse over the regions which will display a tooltip with the country/region name. Also, in the Admin section, Geo Locations it is easy to browse all maps available in the application, to see how they look and what region certain map covers.

Kyubit Business Intelligence application supports Geo maps for all continents and major countries. List of available maps is expanded with almost every new version of Kyubit BI application.

Check end section of this document for a detailed list of values that are supported when supplying data for Geo maps for various countries and regions.

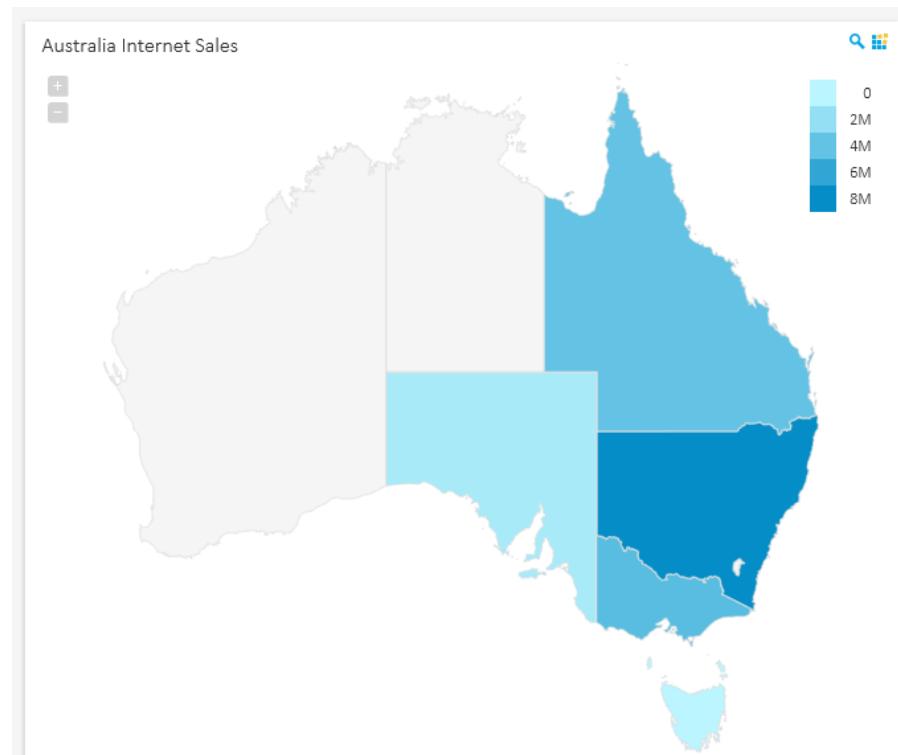
4.4.1. ‘Color Gradient’ geo map

Presents values from analysis or query results as a single-color gradient on the selected geo map. A simple way to visualize the influence of the selected values geographically.

Values ...

Drop Measures Here		Drop Series Here
▪ State-Province ▾		Internet Sales Amount
+ New South Wales		\$7.783.612,65
+ Queensland		\$3.972.120,19
+ South Australia		\$1.188.941,66
+ Tasmania		\$443.500,04
+ Victoria		\$4.413.225,28
Total		Σ \$17.801.399,82

Color gradient Geo Map ...



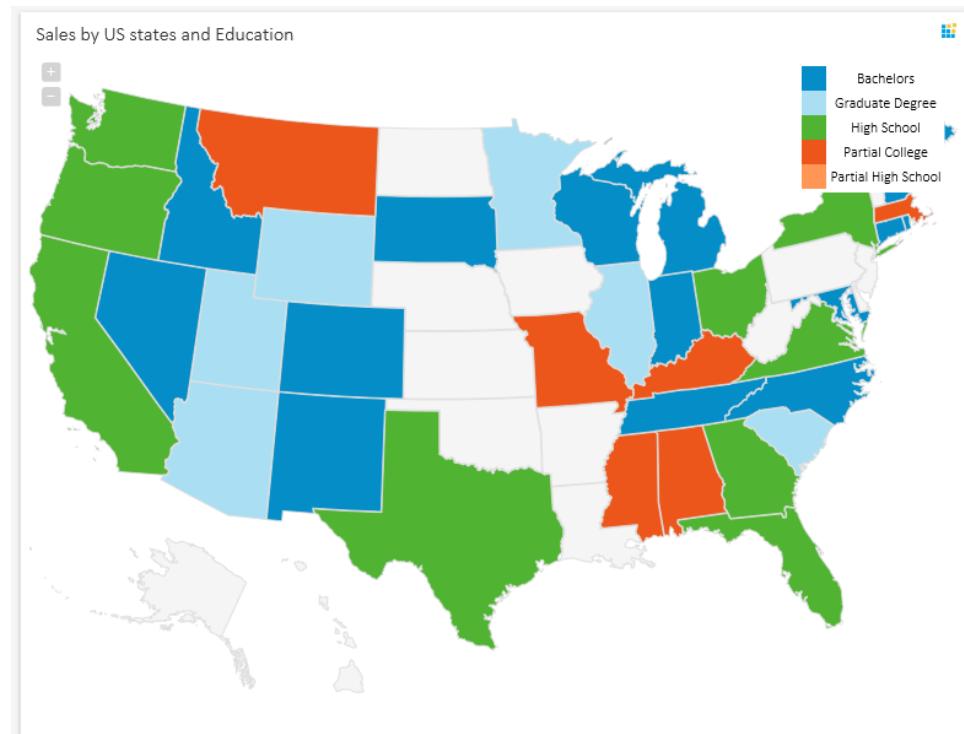
4.4.2. ‘Dominant Series’ geo map

In this mode each country/region is displayed with the separate color, depending on the series with the highest value. This is a convenient way to quickly identify which series of values is most influential in the specific country/region. For example, election results. To enable this option, open Tile -> Edit -> Options -> (check) Dominant Series Colors.

Values ...

Drop Measures Here		Education		
		Bachelors	Graduate Degree	High School
• State-Province	▼	Internet Sales Amount	Internet Sales Amount	Internet Sales Amount
• Alabama		-	-	-
• Arizona		\$2.070,59	\$66,01	-
• California		\$4.085.513,11	\$3.668.980,03	\$1.040.597,32
• Colorado		-	-	-
• Connecticut		-	-	-
• Florida		\$20.210,47	-	\$137,60
• Georgia		-	\$63,38	\$3.828,21
• Idaho		-	-	-
• Illinois		-	\$2.513,67	\$1.330,35
• Indiana		-	-	-
• Kentucky		-	-	-
• Maine		-	-	-
• Maryland		-	-	-
• Massachusetts		-	-	-
• Michigan		-	-	-
• Minnesota		-	\$327,90	-
• Mississippi		-	-	-
• Missouri		-	-	-
• Montana		-	-	-
• Nevada		-	-	-
• New Hampshire		-	-	-
• New Mexico		-	-	-
• New York		-	\$4.773,94	\$8.780,97
• North Carolina		\$7,24	-	-
• Ohio		\$352,84	-	\$258,89
• Oregon		\$750.928,52	\$522.366,62	\$371.420,96
• Rhode Island		-	-	-
• South Carolina		-	\$8.960,51	-
• South Dakota		-	-	-
• Tennessee		-	-	-
• Texas		\$274,85	-	\$388,29
• Utah		\$5.777,43	\$129,53	-
• Virginia		-	-	\$146,33
• Washington		\$1.581.276,92	\$1.280.982,52	\$687.017,08
• Wisconsin		-	-	-
• Wyoming		\$4.408,37	\$5.895,96	-
Total		■ \$6.450.820,33	■ \$5.495.060,07	■ \$2.113.856,00

Dominant Series geo map ...



4.4.3. 'Geolocations' data on geo map

To display values related to cities or any other geographic locations related to your data, use data set 'Markers' defined in Tile -> Edit -> Options -> Markers section. Kyubit with setup automatically deploys 7300 largest cities in the world. If your data includes places and geolocation not included in the initial set of 7300 biggest cities, you can easily add locations in 'Geo Location Management' application section (explained in the 'Kyubit Administration and Configuration' user manual document).

Geolocations could be visualized with data from analysis or query using one or two measures. In this example, each measure 'Purchase Price' and 'Tax Amount' will be rendered using Geolocation to visually identify the impact of both values.

Values ...

		Drop Series Here	
City		Purchase Price	Tax Amount
Halwān		\$17.552.803	\$1.246.691
Montpellier		\$14.557.981	\$1.078.195
El Paso		\$14.234.578	\$1.183.321
Bergen		\$11.281.828	\$180.199
Nashville		\$11.041.520	\$820.809
Famagusta		\$10.841.754	\$636.837
Samagalatay		\$10.539.877	\$568.599
Vila		\$9.958.953	\$948.229
Lomé		\$9.950.847	\$527.794
Burgersfort		\$9.860.519	\$812.165
Müdiyah		\$9.857.185	\$813.567
Mushie		\$9.816.994	\$253.052
Cikalaces		\$9.806.268	\$148.131
Mubo		\$9.802.842	\$201.629
Sekampung		\$9.797.287	\$180.073
Venda do Valador		\$9.794.261	\$880.659
Chilly-Mazarin		\$9.781.007	\$530.094
Jarash		\$9.771.188	\$446.361

Configuration ...

Tile > Car Sales Analysis

General **Data** **Options**

Color Palletes Inherit From Dashboard

Pivot

Specific Categories

Value Labels None

Value Labels - Categories

Dominant Series Colors

Markers **Car Sales Analysis 3**

Markers - Colors Measure 1 Low High Legend

Markers - Radius Measure 1 Low High Legend

Find more [information](#) on Geo markers usage and management.

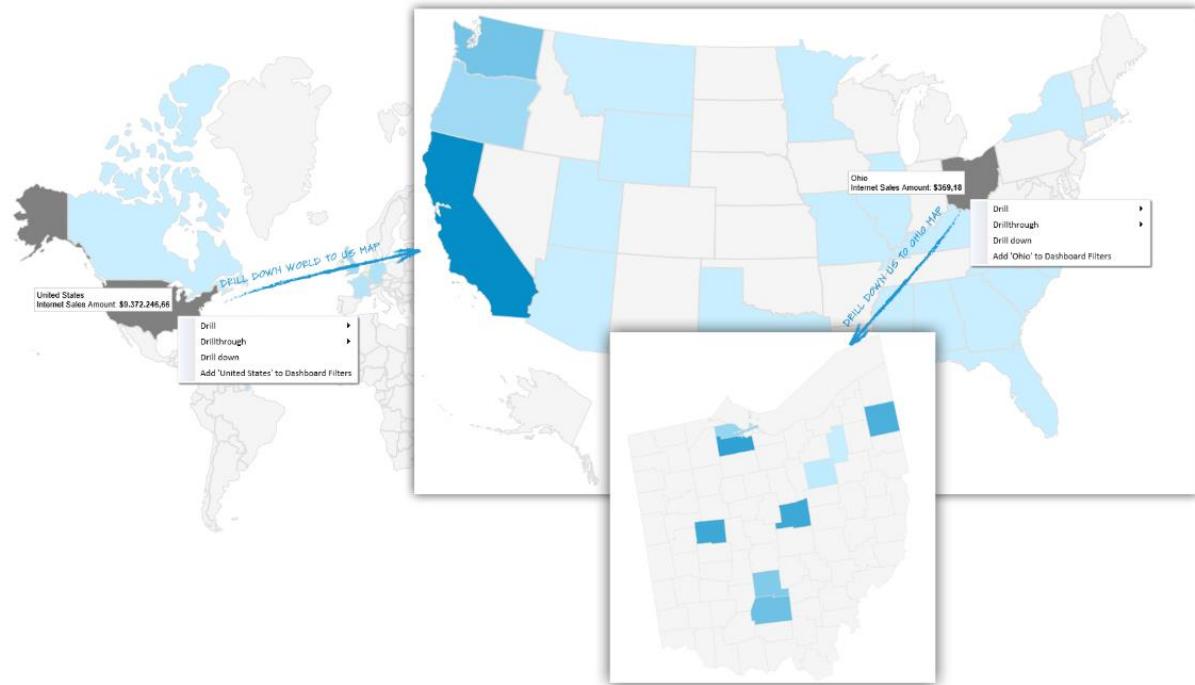
Geo map chart results ...



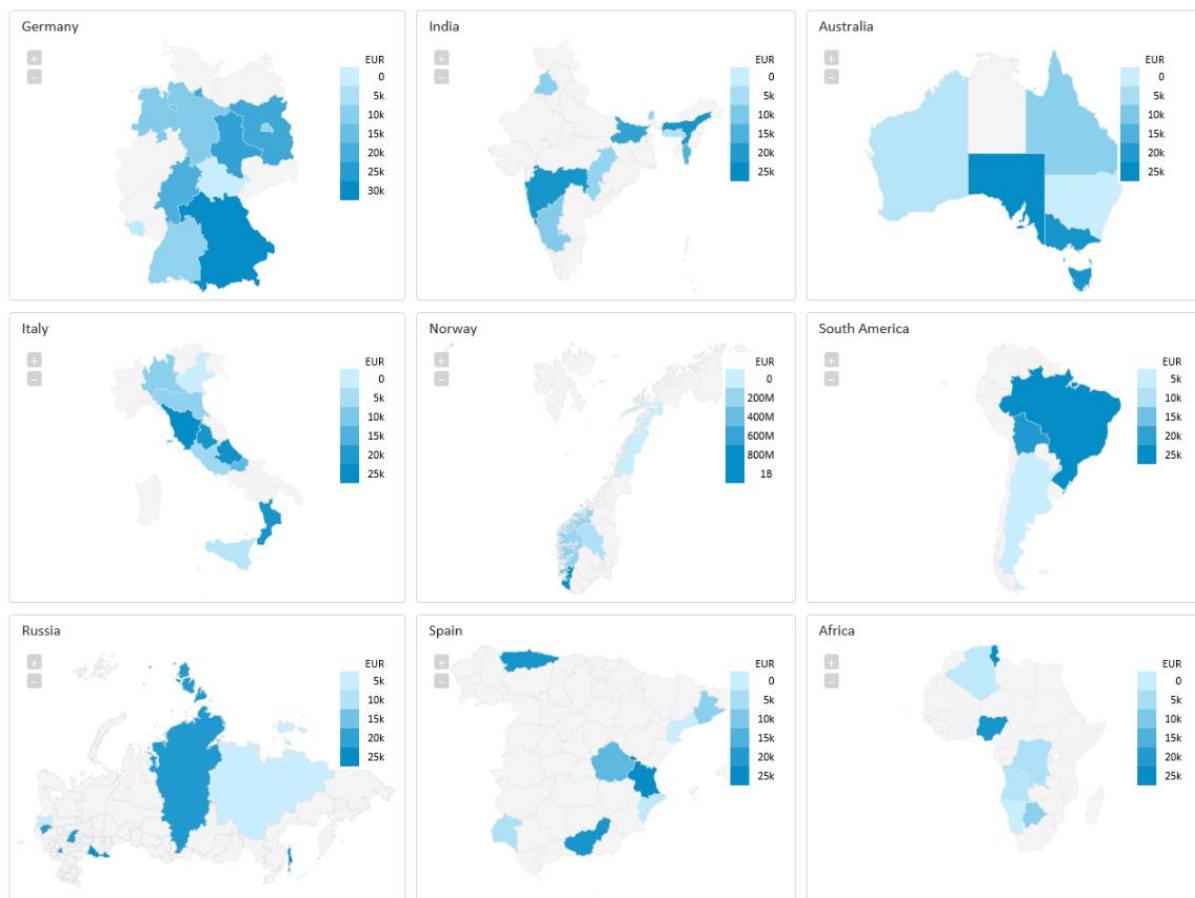
Please, contact support@kyubit.com for additional maps.

4.4.4. Drill-down geo map data

If Geo map uses OLAP/Analytic Model data, Geo map tile has the option to drill-down geo map areas to its child geo map representation. Continents are drill-down to countries, countries are drill down to regions. Analyzing geodata on the dashboard becomes perceptual and comprehensive. Within few clicks users isolates and observes data in the geographical form, that could be easily exported to PDF file or share with other users.



With every new version of Kyubit Business Intelligence application, more countries and regions are available to use by Geo Maps feature on the dashboards. All continents and largest countries with their regions are available, but also Kyubit will provide Geo maps for other countries and regions of your interest. Please, contact us for more details when country or region of your interest will be available.



4.5. ‘Table’ chart visualization

‘Table’ is a specific dashboard tile type that presents measures, categories and series with rows and columns and it is not limited to small datasets. If visualization displays a **large number of columns and rows** scrollbars will become visible to navigate through data. ‘Table’ can show all the records from the analysis, MDX or SQL queries with value formatting defined on analysis or query level.

Often usage of data in the form of Table/Grid as most appropriate data insight in many cases, Kyubit Dashboards ensures with additional visualization features that will contribute to simplicity, elegance and focus on relevant details when ‘Table’ is rendered within the dashboard.

‘Table’ chart simply renders values from query or analysis with an unlimited number of columns and rows and appropriate scrollbars if required. This way any data could be displayed on the dashboard without limitations.

‘Table’ chart is the only chart that could display **‘Any data’** query type, which does not have to include numeric values like other charts and could display any data type.

‘Table’ chart has numerous options to customize its appearance and focus user to relevant points on the chart. Use ‘Grid Lines’ options to draw horizontal or full grid lines on the table. Set the table chart **height**, **font-size**, **row height** and **column width** for the table or set for each column individually **background-color**, **fore-color**, **text-style** and **alignment** to get the most appropriate look of the ‘Table’ chart on the dashboard. Dashboard ‘Table’ chart can render any data types from analyses or queries with option to display **‘Value Bars’** for numeric data types. All defined visual appearance options are also rendered while exporting dashboard to PDF file. If dashboard ‘Table’ is rendering analysis containing KPI definitions, KPI icons will be displayed automatically.

Products from AdventureWorks				
Customer Alternate Key Name	Email and English - Spanish education	English, Spanish and French education	Phone, Address and Commute Distance	YearlyIncome
Jon Yang AW00011000	jon24@adventure-works.com Bachelors Licenciatura	Professional Professional Cadre	3761 N. 14th St.1 (11) 500 555-0162,1-2 Miles	90000.0000
Eugene Huang AW00011001	eugene10@adventure-works.com Bachelors Licenciatura	Professional Professional Cadre	2243 W St.,1 (11) 500 555-0110,0-1 Miles	60000.0000
Ruben Torres AW00011002	ruben35@adventure-works.com Bachelors Licenciatura	Professional Professional Cadre	5844 Linden Land,1 (11) 500 555-0184,2-5 Miles	60000.0000
Christy Zhu AW00011003	christy12@adventure-works.com Bachelors Licenciatura	Professional Professional Cadre	1825 Village Pl.,1 (11) 500 555-0162,5-10 Miles	70000.0000
Elizabeth Johnson AW00011004	elizabeth5@adventure-works.com Bachelors Licenciatura	Professional Professional Cadre	7553 Harness Circle,1 (11) 500 555-0131,1-2 Miles	80000.0000

Products Australia
Companies with a lot of exposure to international revenues or assets also benefit though they also have higher overhead costs.

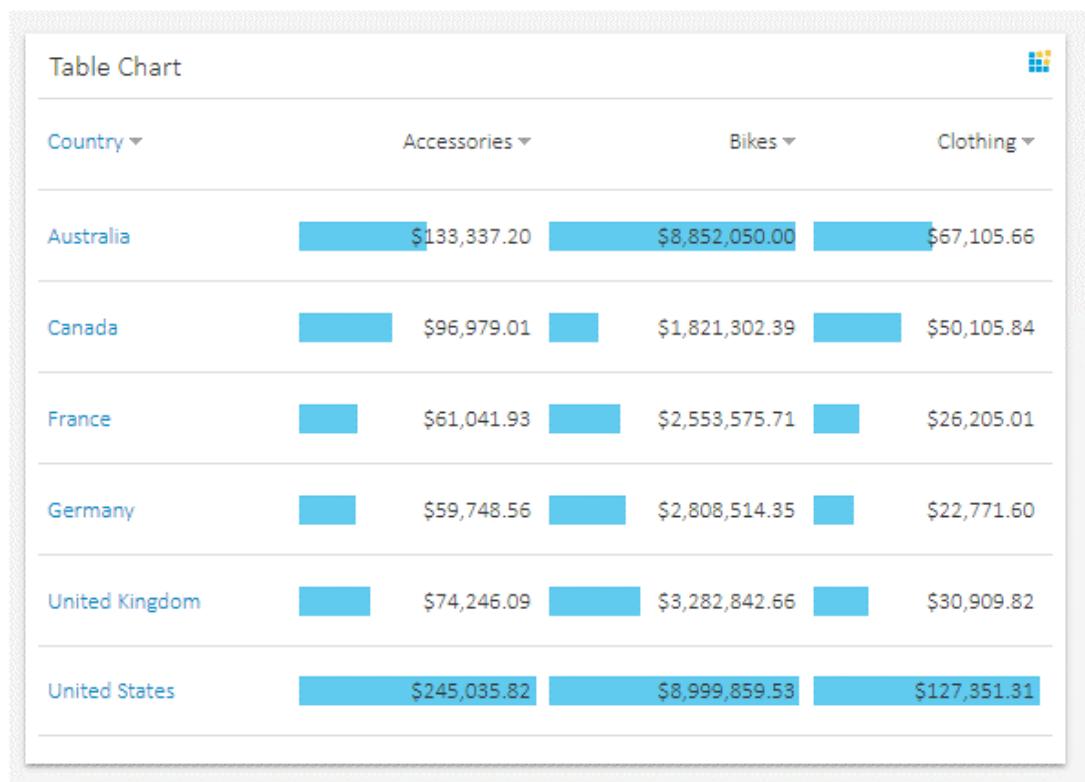


Table Chart			
Country	Accessories	Bikes	Clothing
Australia	\$133,337.20	\$8,852,050.00	\$67,105.66
Canada	\$96,979.01	\$1,821,302.39	\$50,105.84
France	\$61,041.93	\$2,553,575.71	\$26,205.01
Germany	\$59,748.56	\$2,808,514.35	\$22,771.60
United Kingdom	\$74,246.09	\$3,282,842.66	\$30,909.82
United States	\$245,035.82	\$8,999,859.53	\$127,351.31

'Table' chart samples...

Table Chart

Country ▾	Accessories ▾	Bikes ▾	Clothing ▾
Australia	\$133,337.20	\$8,852,050.00	\$67,105.66
Canada	\$96,979.01	\$1,821,302.39	\$50,105.84
France	\$61,041.93	\$2,553,575.71	\$26,205.01
Germany	\$59,748.56	\$2,808,514.35	\$22,771.60
United Kingdom	\$74,246.09	\$3,282,842.66	\$30,909.82
United States	\$245,035.82	\$8,999,859.53	\$127,351.31



4.6. Table chart drill-down (Hierarchical display) with analysis options

Dashboard Table chart can display drilled-down levels on the category axis, if the table data is based on created analysis (OLAP or Analytic Model). With this feature, it is easy to create analysis with preferred expanded (drilled-down) items, which will be represented the same way while displayed on the dashboard.

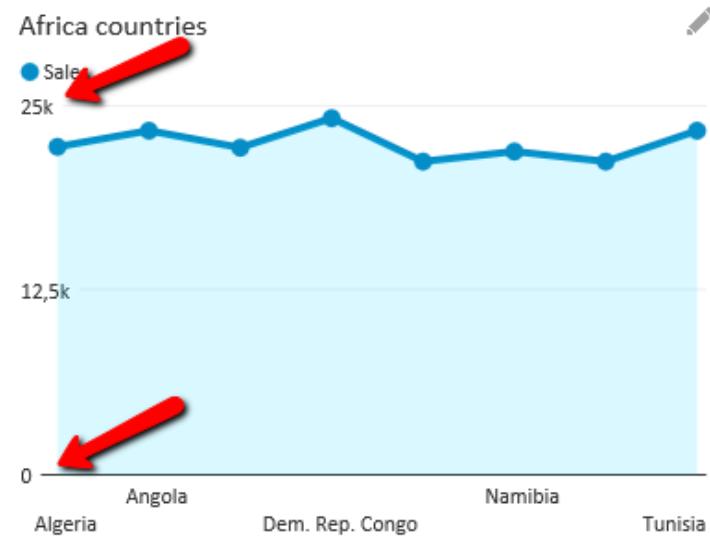
Sales by Month						
Country > State-Province > Gender						
Country	Bachelors	Graduate Degree	High School	Partial College	Partial High School	
Australia	\$7,854,914.83	\$2,296,517.65	\$1,760,701.51	\$1,314,110.72	\$1,174,678.52	
Canada	\$745,390.98	\$728,403.00	\$396,916.66	\$790,402.32	\$88,486.43	
Alberta	\$71.53	\$12,728.59	\$2,111.32	\$24,822.74		
British Columbia	\$745,319.45	\$715,674.40	\$394,805.34	\$765,579.58	\$88,449.50	
Female	\$325,233.39	\$403,176.52	\$190,402.58	\$419,939.24	\$45,541.96	
Male	\$420,086.06	\$312,497.88	\$204,402.76	\$345,640.34	\$42,907.54	
Ontario						\$36.93
France	\$1,033,677.81	\$667,013.90	\$1,585,252.16	\$1,726,885.39	\$260,426.23	
Germany	\$1,382,158.56	\$668,756.40	\$998,521.47	\$2,301,286.76	\$443,718.54	
United Kingdom	\$1,664,088.95	\$1,030,710.75	\$1,294,782.85	\$1,931,883.53	\$505,270.95	
United States	\$4,650,388.16	\$4,385,102.00	\$1,268,237.98	\$4,240,545.04	\$159,490.13	
Alabama						\$130.33
Arizona	\$2,070.59	\$66.01				
California	\$4,085,513.11	\$9,668,980.03	\$1,040,597.32	\$3,446,941.62	\$25,079.64	
Female	\$1,520,808.34	\$1,482,270.46	\$360,660.84	\$1,204,733.94	\$27,741.67	
Male	\$1,623,552.29	\$1,598,372.56	\$316,379.54	\$1,031,167.00	\$36,626.79	
Florida	\$20,210.47		\$137.60			
Georgia		\$63.38	\$3,828.21	\$18.31		
Illinois		\$2,513.67	\$1,330.35	\$75.64		
Kentucky				\$645.96		
Massachusetts				\$2,048.28		

Dashboard creator has the option to enable this dashboard feature with Tile > Options > **Allow Analytics**. When set to '**Read**' table chart will display expanded levels the same way as on the analysis. When set to '**Analyze**' table chart will display expanded levels, but also end-user has options to add new levels or remove/change existing levels to get analysis of its preference while working with the table chart not leaving the dashboard.

When opened it will present a drilled-down view as saved with the grid analysis feature. Optionally, add or remove dimension levels to further analyze OLAP or Analytic Model data, up to 4 levels of data drill-down.

4.7. ‘Min Y’ and ‘Max Y’ on Line, Spline and Column charts

All dashboard charts automatically calculate what is the Y-axis, min and max values to show. Line, Spline and Column charts have the option to manually configure which segments on the Y axis you prefer to show. Default chart visualization for next chart.



...could be configured to show more precise segment of Y axis.

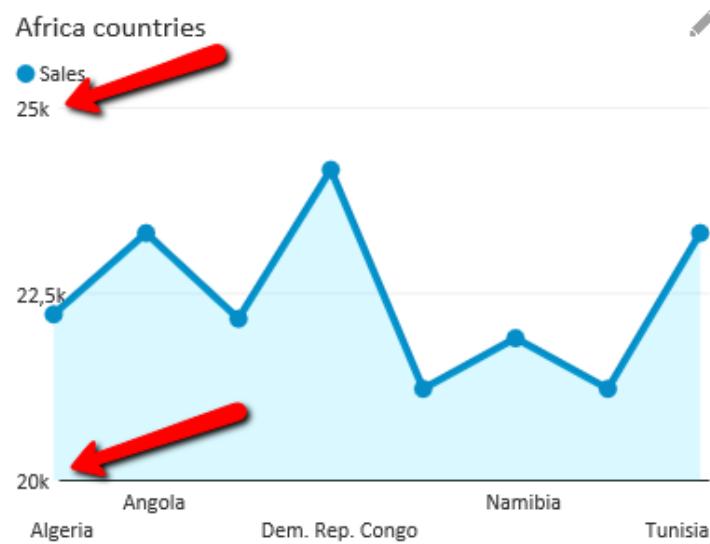
Title > Africa countries

General Data Options

Min Y Value: 20000

Max Y Value: 25000

By setting Min Y and Max Y value user actually zoom area of values that are of the current interest.



4.8. ‘Bubble/Scatter’ chart specifics

For an analysis that contains 2 or 3 measures, ‘Bubble/Scatter chart’ can visualize all measures, first as the position on X-axis, second as the position on Y-axis, while the third measure is rendered as a bubble size, to get quick insight to related data impact.

2 or 3 measure values ...

Product [Projectors & Screens]

Drop Filters Here

Sales Discount Quantity
Sales Amount
Sales Unit Price

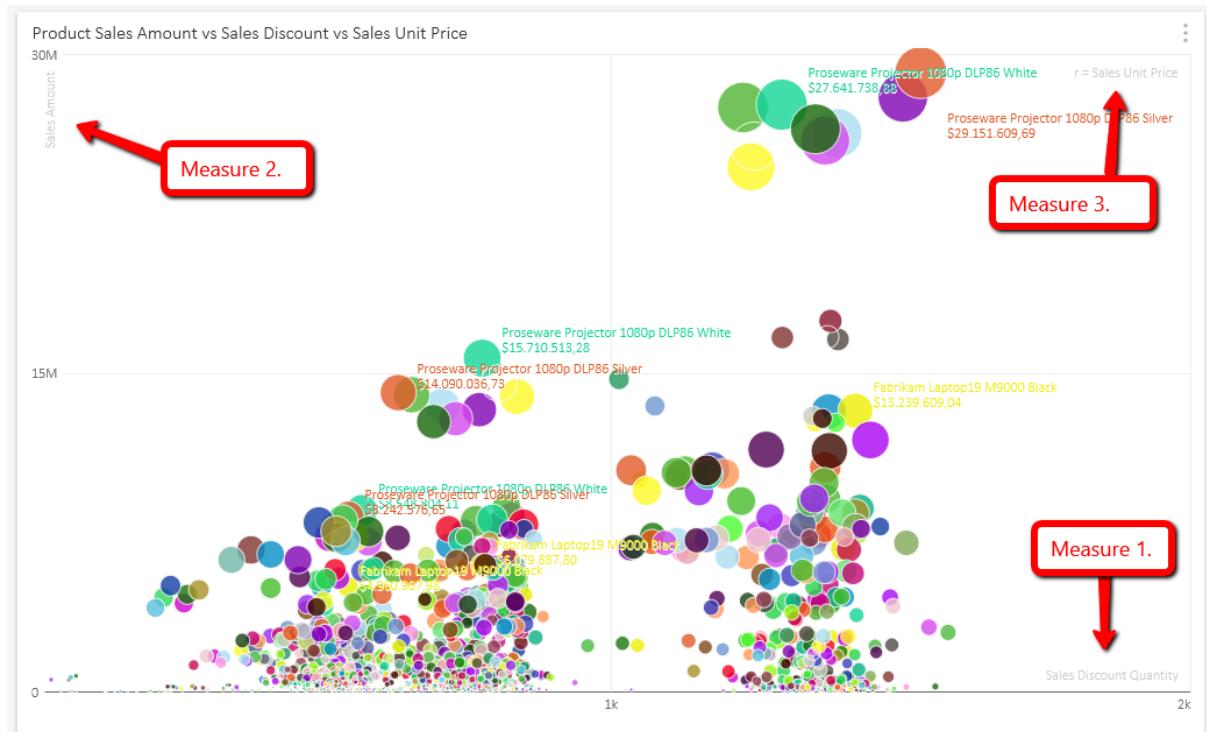
Drop Measures Here

Drop Series Here

Product Name

	Sales Discount Quantity	Sales Amount	Sales Unit Price
Proseware Projector 1080p LCD86 Black	2641	\$46.883.476,35	\$4.128.705,00
Proseware Projector 1080p DLP86 Black	2407	\$49.266.460,53	\$4.380.747,00
Proseware Projector 720p LCD56 Black	2225	\$13.749.623,58	\$1.135.875,00
Proseware Projector 720p DLP56 Black	2460	\$20.245.853,88	\$1.664.334,00
Proseware Projector 480p LCD12 Black	2762	\$4.948.369,40	\$411.971,00
Proseware Projector 480p DLP12 Black	2743	\$10.803.320,06	\$897.202,00
Proseware Screen 125in X1609 Black	326	\$1.378.418,31	\$118.422,00
Proseware Screen 113in X1609 Black	1240	\$2.805.678,46	\$234.117,00
Proseware Screen 106in M1609 Black	1349	\$2.496.526,32	\$209.083,00
Proseware Screen 100in M1609 Black	2718	\$3.833.464,70	\$341.050,00
Proseware Screen 85in E1010 Black	2786	\$2.786.214,69	\$247.142,00
Proseware Screen 80in E1010 Black	2593	\$2.281.536,77	\$199.034,00
Proseware Projector 1080p LCD86 White	2734	\$47.504.870,55	\$4.034.610,00
Proseware Projector 1080p DLP86 White	2640	\$51.901.056,27	\$4.615.653,00
Proseware Projector 720p LCD56 White	2525	\$14.552.956,32	\$1.210.668,00
Proseware Projector 720p DLP56 White	2386	\$20.684.434,86	\$1.726.272,00
Proseware Projector 480p LCD12 White	2644	\$4.875.604,65	\$409.681,00

Measure values rendered on Bubble/Scatter chart ...



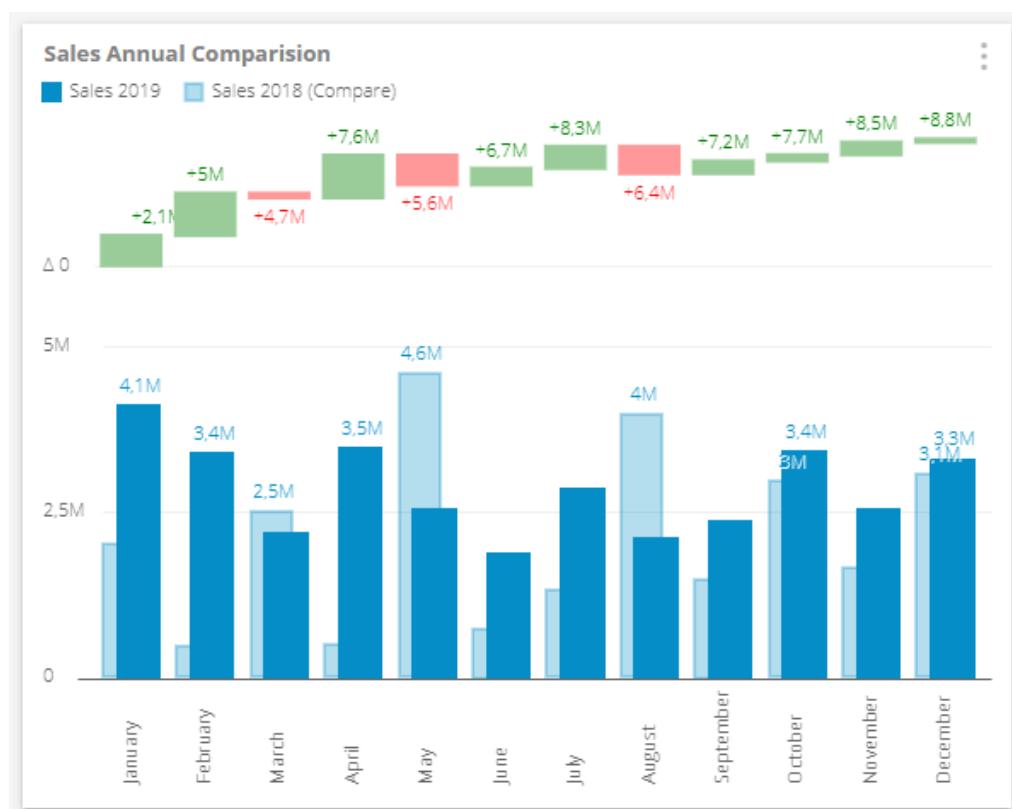
4.9. ‘Combo’ chart

Use ‘Combo’ chart to visualize and compare two data sets (analysis or query) on the same dashboard chart.

After selecting base data set and ‘Combo’ chart, additional ‘Options’ on the tile configuration enables you to choose secondary data set to compare over first selected. Choose any combination of ‘Line chart’ or ‘Column chart’ for the base and compared data set. Secondary data set values could be displayed on same Y-axis as first data set or on a **separate Y-axis**.

Configure data set to compare ...

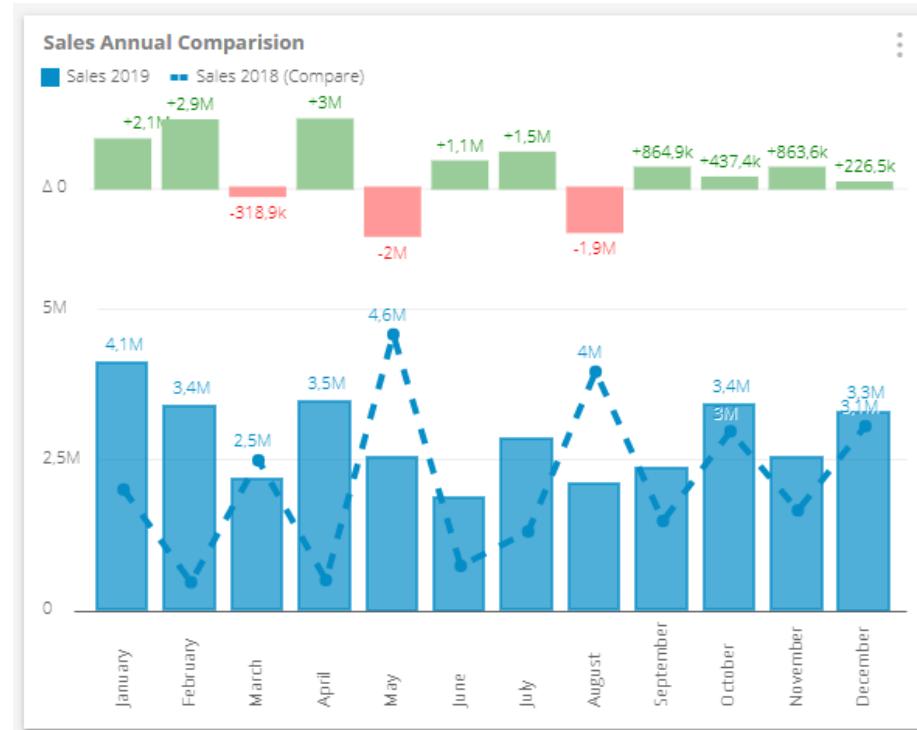
Compared sets on the Combo chart ...



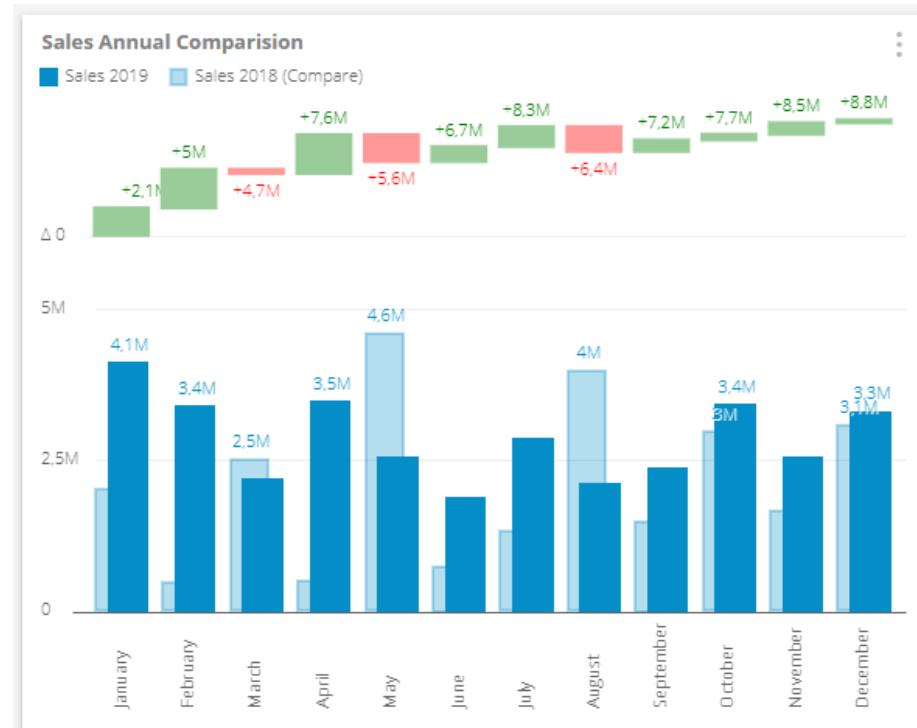
4.9.1. Delta chart

When using a ‘Combo’ chart or ‘Compare Analysis’ feature, there is an option to display a Delta chart above compared sets that will visualize differences by each item in the compared sets.

*Delta chart displays the difference for the items (**values**). ‘Green’ positive and ‘Red’ negative differences. Combo chart displayed as a combination of ‘Column chart’ and ‘Line chart’.*



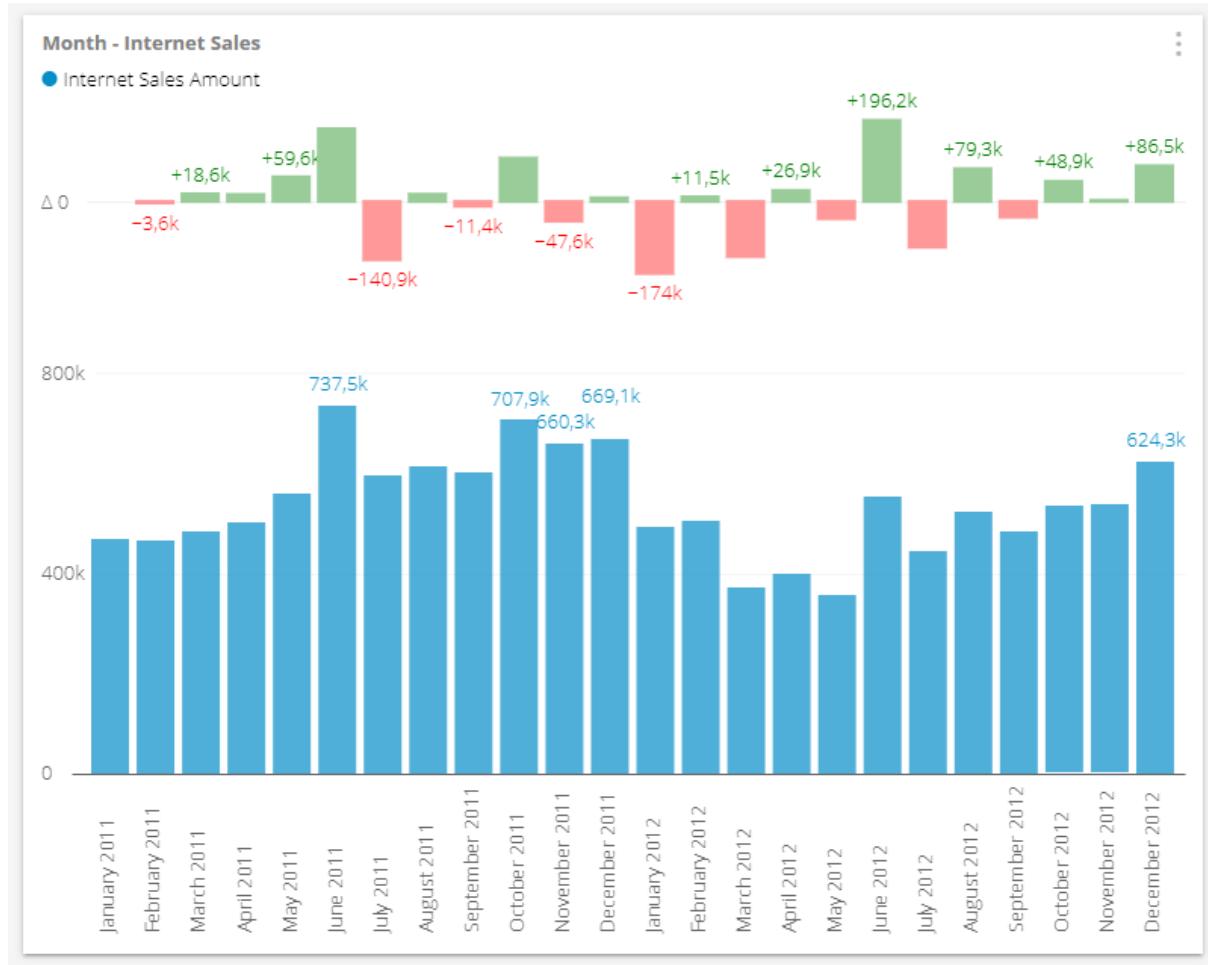
*Delta chart displays cumulative differences for the items (**cumulative**). ‘Green’ positive and ‘Red’ negative differences. Combo chart displayed as a combination of ‘Column chart’ and ‘Column chart’.*



4.9.2. Self-Compare Combo chart display

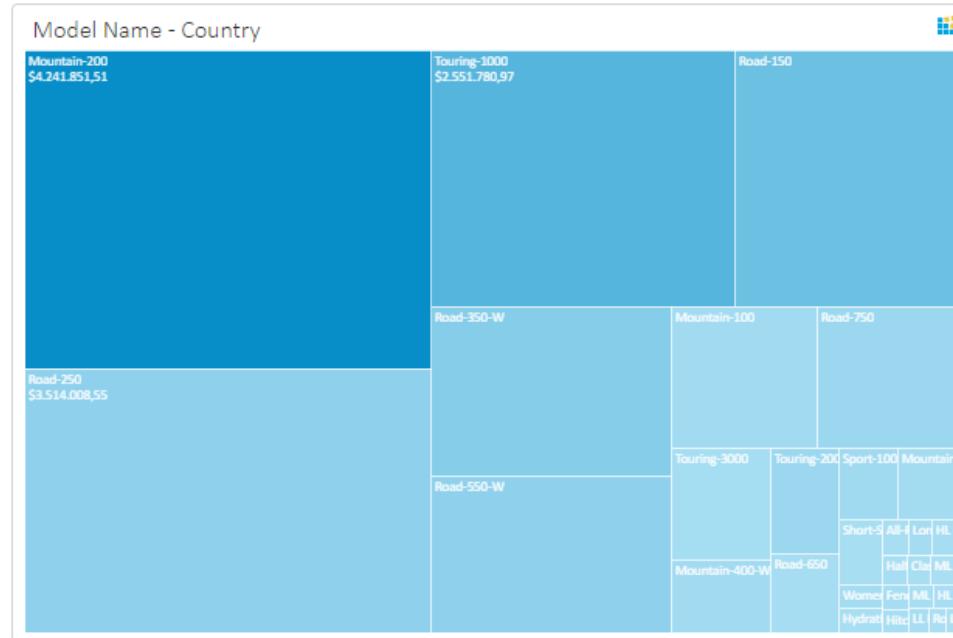
Compare each data item with the previous item in a dataset using a Combo chart and a single dataset (query or analysis). When 'Delta chart' is set to a single dataset, the delta chart will visualize every item compared to the previous visualizing its mutual difference.

- Add the combo chart to the dashboard. Set chart data to any analysis or a query. In the tile > Options set 'Delta Chart' to 'Values' or 'Cumulative'. The delta chart will display the item difference compared with the previous item in the data set.

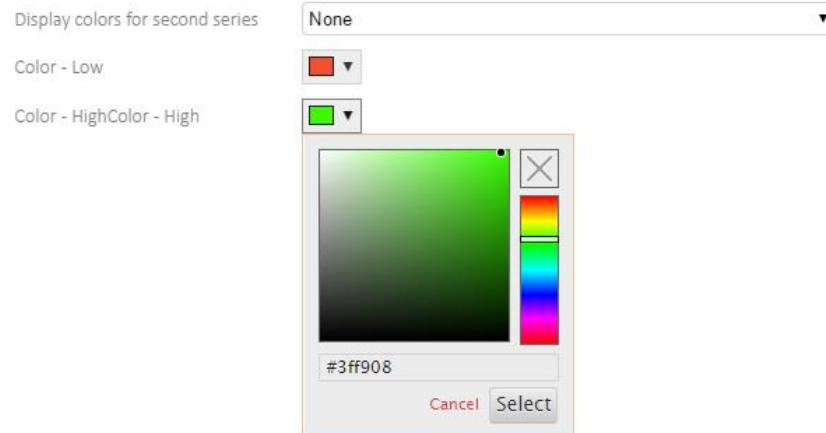


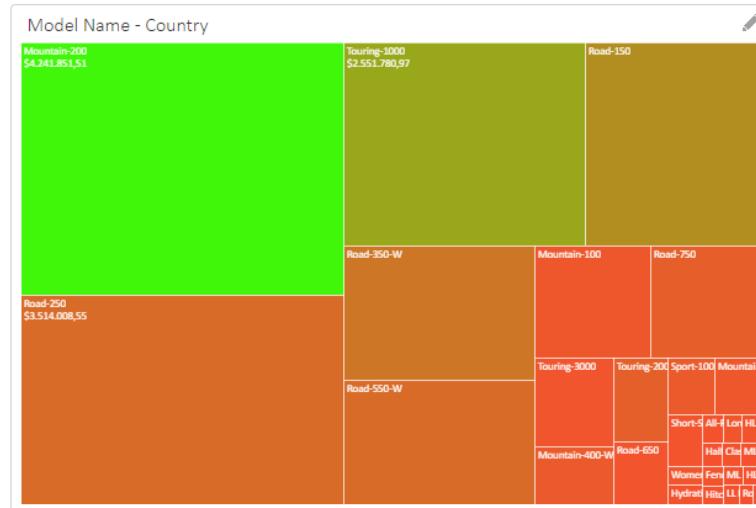
4.10. ‘TreeMap’ chart

'TreeMap' chart that is used to quickly gain a perception of the values and its mutual proportions. There are several options to configure about 'TreeMap' behavior, such as color for 'high' and 'low' values and option to render size based on the first series of values and color based on the second series, separately.



Edit colors for 'High' and 'Low' values of the 'TreeMap' chart in the dashboard tile visual options.

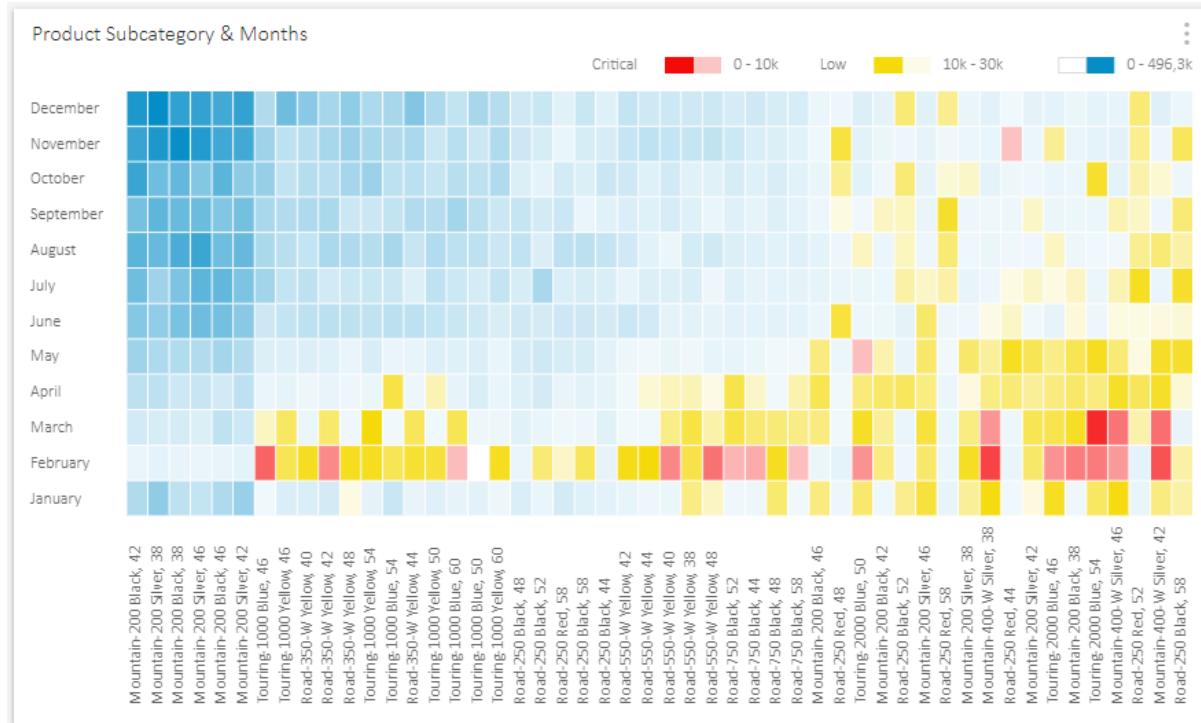




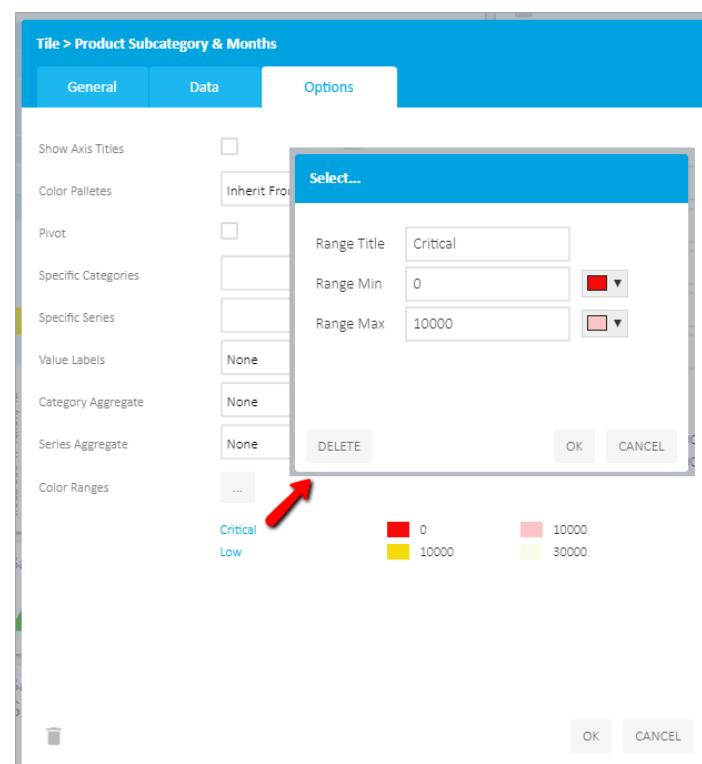
Treemap chart could be configured to display size of items based on the first series of values while displaying color based on the second series of values from the data chart is based upon. If the data is based upon OLAP/Analytic Model data, at any time click on the particular item to use analytic actions, such as drill-down, drill-through, etc.

4.11. ‘HeatMap’ chart

HeatMap chart displays values as colors for each item in the data set, presenting impact of each item compared to other items. HeatMap visualization beside default value-color range, supports additional ranges with custom colors, providing beautiful and quick visual analytic insights to rendered data.



Default color range is defined by the default color pallet on the dashboard/chart. Additional value-color ranges are defined in visual options on the HeatMap chart. HeatMap chart could contain many value-color ranges. Manually added value-color ranges have rendering priority compared to default value-color range.



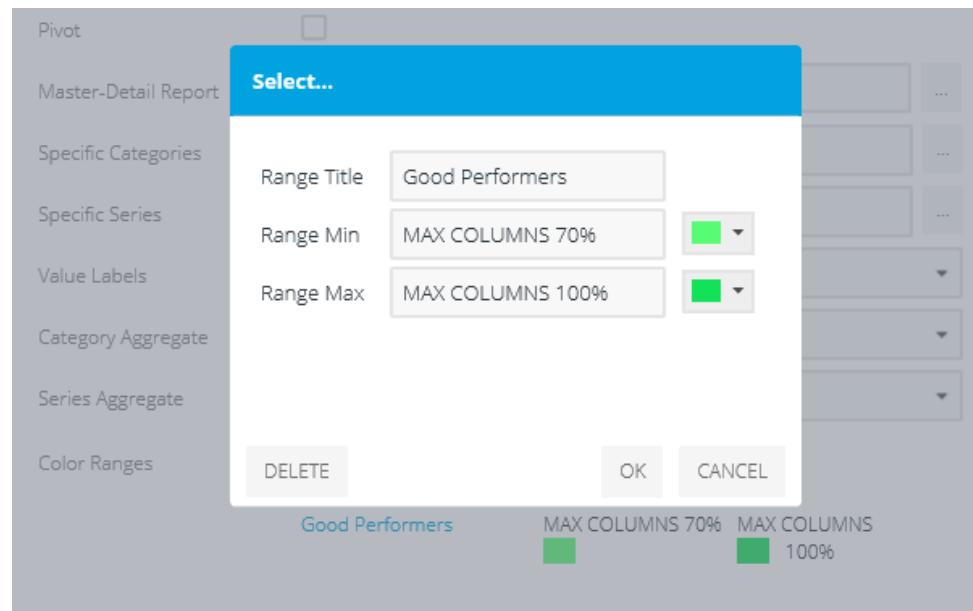
HeatMap Relative Color Range

Previously, it was possible to define a color range with fixed values. The version 5.3 provides relative definitions of color ranges that would be applied for the whole data set or individual columns or rows. For example, the color range would be applied for the top 30% items in each column individually.

Country Product Best Performers			
Mountain-200 Black, 42	\$623.491,18	\$300.999,41	\$247.547,26
Mountain-200 Silver, 38	\$639.441,90	\$199.364,86	\$266.853,83
Mountain-200 Black, 38	\$523.738,75	\$216.192,42	\$285.944,97
Mountain-200 Silver, 46	\$475.965,67	\$165.386,05	\$332.399,58
Mountain-200 Black, 46	\$526.173,73	\$179.658,93	\$326.567,21
Mountain-200 Silver, 42	\$545.022,72	\$163.418,47	\$288.838,75
Touring-1000 Blue, 46	\$418.444,33	\$96.609,43	\$119.094,07
Touring-1000 Yellow, 46	\$402.091,76	\$106.087,78	\$121.830,03
Road-350-W Yellow, 40	\$296.457,55	\$88.085,09	\$117.245,16
Road-350-W Yellow, 42	\$342.674,81	\$74.647,09	\$97.387,80
Road-350-W Yellow, 48	\$365.636,13	\$85.712,89	\$184.989,30
Touring-1000 Yellow, 54	\$236.671,40	\$114.395,78	\$119.536,79
Road-150 Red, 48	\$389.874,34	\$110.883,43	\$82.277,67
Touring-1000 Blue, 54	\$290.045,48	\$50.565,65	\$52.137,23
Road-150 Red, 62	\$397.029,81	\$107.309,45	\$46.502,48

Define relative color range with MIN | MAX COLUMNS | ROWS PERCENT definition. For example, MIN ROWS 0%

- MIN ROWS 20% (lowest 20% in each row), MAX 100% - MAX 90% (highest 10% in the whole data set), MAX COLUMNS 70% - MAX COLUMNS 100% (highest 30% in each column).



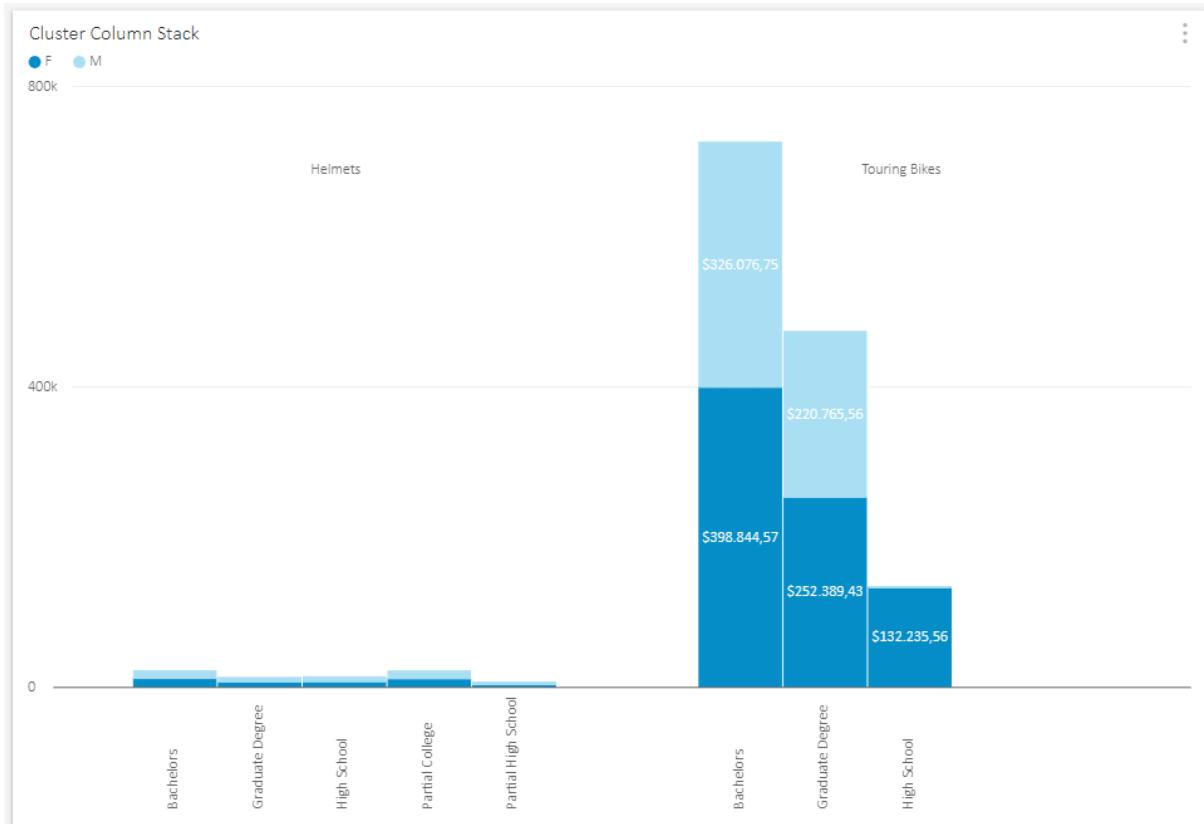
4.12. ‘Cluster Stack Column’ chart

‘Cluster Stack Column’ chart is available only for a SQL query results rendering. Within each category item cluster name should be specified that will be used to separate column in clusters. A SQL query should be constructed on such way that category item (the first column in the SQL query results), contains cluster name and category item name separated by the hashtag (**cluster#item**).

Example of SQL query with defined cluster groups ...

Query	<pre>declare @color nvarchar(50)=null select top 15 dimproductsubcategory.EnglishProductSubcategoryName + '#' + EnglishEducation as [some], Gender, sum(salesamount) as sales, sum(salesamount) as sales1 from factinternetsales left join dimproduct on factinternetsales.productKey = dimproduct.productKey left join dimproductssubcategory on dimproductssubcategory.productssubcategoryKey = dimproduct.productssubcategoryKey left join DimProductCategory on DimProductCategory.ProductCategoryKey = DimProductSubcategory.ProductCategoryKey left join DimCustomer on DimCustomer.CustomerKey = FactInternetSales.CustomerKey where color = 'blue' group by dimproductsubcategory.EnglishProductSubcategoryName, EnglishEducation, Gender order by EnglishProductSubcategoryName, EnglishEducation, Gender</pre>																												
Results	<table border="1"> <thead> <tr> <th>Category some</th> <th>Values Gender</th> <th>Values sales [\$#,##]</th> <th>Values sales1 [Format Values]</th> </tr> </thead> <tbody> <tr> <td>Helmets#Bachelors</td> <td>F</td> <td>\$11,196,8</td> <td>11196,8000</td> </tr> <tr> <td>Helmets#Bachelors</td> <td>M</td> <td>\$10,182,09</td> <td>10182,0900</td> </tr> <tr> <td>Helmets#Graduate Degree</td> <td>F</td> <td>\$6,508,14</td> <td>6508,1400</td> </tr> <tr> <td>Helmets#Graduate Degree</td> <td>M</td> <td>\$5,843,33</td> <td>5843,3300</td> </tr> <tr> <td>Helmets#High School</td> <td>F</td> <td>\$6,753,07</td> <td>6753,0700</td> </tr> <tr> <td>Helmets#High School</td> <td>M</td> <td>\$6,613,11</td> <td>6613,1100</td> </tr> </tbody> </table>	Category some	Values Gender	Values sales [\$#,##]	Values sales1 [Format Values]	Helmets#Bachelors	F	\$11,196,8	11196,8000	Helmets#Bachelors	M	\$10,182,09	10182,0900	Helmets#Graduate Degree	F	\$6,508,14	6508,1400	Helmets#Graduate Degree	M	\$5,843,33	5843,3300	Helmets#High School	F	\$6,753,07	6753,0700	Helmets#High School	M	\$6,613,11	6613,1100
Category some	Values Gender	Values sales [\$#,##]	Values sales1 [Format Values]																										
Helmets#Bachelors	F	\$11,196,8	11196,8000																										
Helmets#Bachelors	M	\$10,182,09	10182,0900																										
Helmets#Graduate Degree	F	\$6,508,14	6508,1400																										
Helmets#Graduate Degree	M	\$5,843,33	5843,3300																										
Helmets#High School	F	\$6,753,07	6753,0700																										
Helmets#High School	M	\$6,613,11	6613,1100																										

Rendered ‘Cluster Stack Column’ chart ...



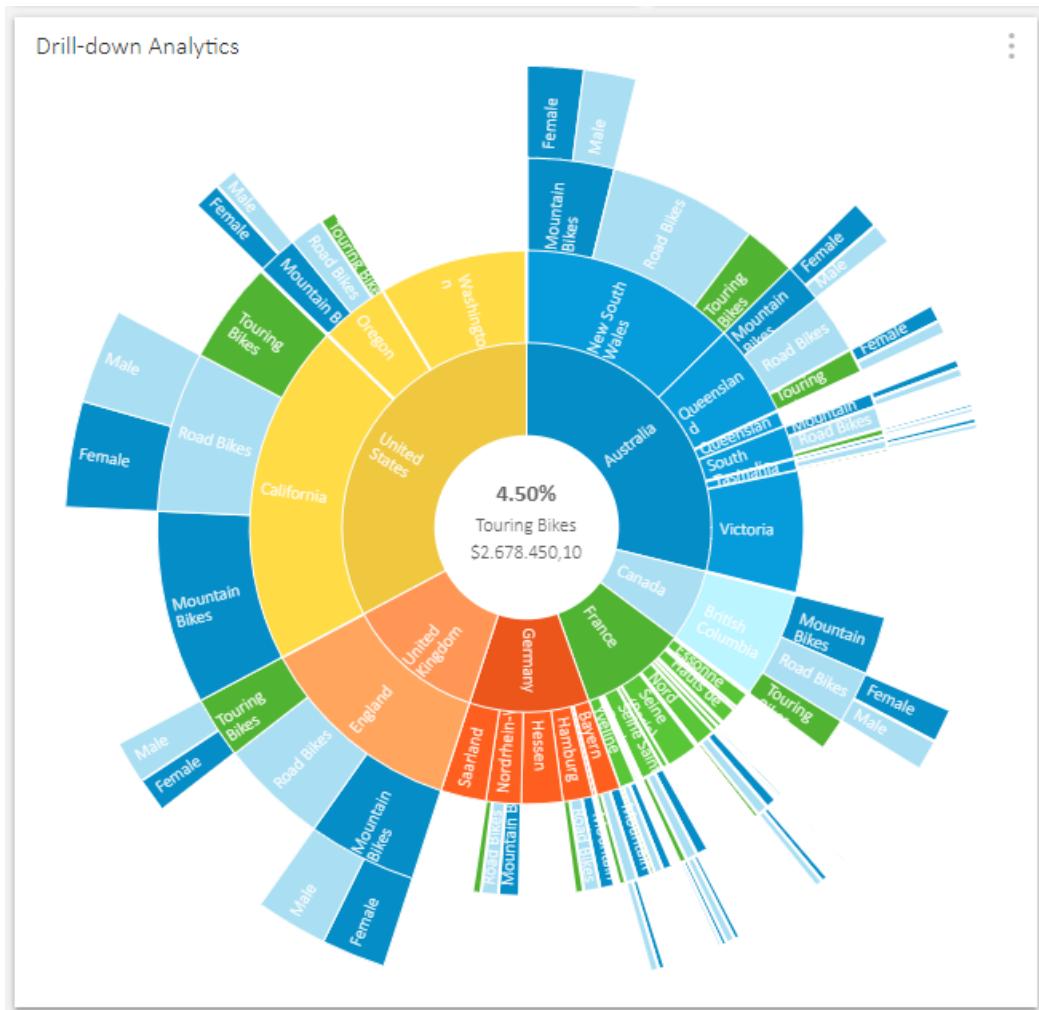
4.13. ‘Sunburst Analytics’ on the dashboard

The Sunburst chart displays multiple levels of data analysis (OLAP/Analytic Model) on the same chart, with the option to further drill-down the data, change dimension levels and provide data visualizations in multiple analytic steps. Initial structure (expanded members) of the Sunburst visualization is identical to the saved analysis that is used for the visualization, while it takes only a click to drill-down any member on the chart to the next analytic level. Furthermore, a user can change levels of the Sunburst chart to a different dimension and analyze data in any other way, making this visualization a convenient tool for data exploration and discovery.

Create Analysis (OLAP or Analytic Model) in which required dimension members will be expanded and save the analysis.

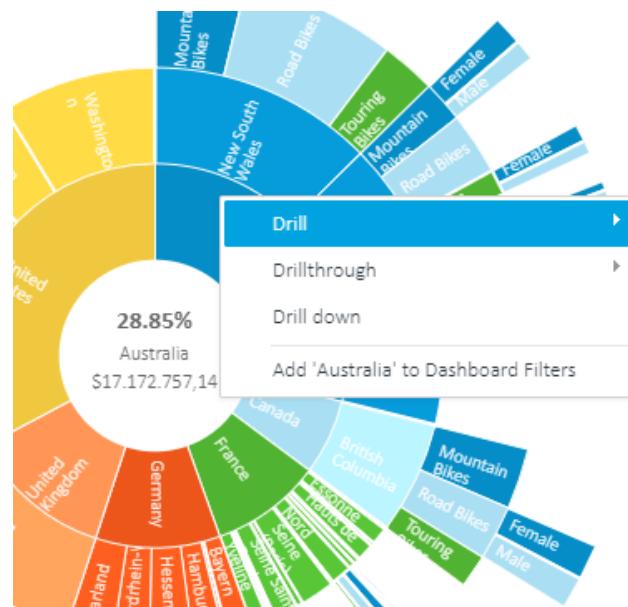
Internet Sales Amount					
Drop Measures Here					Drop Series Here
▪ Country ▾	▪ State-Province ▾	▪ Subcategory ▾	▪ Gender ▾		Internet Sales Amount
[-] Australia	[-] New South Wales	[-] Mountain Bikes	Female	\$1.181.376,40	
			Male	\$1.090.288,81	
			Total	\$2.271.659,71	
			+ Road Bikes	\$3.873.410,79	
			+ Touring Bikes	\$1.365.120,63	
	[-] Queensland		Total	\$7.510.191,13	
	[-] Mountain Bikes	Female	\$607.491,90		
		Male	\$430.895,24		
		Total	\$1.038.387,13		
		+ Road Bikes	\$1.567.579,68		
		[-] Queensland2		+ Touring Bikes	\$366.372,10
				Female	\$277.452,89
				Male	\$643.824,99
				Total	\$3.249.791,81
				Total	\$585.074,08
[-] Tasmania	[-] South Australia	[-] Mountain Bikes	Female	\$191.698,90	
			Male	\$185.925,54	
			Total	\$377.624,44	
			+ Road Bikes	\$587.751,97	
			+ Touring Bikes	\$84.036,93	
	[-] Tasmania		Female	\$99.759,44	
			Male	\$183.796,37	
			Total	\$1.149.172,79	
			+ Mountain Bikes	\$113.939,89	
			+ Road Bikes	\$120.652,27	
Total	Total	Total	Female	\$115.451,21	
			Male	\$236.103,49	
			+ Touring Bikes	\$74.756,17	
			Total	\$424.799,55	
			Total	\$4.253.727,69	

On the dashboard add ‘Sunburst’ visualization and connect with the created analysis. The Sunburst visualization requires more space on the dashboard than other chart visualizations to present data as it can show 4 levels of dimension members. The Sunburst visualization will immediately display dimension members the same way they were expanded/collapsed in the analysis.



End-users on the dashboard can click on any sunburst wedge to expand sunburst segments that are not initially expanded. Mouse over any sunburst wedge to display information about the current wedge in the center of the sunburst visualization.

Right click on the sunburst wedge to get the menu to additionally change drilling dimension for any wedge on any level.



4.14. HTML/Javascript tile

Enter any HTML/Javascript in a dashboard tile that could display any custom data, information or provide any additional insights related to your business requirements. HTML tile is saved and opened with other dashboard charts. **While exporting dashboard to PDF file, HTML/Javascript tile will not be included.**

The screenshot shows the configuration interface for a dashboard tile titled "Calculate USD/EUR". The top navigation bar includes tabs for General, Data, Filtering, and Options, with Options selected. On the left, there's a "Color Palette" section and a "HTML/Javascript" section containing the following code:

```
<script language="text/javascript">
function calculateEUR( )
{
    var val = document.getElementById("input1").value;
    alert("Price in EUR is :" + new String(val / 0.85));
}
</script>

Enter price in USD: <br/>
<input id="input1" value="" /> <br/><br/>
<button onclick="calculateEUR()">Calculate</button>
```

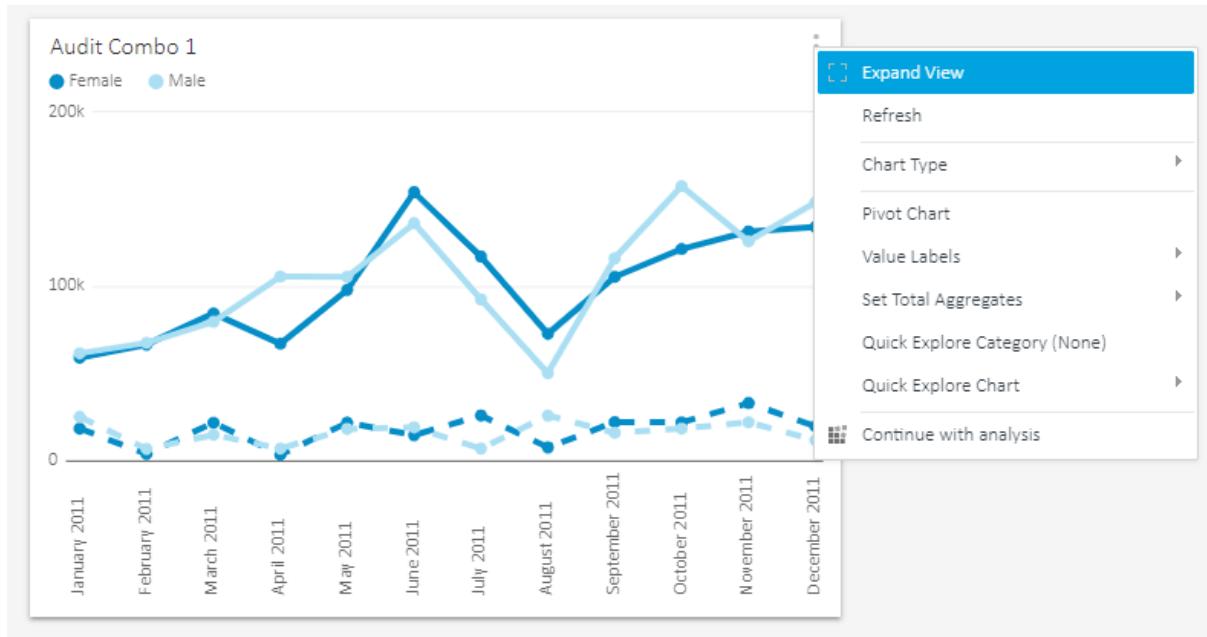
Set dashboard tile HTML/Javascript that will display custom functionality in the dashboard. This is a unique way to embed custom insights and features into the dashboard page.



4.15. ‘Expand View’ of the dashboard chart

Data visualization on dashboard tile in certain moments is not large enough, for example, for presentation purposes, when focus is on a particular chart.

All tiles have ‘Magnify’ icon that enlarges chart visualization.



Enlarge action transforms view to single tile visualization on the screen.

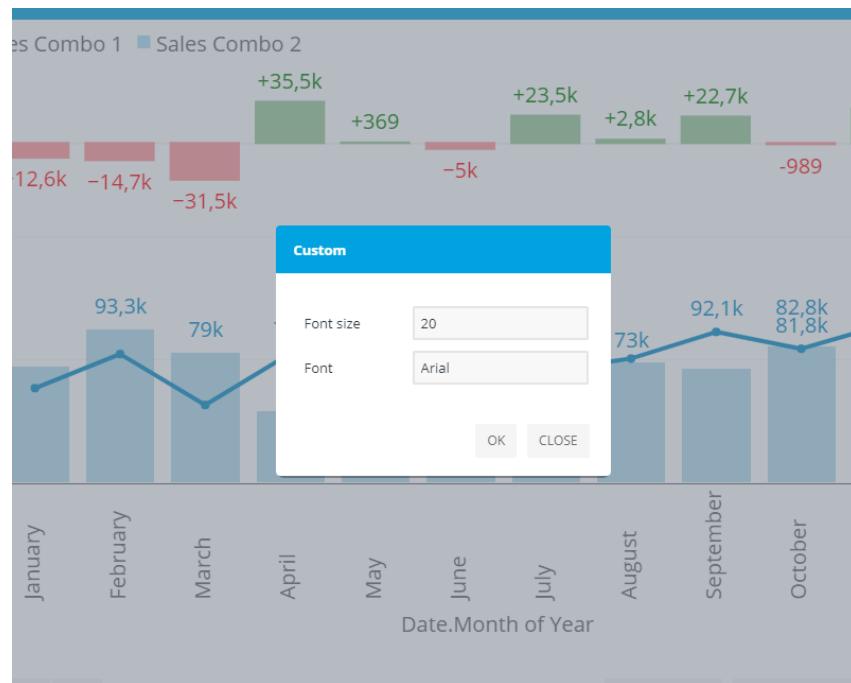


Enlarged view also includes analytic actions (if data is from OLAP/Analytic Model data source), export to Excel/PDF file and option to continue the analysis in the full analysis view.

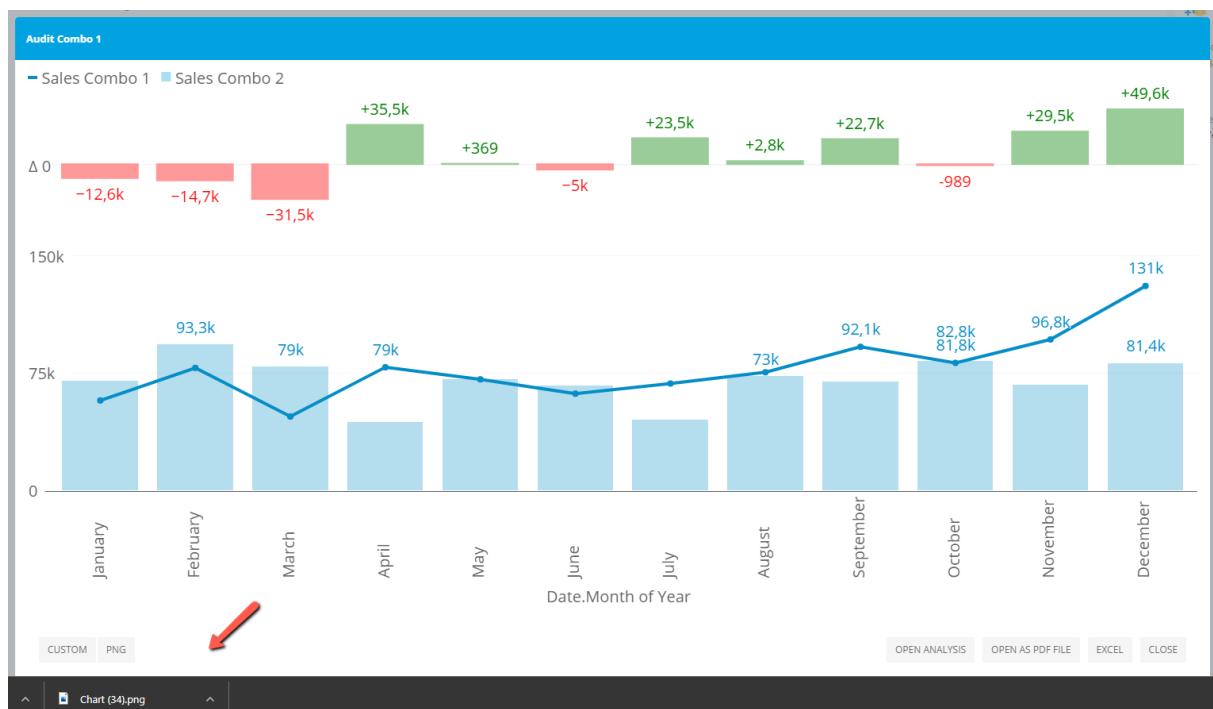
4.16. Export Chart as a PNG file

Open a dashboard chart in the '**Expanded view**' and set custom font and size. Download the chart as PNG image to include it in external content, presentation, or a document.

- 1) Set chart display to another font and font size.



- 2) Download the chart as a PNG file.



4.17. ‘MDX query’ data for dashboard tiles

While creating the MDX query for the dashboard tiles, values on the column axis present series, while values on the rows axis present categories. (More information about queries, see ‘6. Working with queries section’)

The screenshot shows the 'Query' editor interface. At the top, there are tabs: 'Data' (selected), 'Impersonate', and 'Caching'. On the right, there's a 'Permissions' button. Below the tabs, a placeholder text says 'Define query to return required data.' The 'Query Name' field contains 'Sales and Tax amount by products'. The 'Query type' dropdown is set to 'Analytic data (Categories, series)'. The 'Data Source' dropdown is set to 'AdventureWorks2014(OLAP)'. The 'Query' text area contains the following MDX code:

```
select {[Measures].[Internet Sales Amount], [Measures].[Internet Tax Amount]} on 0,
{{[Product].[Product Categories].children} on 1
from
[Adventure Works]
```

A red arrow points from a callout box labeled 'Series' to the 'on 0' part of the query. Another red arrow points from a callout box labeled 'Categories' to the 'on 1' part of the query.

In the 'Results' section, there is a table with four columns: 'Category Product Categories', 'Series Values Internet Sales Amount', and 'Series Values Internet Tax Amount'. The data is as follows:

Category Product Categories	Series Values Internet Sales Amount	Series Values Internet Tax Amount
Accessories	\$700.759,96	\$56.060,80
Bikes	\$28.318.144,65	\$2.265.451,62
Clothing	\$339.772,61	\$27.181,81
Components	-	-

Example of ‘Column chart’ using above query data...



4.18. ‘SQL Queries’ data for dashboard tiles

While creating SQL query for the dashboard tiles, values on the column axis present series, while values on the rows axis present categories. (More information about queries, see ‘6. Working with queries section’)

The screenshot shows the 'Query' editor interface. The top navigation bar includes tabs for 'Data', 'Impersonate' (which is selected), and 'Caching'. A 'Permissions' icon is also present. The main area is titled 'Define query to return required data.' and contains the following fields:

- Query Name:** Internet Sales
- Query type:** Analytic data (Categories, series)
- Data Source:** AdventureWorksDW2014(SQL)
- Query:**

```
select top 20 englishproductname, salesamount, totalproductcost from factinternetsales
left join dimproduct on factinternetsales.productKey = dimproduct.productKey
```

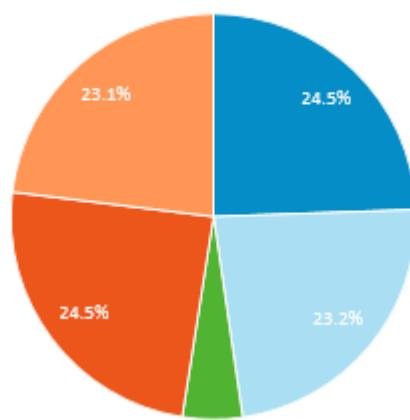
Below the query editor is a table titled 'Results' showing the output of the query:

Category	Series Values salesamount [\$#.##]	Series Values totalproductcost [\$#.##]
Road-150 Red, 62	\$3,578,27	\$2,171,29
Mountain-100 Silver, 44	\$3,399,99	\$1,912,15
Mountain-100 Silver, 44	\$3,399,99	\$1,912,15
Road-650 Black, 62	\$699,10	\$413,15
Mountain-100 Silver, 44	\$3,399,99	\$1,912,15
Road-150 Red, 44	\$3,578,27	\$2,171,29
Road-150 Red, 62	\$3,578,27	\$2,171,29

Red arrows point from the text 'Categories' to the first column of the table, and from 'Series' to the second and third columns.

Example of ‘Pie chart’ using above query data...

- Road-150 Red, 62
- Mountain-100 Silver, 44
- Road-650 Black, 62
- Road-150 Red, 44
- Mountain-100 Black



4.19. ‘Drill-through’ data on the dashboard

Dashboard option to display initially drill-trough results in the moment of dashboard opening respecting existing dashboard filters. Usually, drill-through results contain specific leaf-level details from OLAP/analytic model and its convenient to present with the Table chart. For example, a dashboard can initially display a list of names, emails, phone numbers and dates related to the sales of the current month from our data OLAP/analytic model, by adding a Table chart that is connected to existing drill-through results. Drill-through results are displayed only if any filter is set for the dashboard. Drill-through results react on selected dashboard filters or ‘Use chart slicer’ feature. This way user can quickly get drill-through data for any selection/members on the dashboard.

Because drill-through results can contain very large portions of data that would take serious time to display, initially, drill-through results display the first 100 rows of data. The idea of drill-through results on the dashboard is to present the most important/relevant data on the dashboard in the form of drill-through. To change the number of initially displayed rows for the dashboard, change the ‘MaxRowsDrillthroughDashboard’ config value in the application ‘web.config’ file.

To connect dashboard ‘Table’ chart with existing drill-through action, open chart edit form and ‘Chart Data’ input and navigate to ‘Drill-through’ tab to select one of the available drill-through actions defined in the Kyubit application. The same principle works both for OLAP and Analytic Models analysis.

Name	Data Source
Basic Info	AdventureWorks2014
Product Details	AdventureWorks2014
Some customer data	AdventureWorks2014

When any filter is selected for the dashboard display, ‘Table’ chart will display drill-through results ...

Last 100 customers								
Customer	Date	Product	Color	Gender	City	Postal Code	State-Province	Internet Sales Amount
Courtney A. Edwards	January 1, 2011	Road-150 Red, 56	Red	Female	Milwaukee	97222	Oregon	3578,27
Abigail R. Henderson	January 1, 2011	Road-150 Red, 44	Red	Female	Werne	59368	Nordrhein-Westfalen	3578,27
Sydney C. Rogers	January 2, 2011	Road-150 Red, 62	Red	Female	Burbank	91502	California	3578,27
Latasha A. Alonso	January 2, 2011	Road-150 Red, 44	Red	Female	York	Y03 4TN	England	3578,27
Warren S. Jai	January 2, 2011	Road-150 Red, 56	Red	Male	Melbourne	3000	Victoria	3578,27
Jonathon R. Gutierrez	January 2, 2011	Road-150 Red, 44	Red	Male	Goulburn	2580	New South Wales	3578,27
Alexandra H. Watson	January 2, 2011	Road-650 Black, 62	Black	Female	Goulburn	2580	New South Wales	699,0982
Kevin Gonzalez	January 3, 2011	Road-150 Red, 44	Red	Male	Kirkland	98033	Washington	3578,27
Lucas Hill	January 3, 2011	Road-150 Red, 48	Red	Male	Berkeley	94704	California	3578,27

5. Dashboard layout configuration options

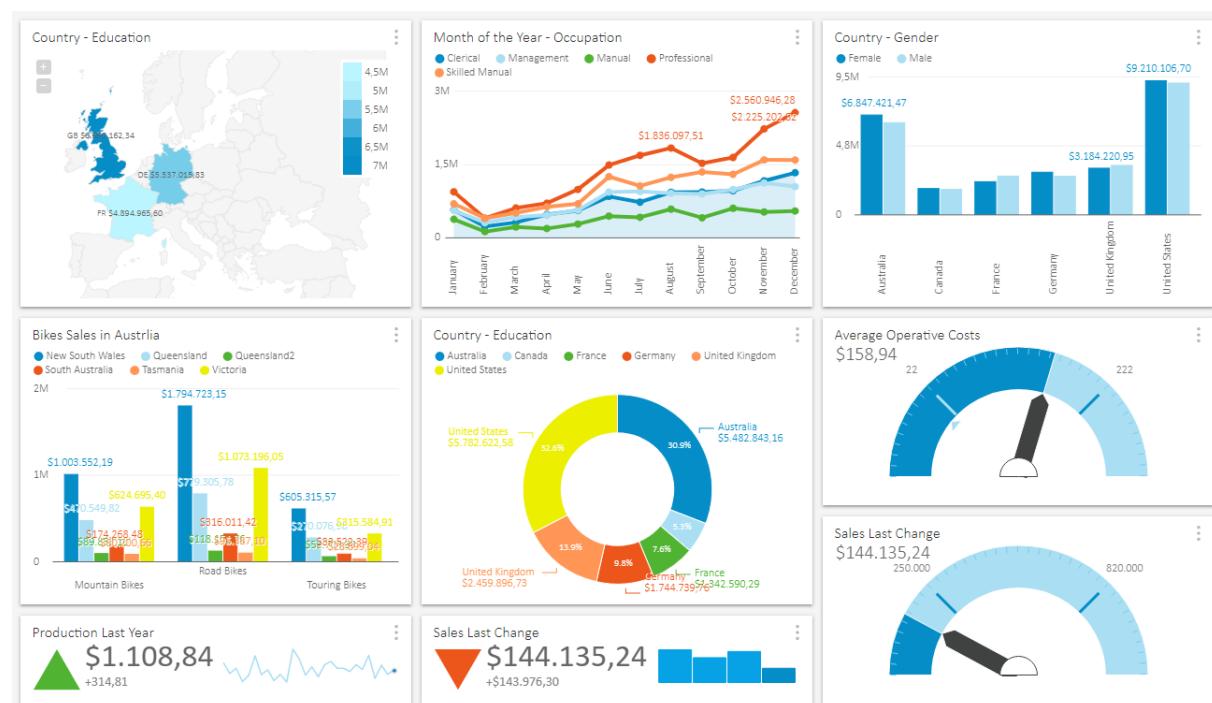
Dashboard and rendered visualizations could be additionally configured to display additional visual and data options. Each dashboard tile has visualization options that are easy to configure to maximize the perception of related data.

5.1. Color theme palette

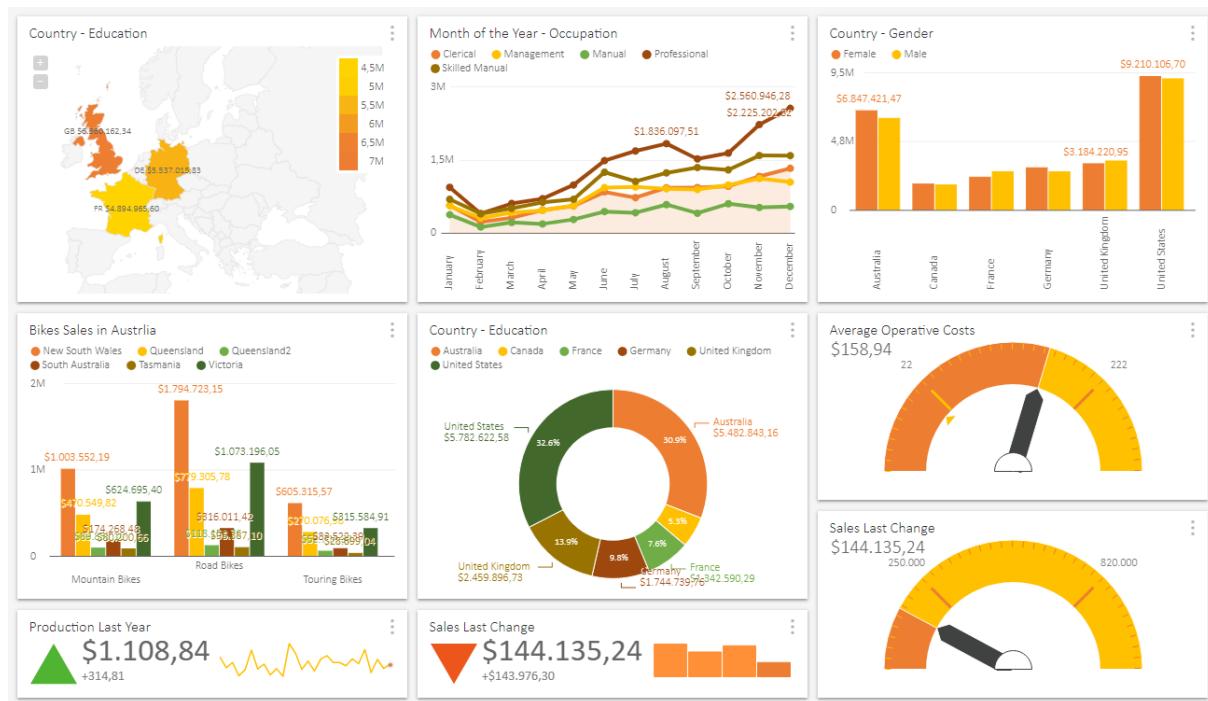
Set the dashboard color theme palette that will be applied to all dashboard tiles or set color palette for particular tile visualization. By default, all dashboard tiles inherit the color theme from the dashboard (General Settings) which is by default 'Standard' color theme. While in the dashboard 'Design view' user can opt color theme for the whole dashboard or set individual tiles color theme. Kyubit product delivers 5 color theme palettes (Standard, Warm, Cold, Strong, Gray), while other color palettes could be added and managed by the administrator in Kyubit > Admin > Colors section.

- 1) To change color pallet for whole dashboard, select 'dashboard design mode' -> 'details' -> 'general' -> select one of available pallets.
- 2) To change color pallet, select 'dashboard design mode' -> 'tile edit' -> 'options' -> select one of available pallets.

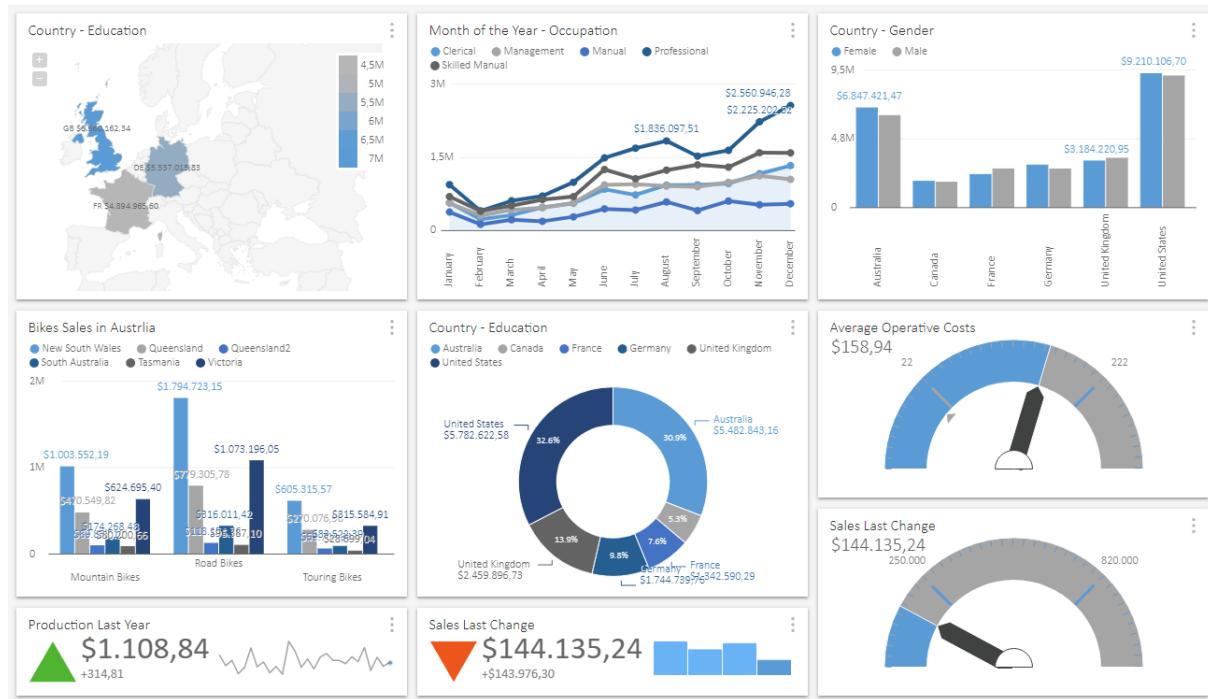
'Standard' color pallet ...



'Warm' color pallet ...

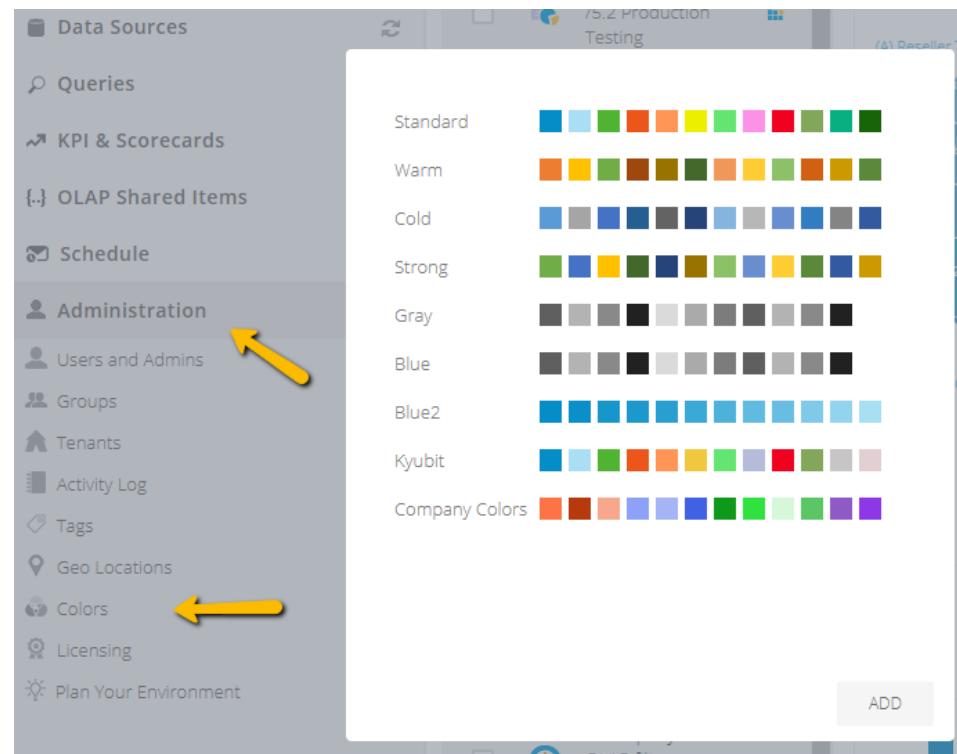


'Cold' color pallet ...

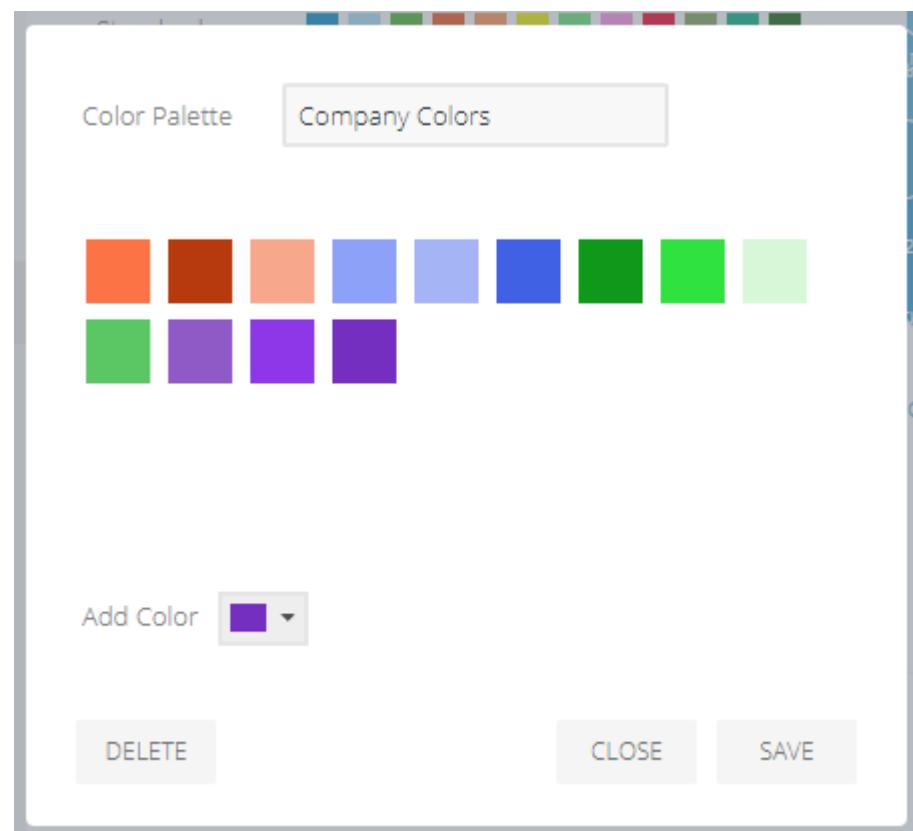


5.2. Manage Color Palettes

Kyubit Admin role has a privilege to manage Color Palettes in Kyubit > Admin application section. It is possible to edit existing or add new Color Palettes.

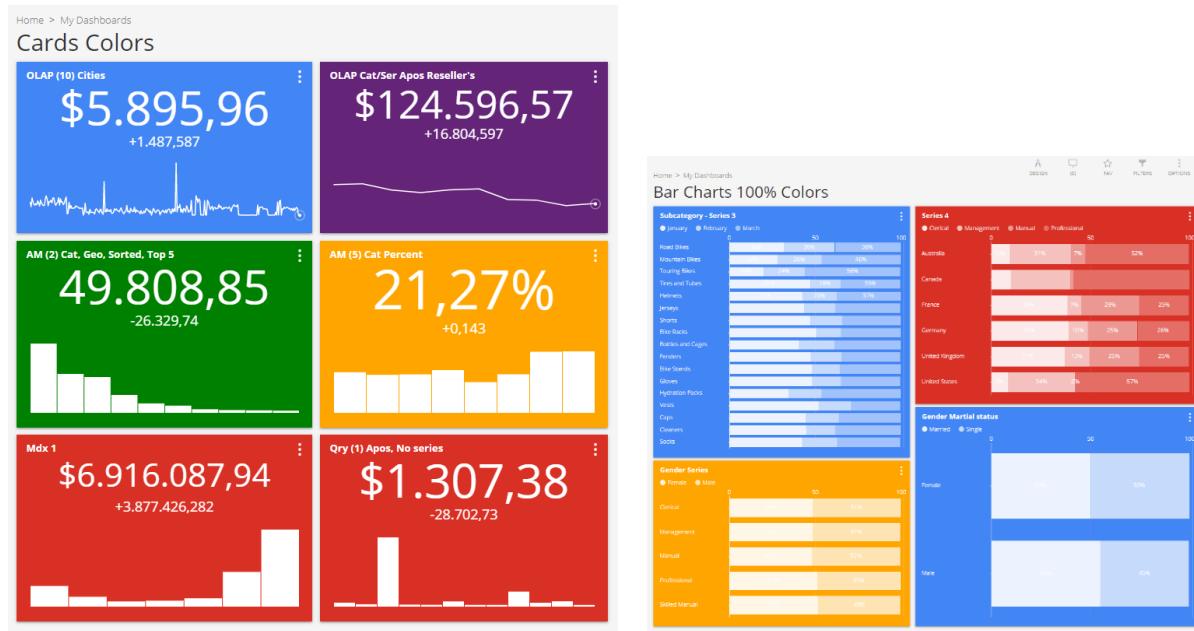


A Color Palette can contain any number of colors. If data contains more series than available colors, colors are repeated to visualize all series.

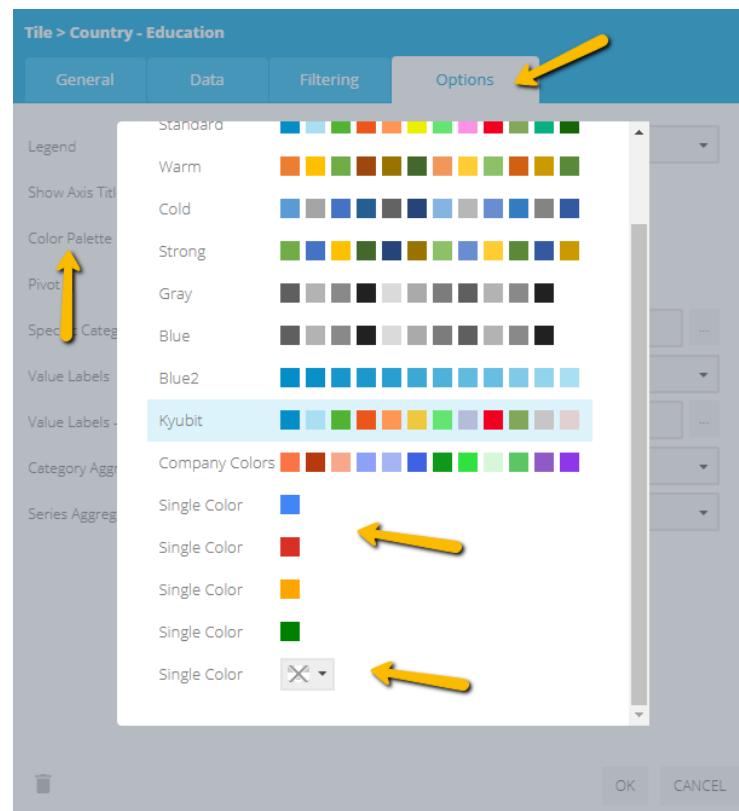


5.3. Single-Color Charts

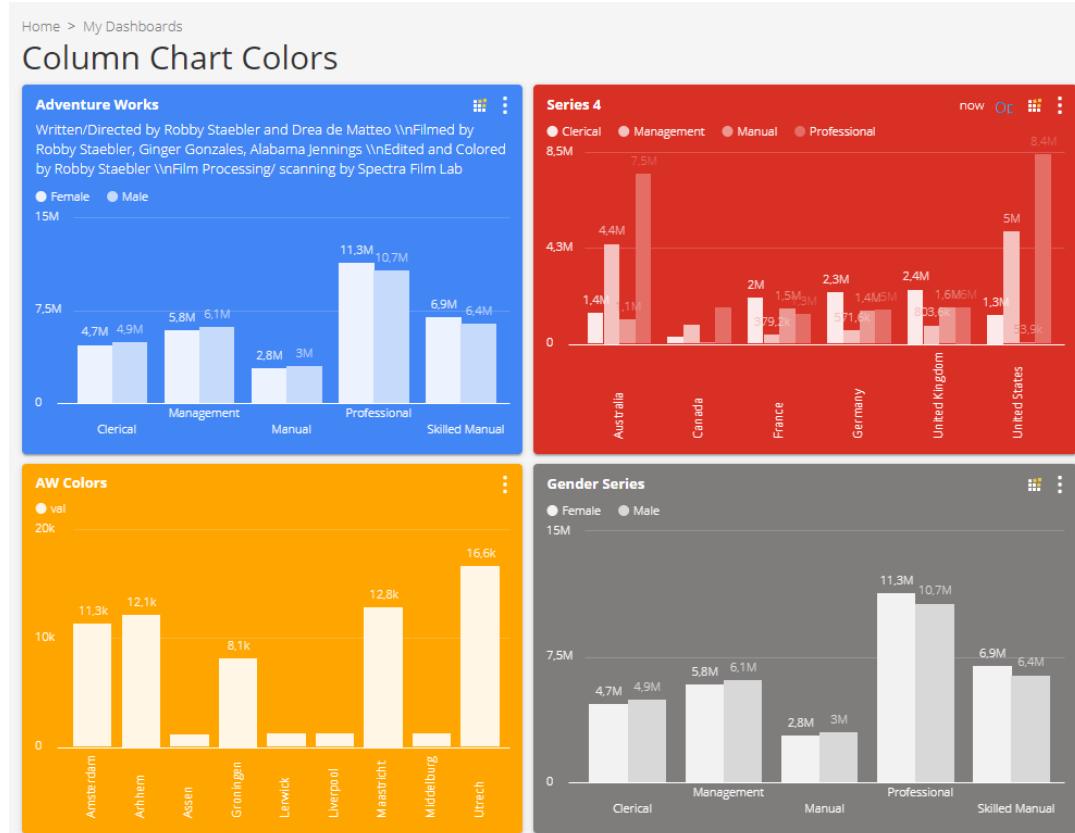
An effective way to present important charts that will stand out on the dashboard with the 'Single-Color' style (Color Palettes). In this way, you can design a chart background with a specific color, while chart elements are presented with shades of white. The chart looks outstanding among other charts with a flat outlook.



To set dashboard chart for a single-color mode, open Tile > Edit > Options and under 'Color Palettes' choose a single color that is displayed below all color palettes. You can pick from a few predefined colors or choose any custom color to be used with a Single-Color display mode.

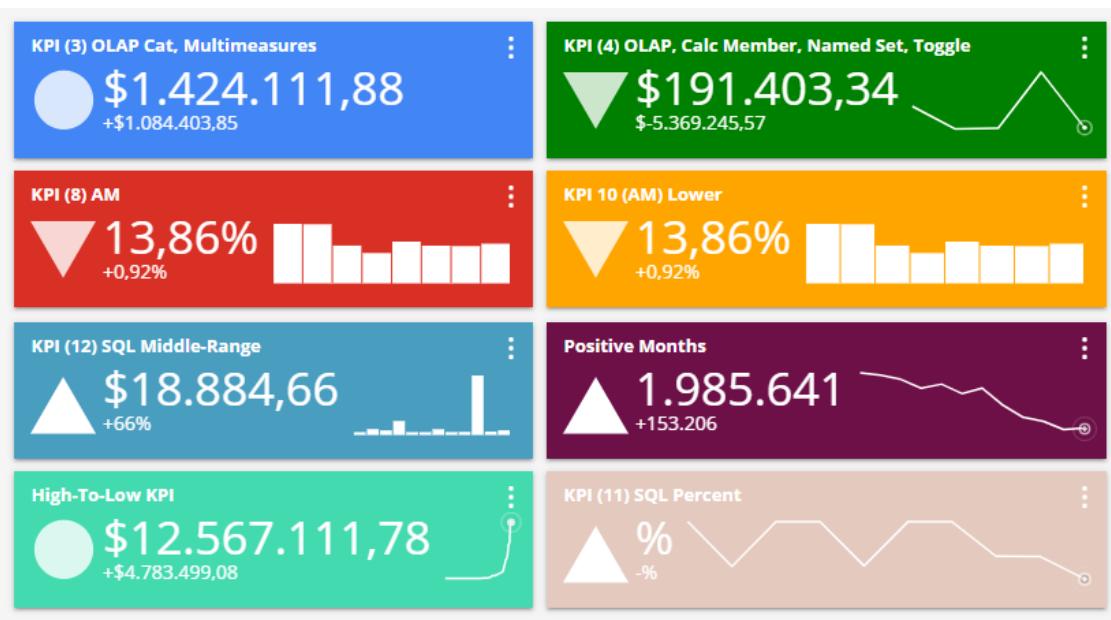
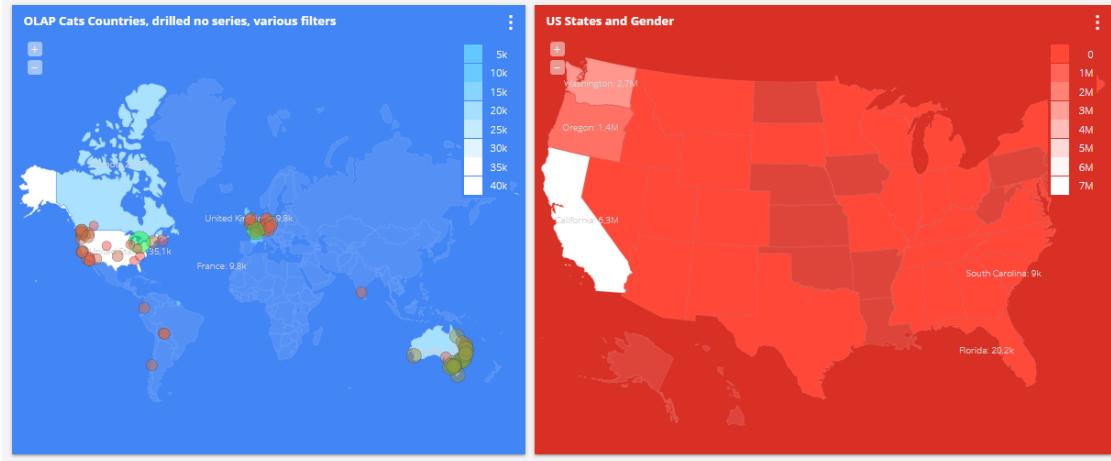


All charts support Single-Color display mode...



Home > My Dashboards

Geo Maps Colors



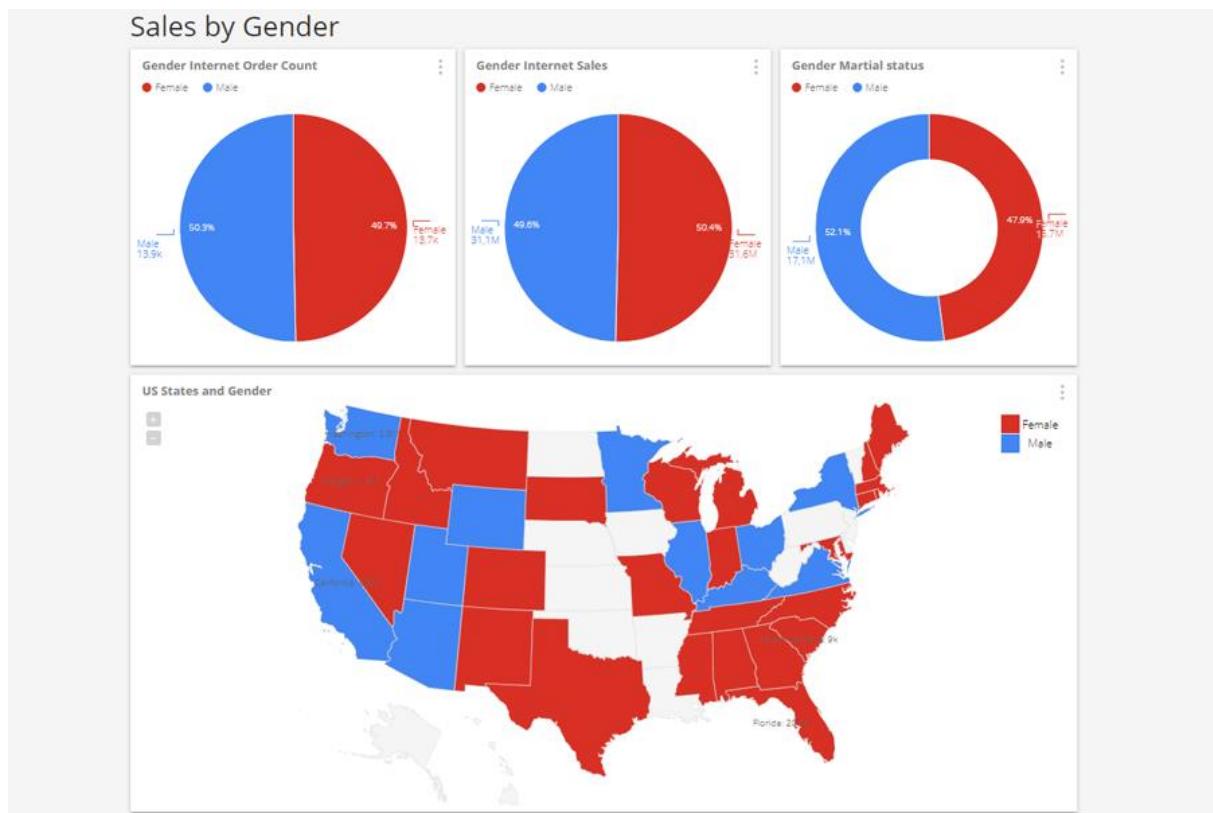
Home > My Dashboards

Line Charts Colors

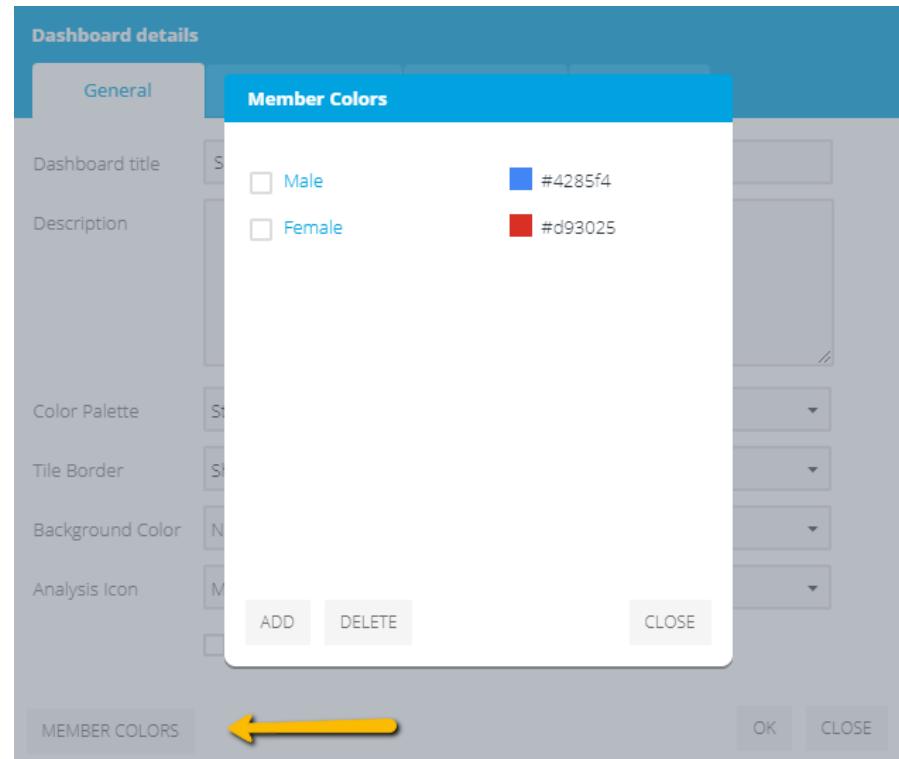


5.4. Define a Color for Specific Series

Set a color rule for a specific series on the dashboard, that will be followed by all charts on the dashboard. When you have multiple charts on the dashboard that contains the same items, naturally end-user would expect the same series of values to be visually presented with the same color on all the charts.

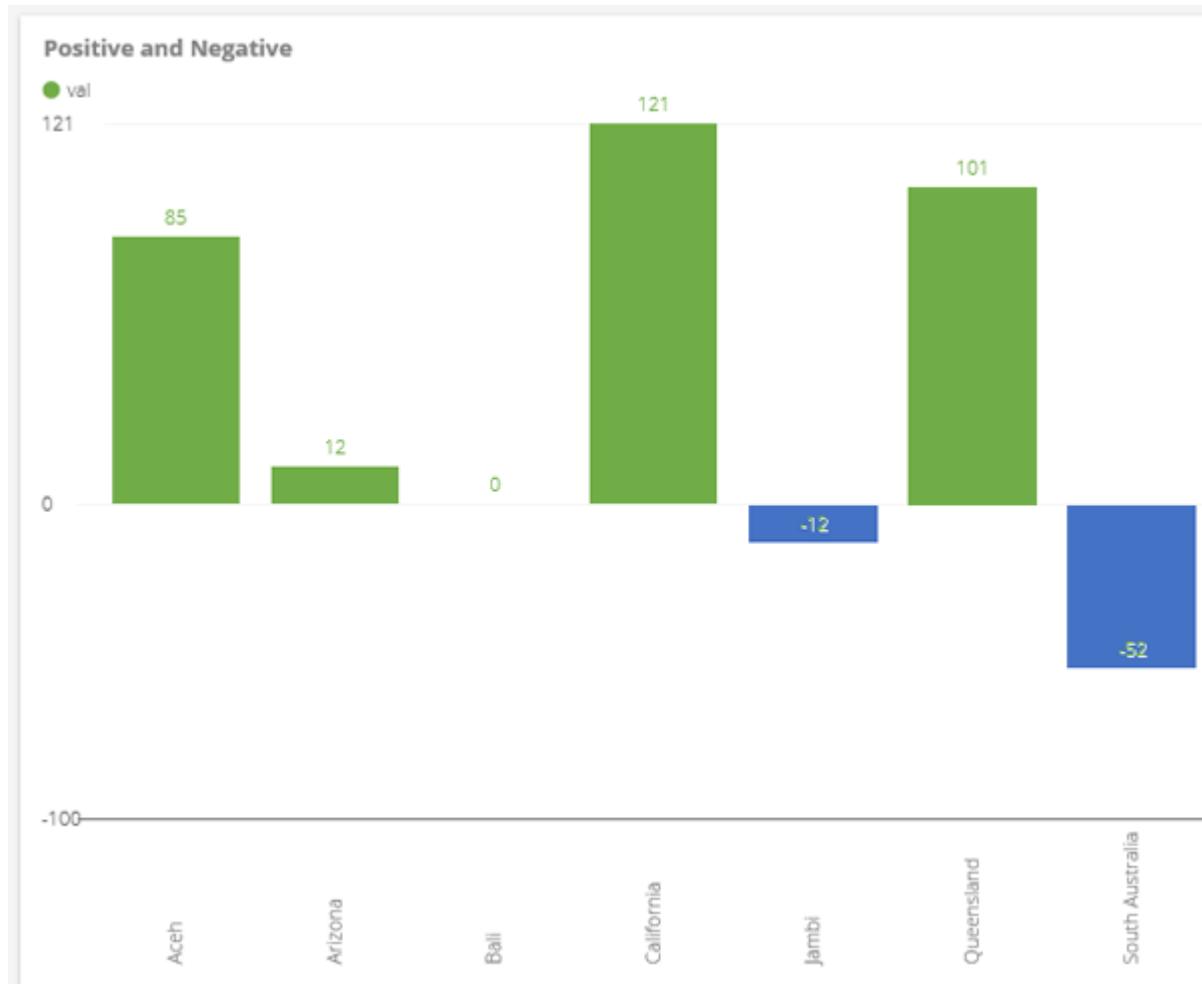


To define a series color, open the dashboard in the Design model > Details > General > Member Colors. In this form add/edit any color preferred for the series.



5.5. Different color for positive and negative values

If the chart contains single series of values, positive and negative values are displayed in different colors. The first color of the color palette is used to display positive values, while the second color of the palette is used to display a negative value. Create a custom color palette to match your color requirements.

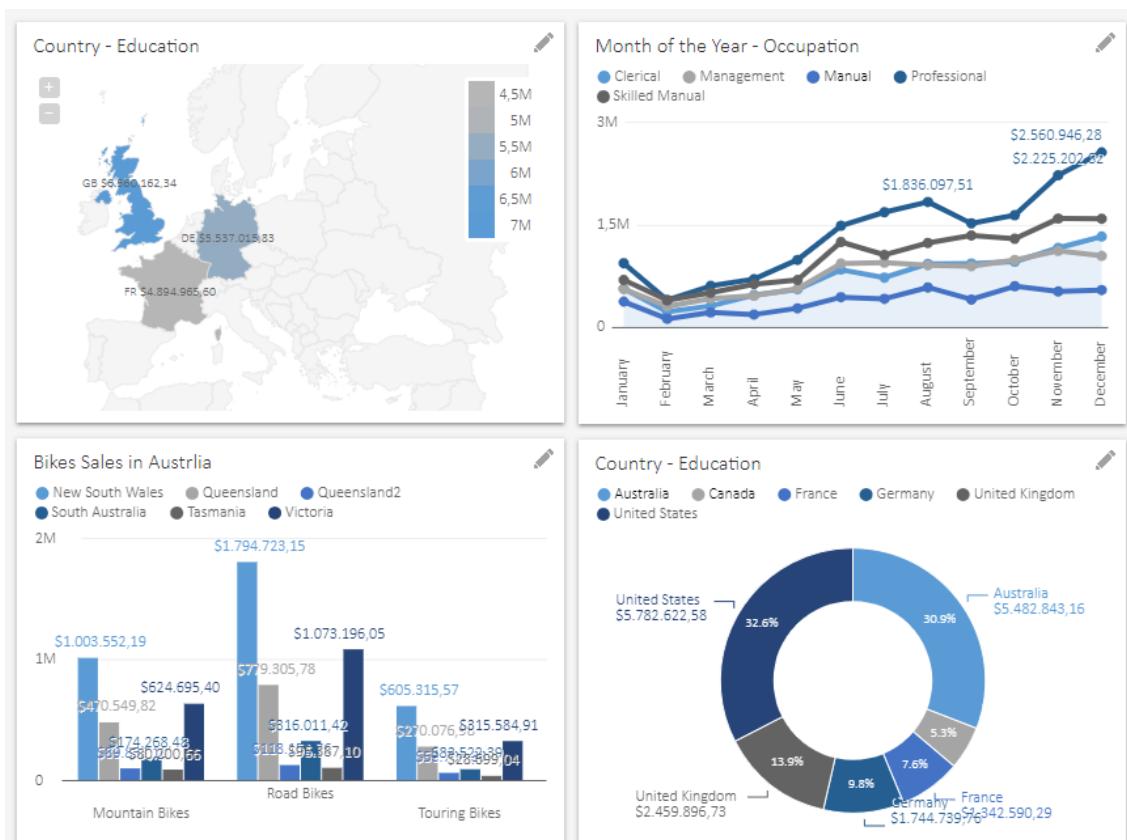
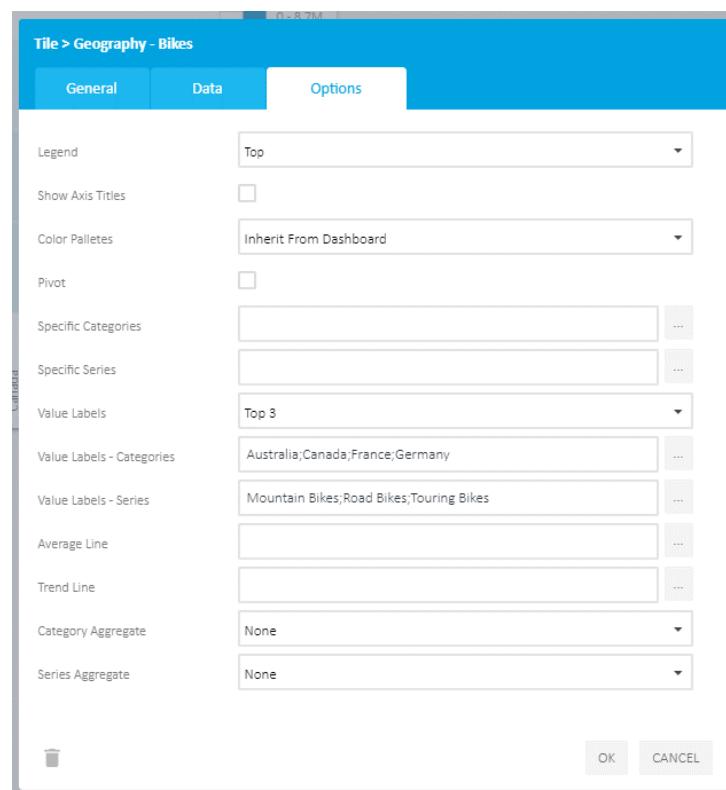


5.6. Value labels

All chart visualizations have an option to display 'Value Labels', which means that value for particular chart segment/point will be visible without having to move the mouse over it, which is particularly practical while exporting dashboard to PDF file or watching the Dashboard tiles on the slide show.

To set 'Value Label' options, follow these steps:

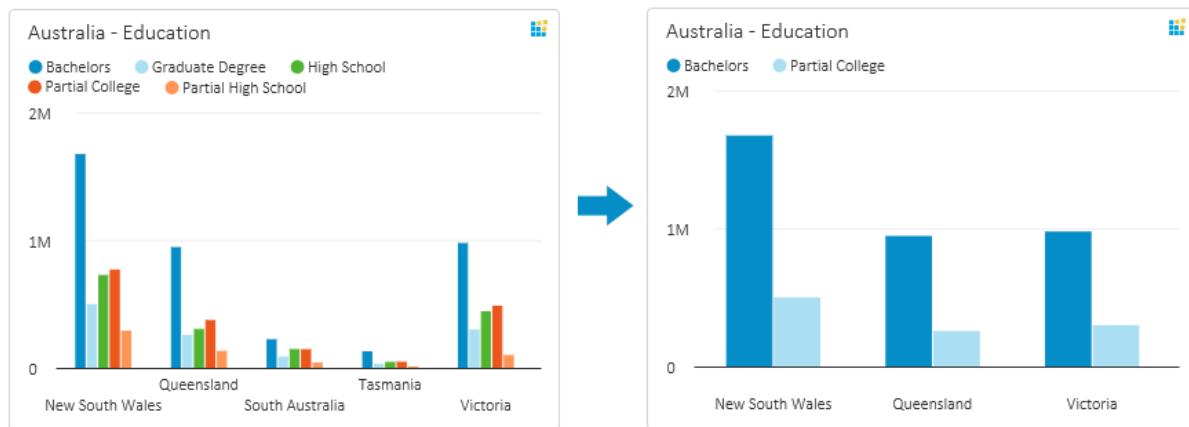
- 1) Select 'Dashboard Design mode' -> 'Tile edit' -> 'options'
- 2) Choose 'All' to set 'Value Labels' for all values on the chart.
- 3) Choose 'Top N' to set 'Value Labels' for highest values on the chart. Use 'Top N (Short)' option to display short values and save space on the chart.
- 4) Choose 'Value Label – Categories' to display 'Value Labels' only for selected categories.
- 5) Choose 'Value Label – Series' to display 'Value Labels' only for selected series.



5.7. Show only selected categories/series

OLAP analysis, MDX and SQL queries return data structures that consist of categories and series to be visualized on the dashboard charts. In dashboard 'Design View' user can select to show only particular categories or series and narrow focus to the data of current interest.

- 1) Select 'Dashboard design mode' -> 'Tile edit' -> 'Options'
- 2) Choose 'All' to set 'Value Labels' for all values on the chart.
- 3) Choose 'Specific Categories' to select categories that will be displayed
- 4) Choose 'Specific Series' to select categories that will be displayed

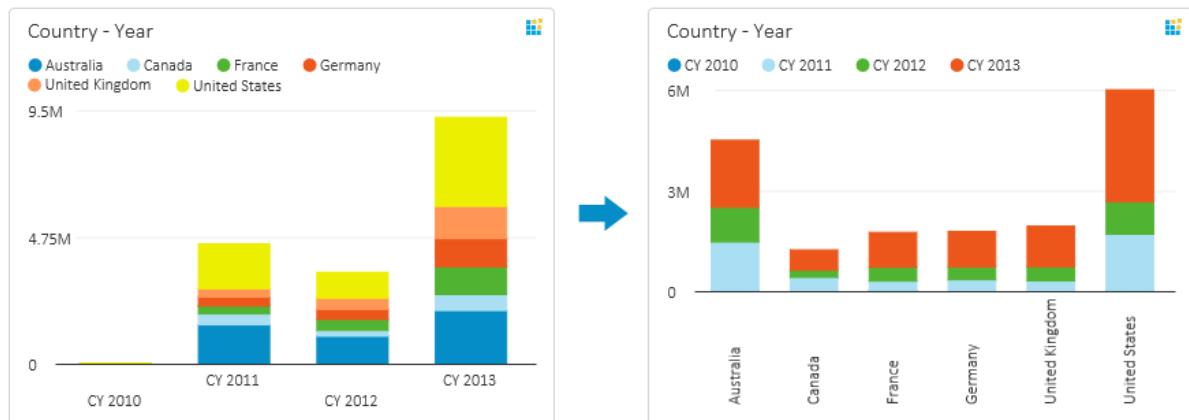


To select only items that will **not** be displayed. Select Items and add exclamation as the first character. (For example, "!Australia,France". In this case all countries will be displayed except Australia and France).

5.8. Pivot Categories/Series

With one click on the tile 'Options' switch position of categories and series and turn around the impression of the data on the chart visualization. A useful feature when returned data from OLAP and SQL sources require different axis orientation of rows and columns we would like to use on the chart.

- 1) Select 'Dashboard design mode' -> 'Tile edit' -> 'Options'
- 2) Mark 'Pivot' checkbox, categories and series will switch positions



5.7. Show 'Trend/Average' Lines

Select series of the data to calculate and display 'Trend Line' or 'Average Line' on supported chart types (Line Chart, Column Chart, Area Chart and Bubble Chart). 'Trend/Average Line' series are displayed in the same color as selected series of data. 'Trend Line' is based on the Linear Trend equation.

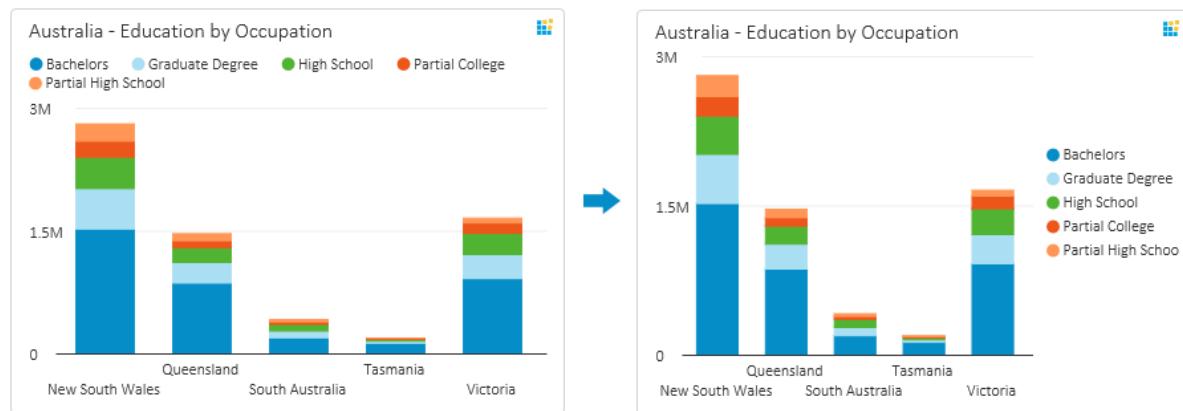
- 1) Select 'Dashboard design mode' -> 'Tile edit' -> 'Options'
- 2) Select 'Series Trend Line' or 'Series Average Line' pickers to select series for which you would like to display the Trend or Average line.



5.9. Legend display and the position

Customize the appearance of the chart legend on each individual tile on the dashboard. Legend position could be set in tiles 'Options' and could be set to 'Top', 'Right' and 'None' position value.

- 1) Select 'Dashboard design mode' -> 'Tile edit' -> 'Options'
- 2) Select 'Legend' dropdown and select one of available values.

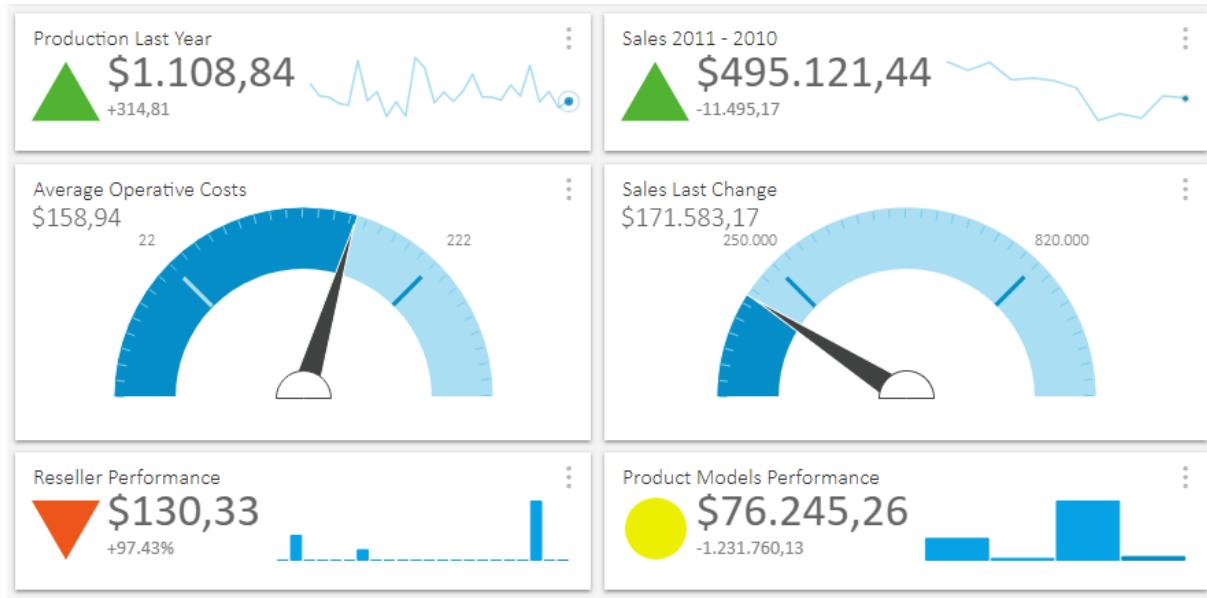


5.10. Dashboard tile borders

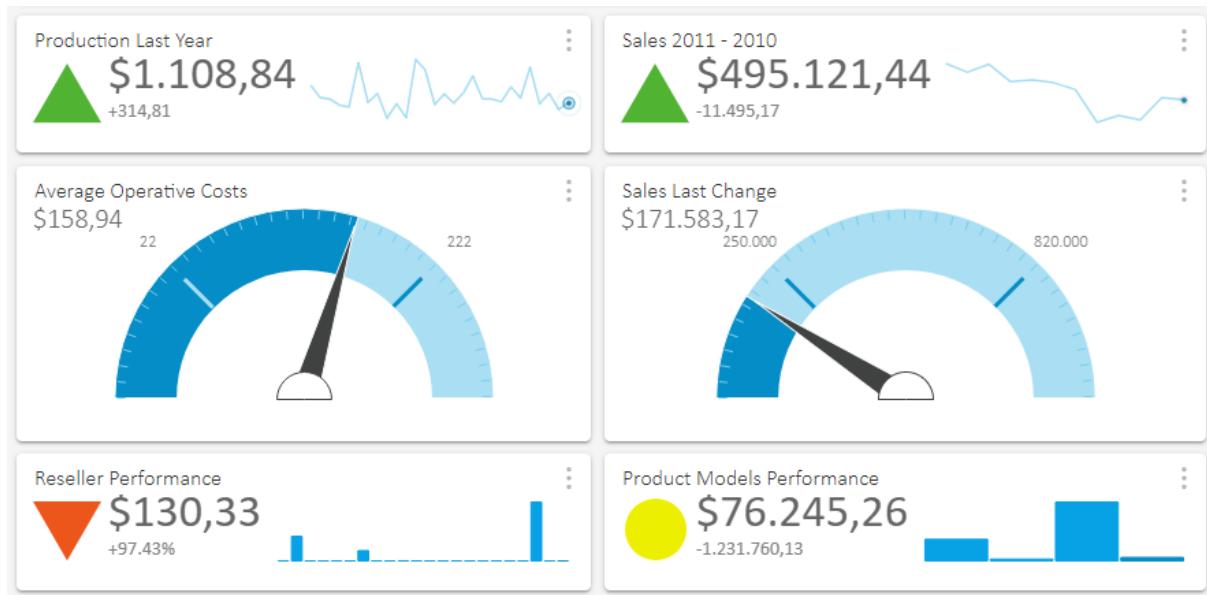
The dashboard tile border is displayed with **Shadow Square** edges by default. In 'Design View' dashboard 'Details' -> 'General' settings tile border could be set to **Shadow Square**, **Square**, **Round** or **None** borders.

- 1) Select 'Dashboard design mode' -> 'Details' -> 'General'
- 2) Select 'Tile Border' dropdown and select one of available values.

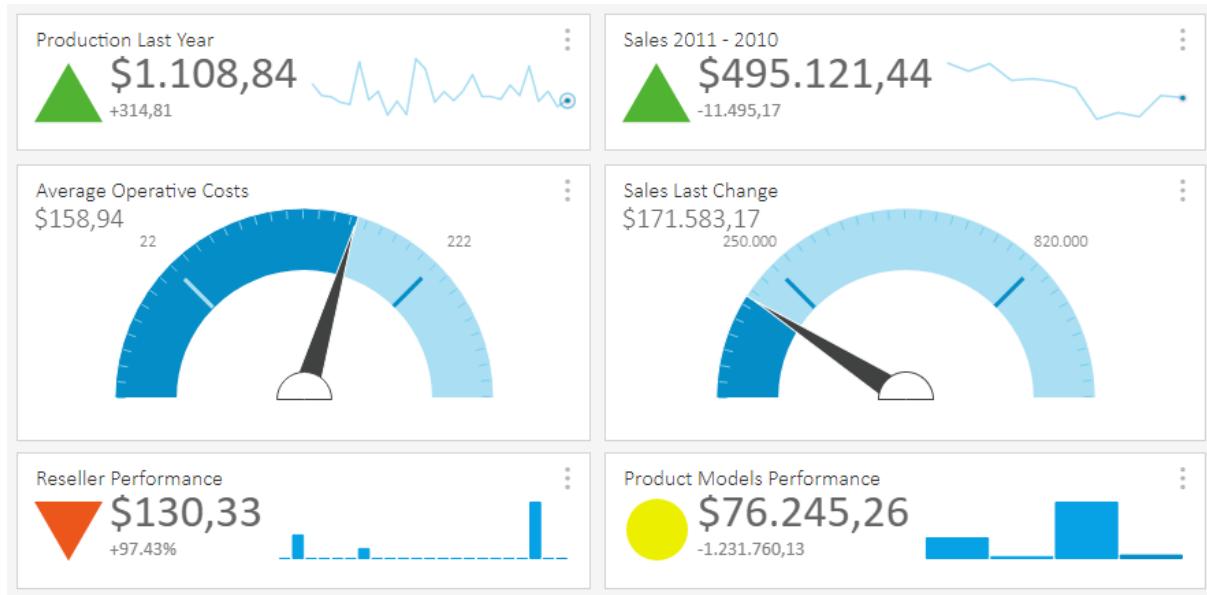
Shadow Square ...



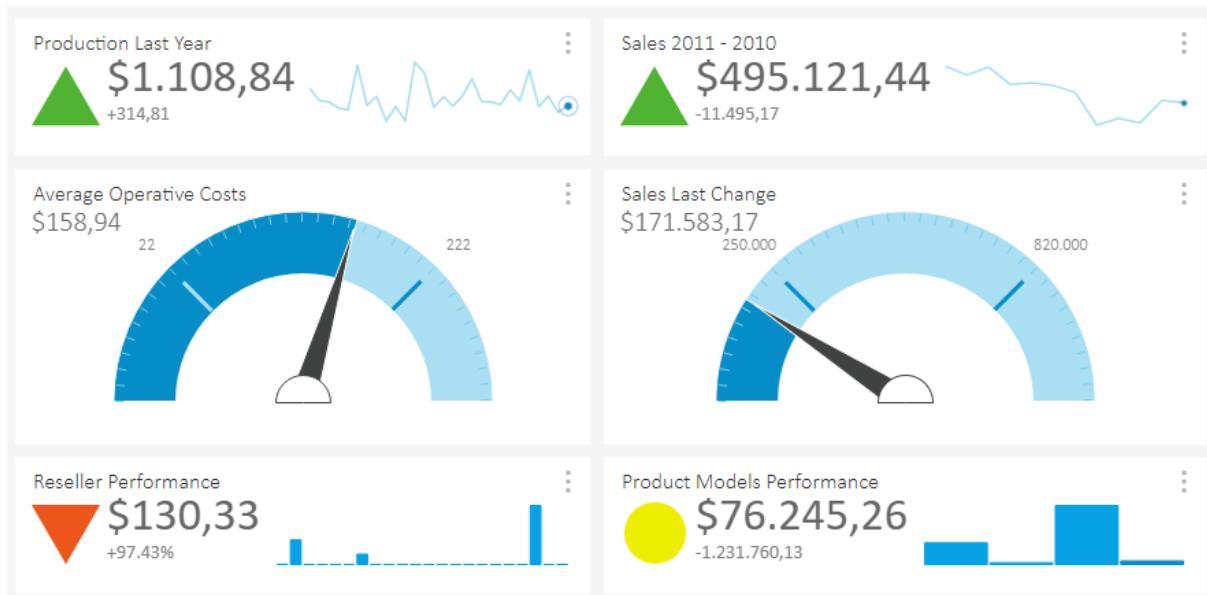
Shadow Round ...



Square (border) ...



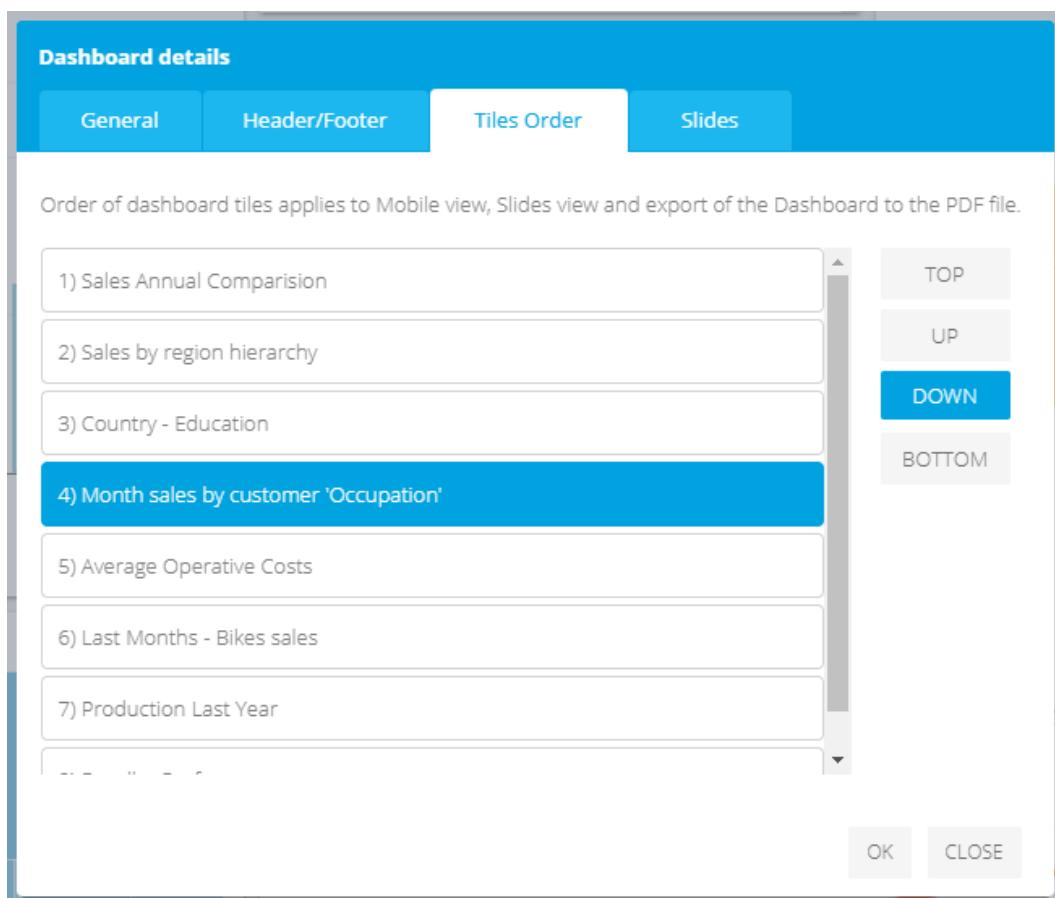
None (border) ...



5.11. Tiles order on the dashboard

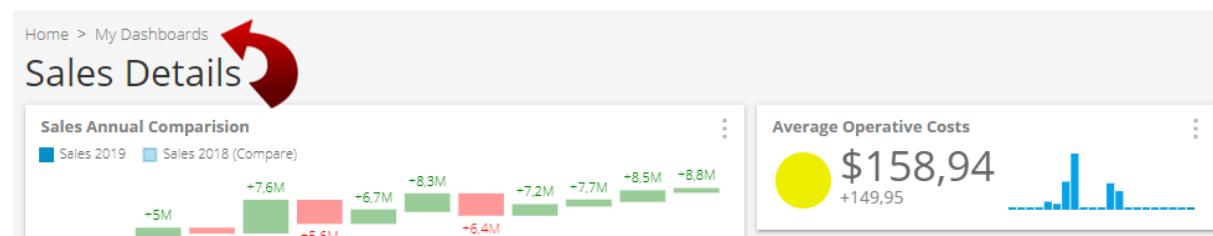
When designing a dashboard, a user can choose tiles order that will be applied when the dashboard is used in **Mobile View**, **PDF Export** and **Slides view**. Because the dashboard itself is constructed with a free-to-resize-and-position tiles approach, it is not easy to determine the exact order of the tiles.

To set exact order of the tiles on the dashboard, go to dashboard Design mode > Details > Tiles Order and move tile up and down to reach preferred order.



5.12. Dashboard breadcrumbs

Each dashboard above title contains a link to the home page and the link to the folder from which the dashboard is opened. To disable breadcrumbs, display on the whole application level, set "HideDashboardBreadcrumb" in the web.config file to "1".



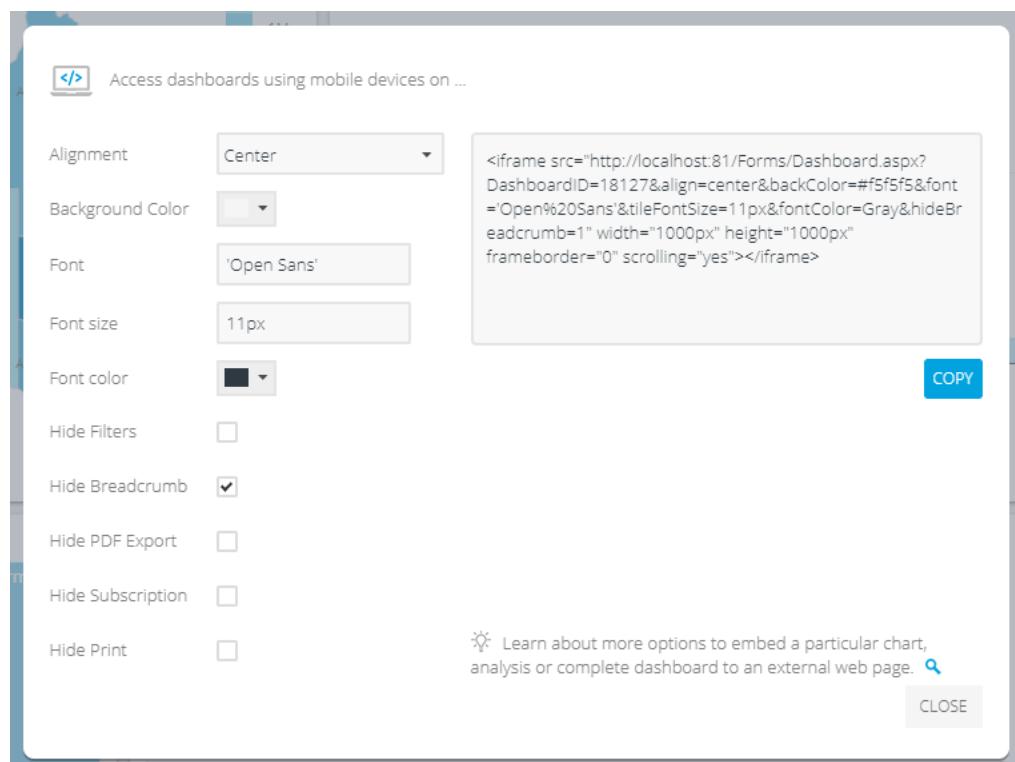
5.13. Dashboard Mobile view and Embedding Info

While working with the dashboard in desktop (standard) view, using the Options menu a user can get a preview (and idea) how to use and display the same dashboard using mobile devices (and how it will look) or embed to another HTML page.

Quick demo how dashboard charts would be displayed using the mobile view.

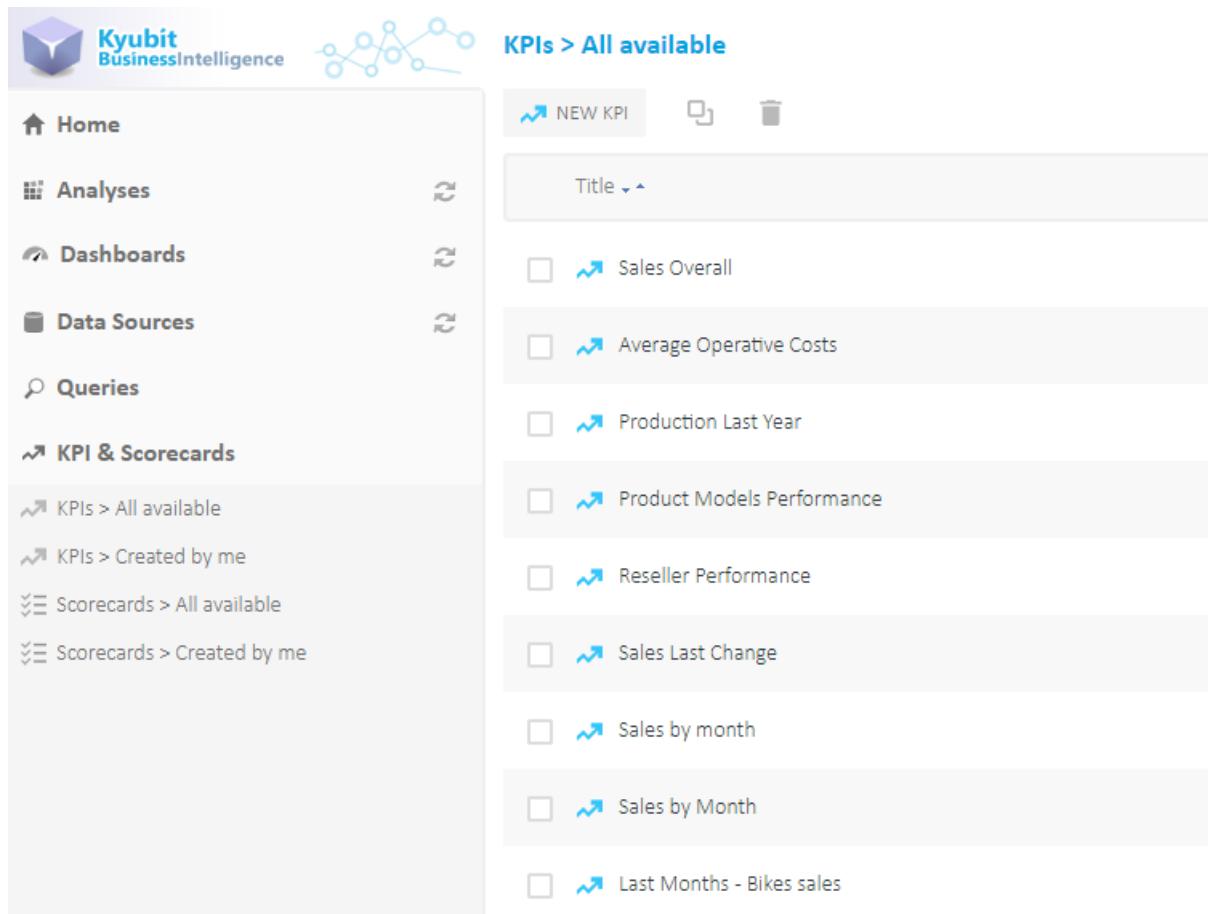


A wizard on how to quickly embed the same dashboard to any other HTML page with customizable attributes.



6. Working with KPIs

Once created, the KPI could be re-used on many dashboards with the respect to defined permissions on the KPI. All available KPIs for the current user are visible in ‘Dashboards’ -> ‘KPI’ section of the Kyubit Business Intelligence application.



The screenshot shows the Kyubit Business Intelligence interface. On the left, there is a sidebar with navigation links: Home, Analyses, Dashboards, Data Sources, Queries, and KPI & Scorecards. Under KPI & Scorecards, there are two main sections: 'KPIs > All available' and 'KPIs > Created by me'. The 'KPIs > All available' section is expanded, showing a list of KPIs with checkboxes and small blue chart icons. The list includes:

- Sales Overall
- Average Operative Costs
- Production Last Year
- Product Models Performance
- Reseller Performance
- Sales Last Change
- Sales by month
- Sales by Month
- Last Months - Bikes sales

At the top right of the main content area, there are buttons for 'NEW KPI', 'Edit', and 'Delete'.

When one of the dashboard tiles should display KPI, one must first be defined in the Kyubit Business Intelligence application to be used on the dashboard itself. It could be right away created while in dashboard ‘Design’ view, without leaving working dashboard.

6.1. Designing KPI

'KPI Design' form offers everything on one place to create KPI in Kyubit Business Intelligence application.

The screenshot shows the 'KPI Design' interface. At the top, there are three tabs: 'General', 'Definition' (which is selected and highlighted in blue), and 'Test'. Below the tabs, there are several configuration fields:

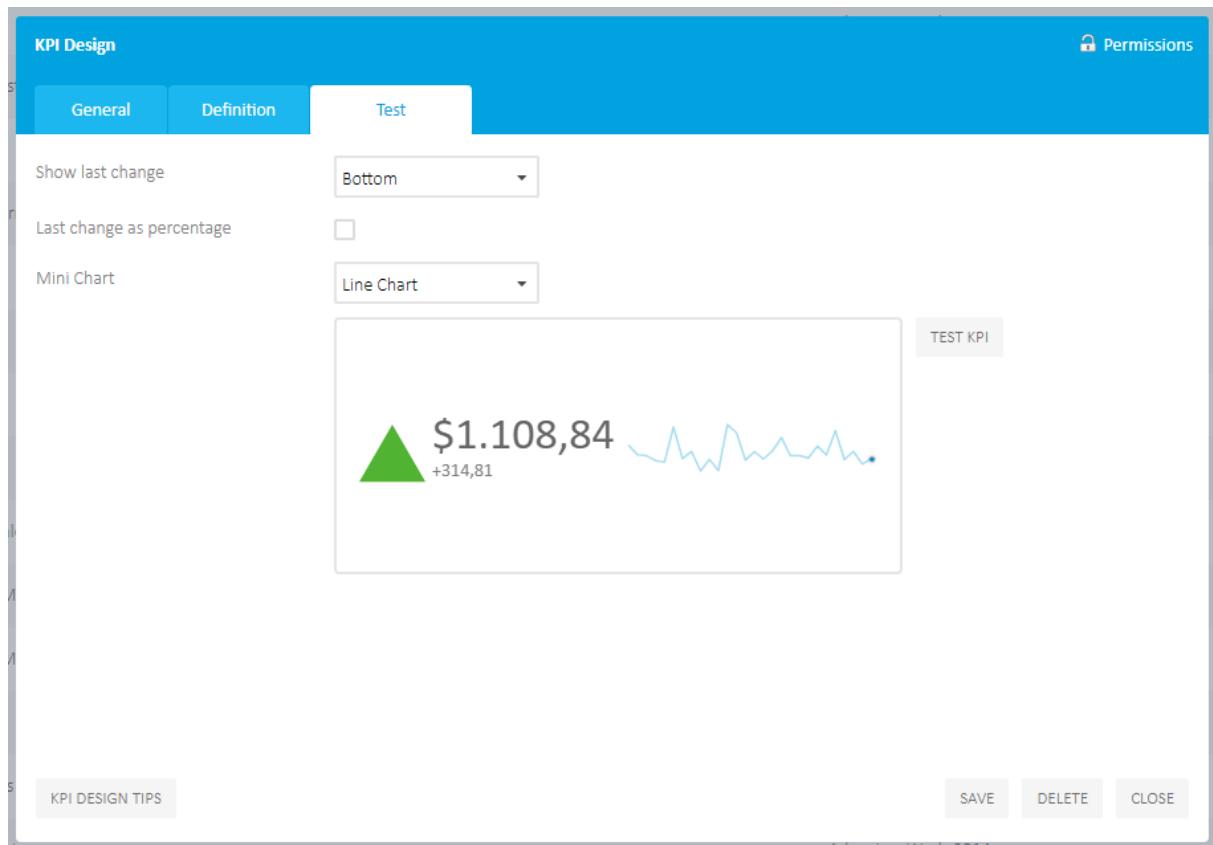
- Success Model:** A dropdown menu set to 'Higher is better'.
- KPI Value:** A search bar containing 'Analysis: January Sales - United States' with a 'DEFINE' button.
- Success threshold:** A numeric input field set to 800 with a 'DEFINE' button.
- Fail threshold:** A numeric input field set to 500 with a 'DEFINE' button.
- Last change value:** An empty search bar with a 'DEFINE' button.

At the bottom right of the form are buttons for 'SAVE', 'DELETE', and 'CLOSE'. A small 'KPI DESIGN TIPS' link is located at the bottom left.

- **'KPI Name'**, defines full name of the KPI in the system.
- **'KPI Short Name'**, will be used on places (mobile device), where space is limited
- **'KPI Description'**, simply describe KPI meaning for other users.
- **'Success Model'**, defines if higher values are more successful (**Higher is better**), lower values are more successful (**lower is better**) or values closer to target are more successful (**Middle-Range Success**).
- **'KPI Value'** is actual value that is tested for KPI success. Could be configured as 'Fixed numeric value' or value from a 'Query/Analysis'.
- **'Success threshold'**, defines limit above KPI status is consider as 'Success' and marked with green arrow icon. Could be configured as 'Fixed numeric value' or value from a 'Query/Analysis'.
- **'Fail threshold'**, defines limit bellow KPI status is considered as 'Failed' and marked with red arrow icon. Could be configured as 'Fixed numeric value' or value from a 'Query/Analysis'.
- If 'KPI value' is between 'Success' and 'Fail' limit, KPI is in the 'Even' status and marked with yellow circle.
- **'Last change as percentage'**, defines if last change will be displayed as percentage or regular delta value.
- **'Show KPI values line chart'**, defined if line chart will be visible next to KPI to reflect changing of data through time, up to last (current) value. KPI data feed is based on series of values (first series of analysis/query) and last value in series is considered as current value to be evaluated for KPI, previous values are considered as historic and could be displayed as list chart next to KPI indicator.

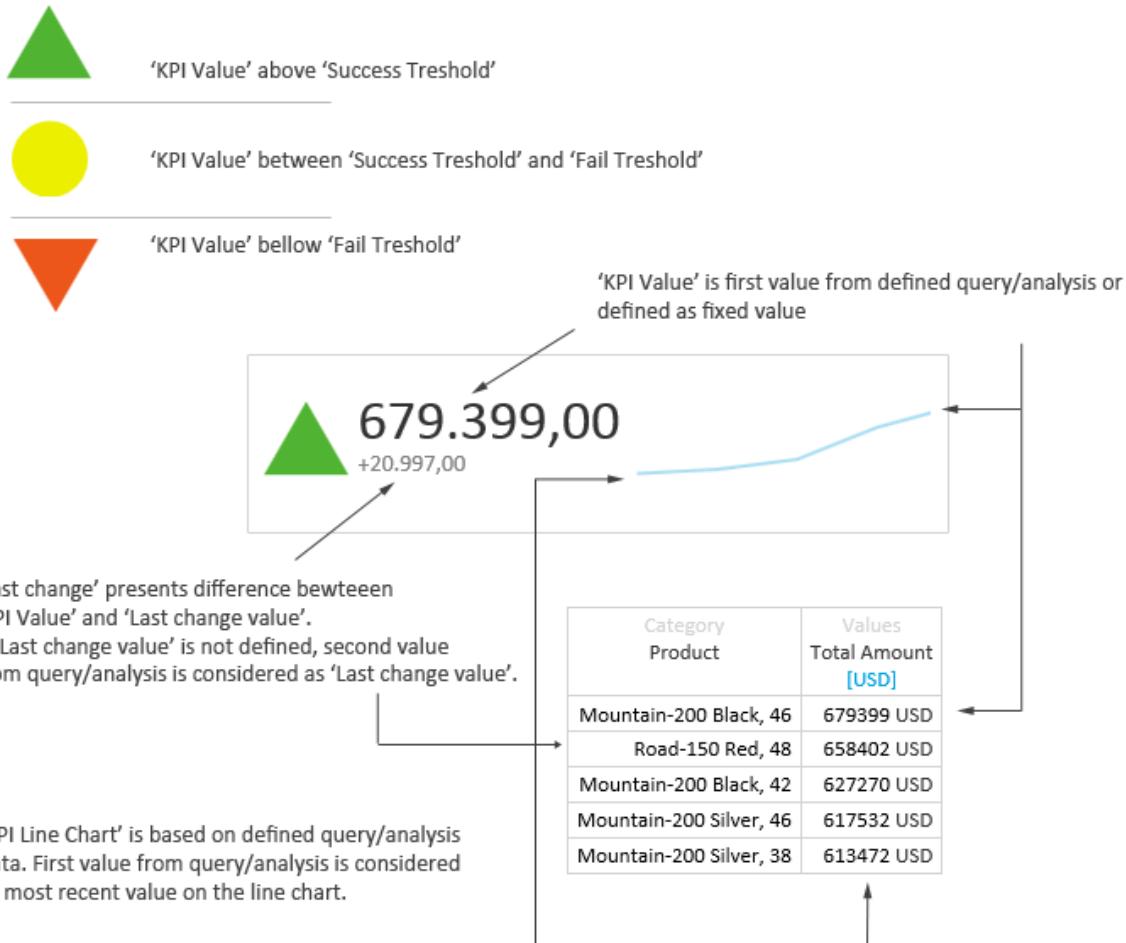
When all inputs are selected, click on '**Test KPI**' to immediately display KPI visualization and perhaps make correction, before it is closed.

Testing KPI definition ...



6.2. Understanding data usage for KPI design

The data to display KPI comes from ‘Analysis’ (existing analysis within Kyubit Business Intelligence application), ‘MDX Query’ or ‘TSQL Query’. Value to be evaluated as relevant for KPI is the first value in the first series of values retrieved from analysis or query. All other values after the first value are considered as a historic supplement of values and are used to describe trend and last value change (delta).



KPI value is the first value in the first series of query values, other values are used to draw line chart and the second value is used to show ‘last value change’.



Same principles are used if data is retrieved from ‘Analysis’ or ‘MDX query’.

6.3. Setting permissions for KPI

If KPI should be visible to other users, click on the ‘Permissions’ options in the upper-right corner and add appropriate Active Directory or Kyubit users and groups to have ‘Read’ or ‘Read/Write’ permissions or set unrestricted access to created KPI. (See chapter 7.1. for more details)

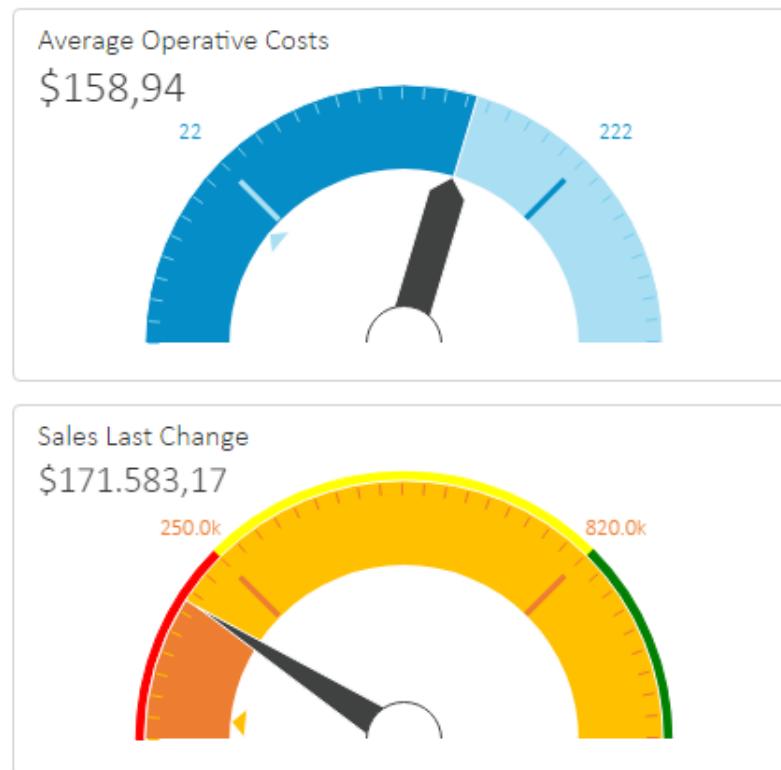
6.4. KPI visualization

Default KPI visualization on the dashboard includes KPI status icon (that quickly describes current KPI status), KPI current value, last values change and last changes of values displayed as small line chart or column chart.



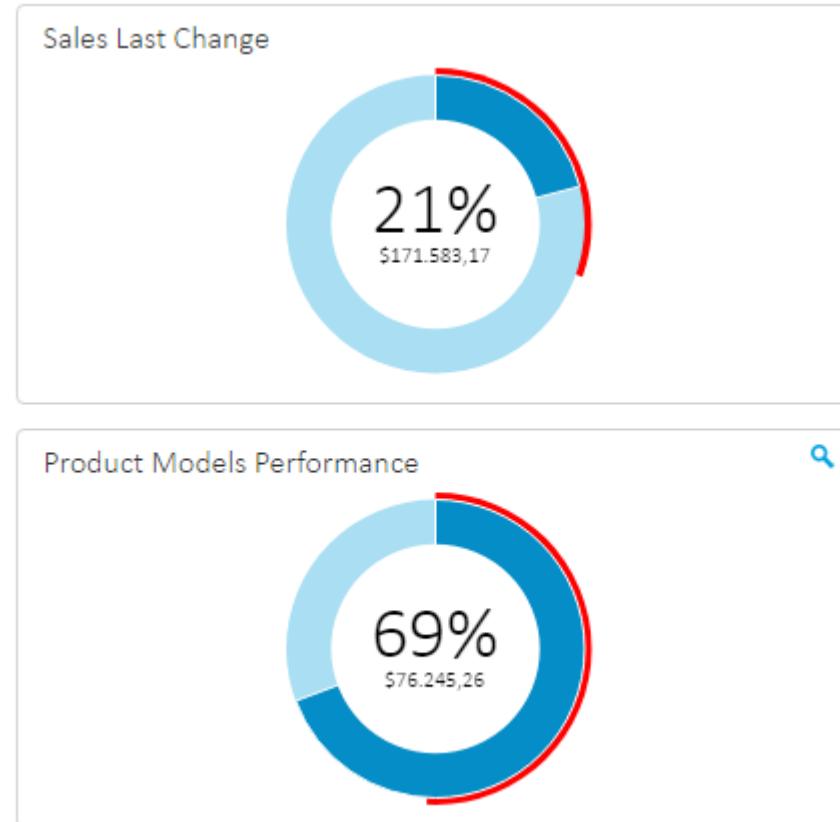
6.5. Gauge KPI visualization

Gauge visualization displays KPI current status with additional insight on how much it takes to meet success or fail threshold that is indicated by the pointer on the gauge. Various visualizations options are included to design gauge that suits best to your visualization requirements, which includes colors, various pointer types, display of mini charts, last value indicator and additional color meter on the top. All visualization options could be selected at the tile visualization options tab.



6.6. Goal-Meter KPI visualization

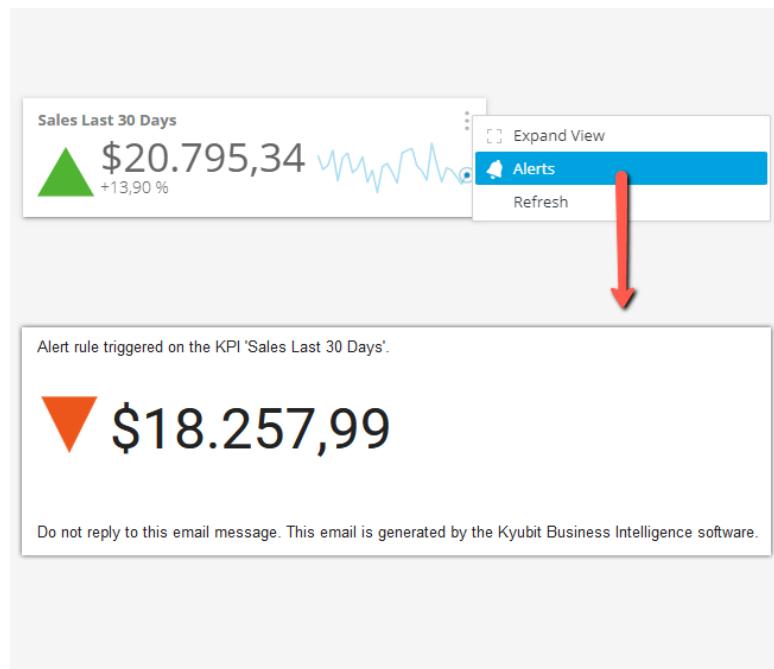
Another way of KPI status display with circle metric showing how much it takes until KPI reach its goal with the additional red arc that displays also failure area of the KPI. Simply add Goal-Meter to the dashboard and attach existing KPI to display its status.



6.7 KPI Alerts

Any user can create an alert for any available KPI and receive an email notification when KPI reaches one or more required statuses. It presents a quick and simple way for a user to be notified of important value thresholds being reached with a flexible monitoring and notifying frequency. Just click on the dashboard KPI and create a new Alert.

- 1) Select any available KPI on the dashboard and create a new alert to be notified of the relevant KPI status.



- 2) The alert form defines the status or statuses that will trigger the alert. Also, a list of email addresses that will receive this alert is available to provide for this alert.

7. Scorecards

Organize multiple KPIs to a list that presents the status of all **KPIs, targets, indicators, goal percentage** on one place on the dashboard. Easy create Scorecard list in the KPI & Scorecard section of the application and assign appropriate permissions.

The screenshot shows the Kyubit Business Intelligence interface with the title "Scorecards > All available". On the left, there is a sidebar with navigation links: Home, Analyses, Dashboards, Data Sources, Queries, and KPI & Scorecards. Under KPI & Scorecards, there are links for "KPIs > All available", "KPIs > Created by me", "Scorecards > All available", and "Scorecards > Created by me". The main area displays a list of scorecards with their titles, descriptions, and a "KPIs" column indicating the number of KPIs assigned:

Title	KPIs
Current Performance	6
Q4 Performance List	3
Scorecard 3753	4
Audit's SC01	6
Audit SC02	7

Pick from the list of existing KPIs and arrange order you prefer.

The screenshot shows the "Scorecard" configuration dialog. At the top, there are tabs for "General" (selected) and "Definition". On the right, there is a "Permissions" section. The main area is titled "Set Scorecard KPI elements." It contains two lists: "All available KPIs" on the left and "Scorecard" on the right. Between them are "">>" and "<" buttons for moving items between lists. At the bottom, there are buttons for "REFRESH", "SELECT/DESELECT ALL", "UP", "DOWN", "SAVE", "DELETE", and "CLOSE".

All available KPIs

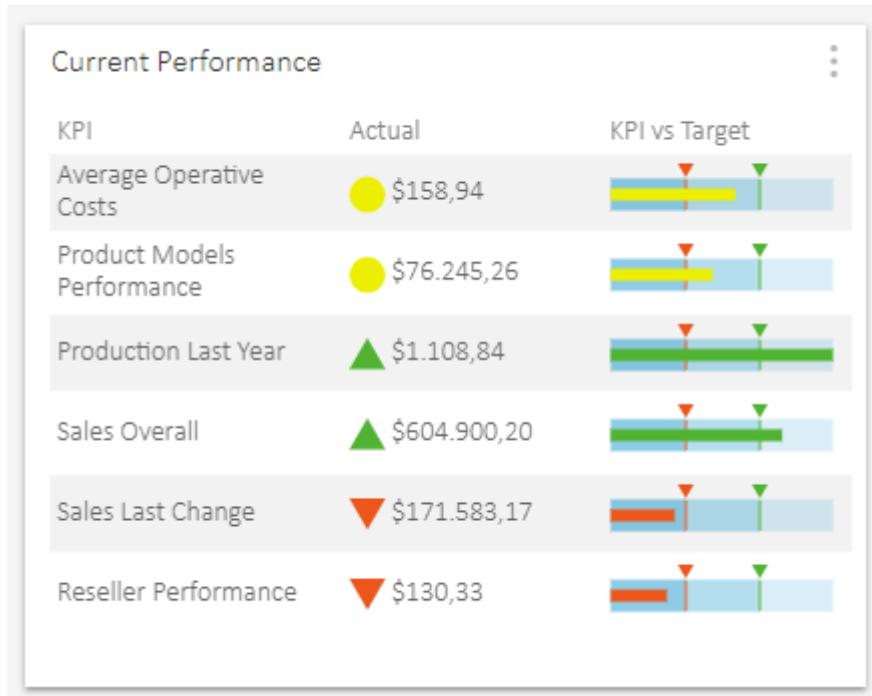
- KPI decimal below 1
- KPI decimal below 1 (2)
- KPI Jet
- Last Months - Bikes sales
- Middle Range 1
- Product Models Performance
- Production Last Year
- Reseller Performance
- Sales 2011 - 2010
- Sales by month
- Sales by Month
- Sales Last Change
- Sales Overall

Scorecard

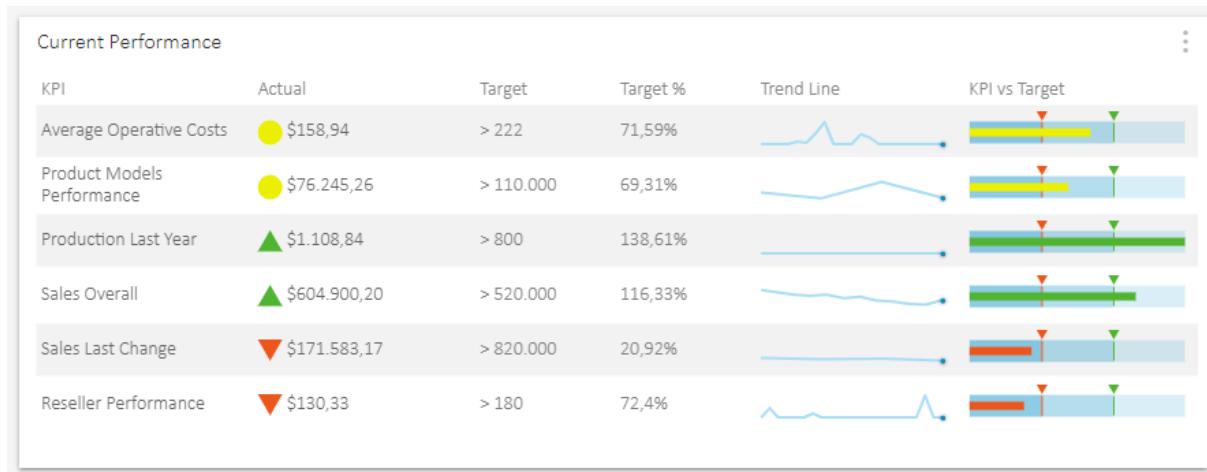
- Average Operative Costs
- Production Last Year
- Sales Overall

The appearance of the Scorecard on the dashboard depends on the dashboard column width and/or defined columns of Scorecard to display. If there is the place, more details about Scorecard KPIs will be displayed (if not configured manually).

Scorecard with less space on the dashboard:



Scorecard with more space on the dashboard:



If KPI has '**Short Name**' defined, it will be used to display KPI name on the Scorecard. If not, KPI default name will be used.

7.1. Scorecard defined with a SQL query

An alternative to creating KPIs one by one and adding to a scorecard is creating a list of values and thresholds with SQL query results (if applicable in your environment). Such query results are quickly rendered on the Scorecard visualization on the dashboard.

- 1) Create a query that includes columns 'KPIName', 'KPIValue', 'KPIValueText', 'Success', 'Fail' and 'Model' and save it as query type = 'Scorecard data'. While adding a scorecard visualization on the chart, this query will be available as a data source for the scorecard.

The screenshot shows the 'Query' editor interface. At the top, there are tabs for 'Data', 'Impersonate', and 'Caching', with 'Data' selected. A red arrow points to the 'Query type' dropdown, which is set to 'Scorecard data'. Below the dropdown is a 'Data Source' dropdown set to 'AdventureWorksDW(SQL)'. The main area contains a SQL query:

```

select top 10
p.ModelName as 'KPIName',
sum(f.SalesAmount) as 'KPIValue',
'$' + cast(sum(f.SalesAmount) as varchar) as 'KPIValueText',
100000 as 'Success',
10000 as 'Fail',
1 as 'Model'
from
FactInternetSales f left join DimProduct p on f.ProductKey = p.ProductKey
left join DimProductSubcategory ps on p.ProductSubcategoryKey = ps.ProductSubcategoryKey

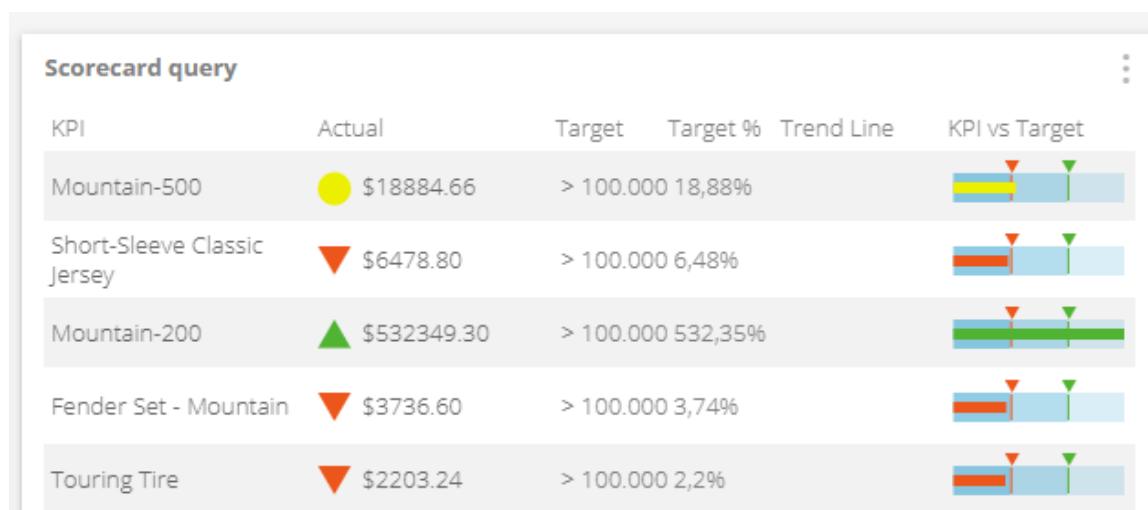
```

Below the query is a table titled 'Results' with six rows of data:

Category KPIName	Values KPIValue	Values KPIValueText	Values Success	Values Fail	Values Model
Mountain-500	18884,6600	\$18884.66	100000	10000	1
Short-Sleeve Classic Jersey	6478,8000	\$6478.80	100000	10000	1
Mountain-200	532349,2982	\$532349.30	100000	10000	1
Fender Set - Mountain	3736,6000	\$3736.60	100000	10000	1
Touring Tire	2203,2400	\$2203.24	100000	10000	1
Touring-3000	28951,6500	\$28951.65	100000	10000	1

At the bottom, there are buttons for 'RUN QUERY', 'First column contains ID' (unchecked), 'SAVE', 'DELETE', and 'CLOSE'.

- 2) SQL query-based scorecard is quickly rendered on the dashboard. The ideal way to present a larger set of performance items.



8. Working with Queries

Data for dashboard tiles comes from ‘Analysis’ (existing analysis in Kyubit Business Intelligence) or from MDX/TSQL queries. This chapter describes ‘Query’ creation and some important properties of queries.

All queries available to the current user are displayed in Dashboards -> Queries section of Kyubit Business Intelligence. Two query views are available: ‘All available Queries’ (considering query permissions) and all queries ‘Created by me’.

Query Title	Type	Description
Cluster Qry	SQL	Output Parameter: @Input Parameters: @color
countries	SQL	Output Parameter: @countryInput Parameters:
Cummulative Analysis & Dashboard Activity	SQL	Input Parameters: @serverName
Customer - Products	MDX	
Daily Count Trials	SQL	
dummy FR	SQL	Output Parameter: @Input Parameters:
Get Purchase Stored Procedure	SQL	Input Parameters: @paymentType;@price;@licenseType;@purchaseDate
Growth - Analysis and Dashboards Execution	SQL	Input Parameters: @serverName

Queries could be MDX queries for OLAP data source or SQL queries for SQL Server or ODBC Data sources that accept SQL query data requests.

8.1. Creating a Query

All Kyubit Business Intelligence users could create the query using query design form and Data sources for which they are given permissions.

‘Query Type’ has two options:

- Data Table.** This form of the query consists of Categories and Series. The first column defines Categories, while other columns present Series and must contain numeric values. This form of the query is used to present/visualize data on the dashboard.
- Filter Values.** This form of the query is only used to list values that would be used as ‘drop down’ values for SQL filtering on the dashboard. Check section 8.2 ‘SQL Dashboard filtering’ for more details on this topic.
- Any data.** This form of the query consists of Categories and Series. The first column defines Categories, while other columns present Series with any values (does not have to be numeric).

The screenshot shows the Kyubit Business Intelligence Query editor. The 'Data' tab is selected. The 'Query Name' field contains 'Products 2013'. The 'Query type' dropdown is set to 'Data Table (Category, Values)'. The 'Data Source' dropdown is set to 'AdventureWorksDW(SQL)'. The 'Query' text area contains the following T-SQL code:

```
select top 20 dimproduct.EnglishProductName, FactInternetSales.SalesAmount
from FactInternetSales
left join dimproduct on DimProduct.ProductKey = FactInternetSales.ProductKey
where FactInternetSales.Freight > 10
and DueDate > '2013-02-01' and DueDate < '2014-02-01'
and EnglishProductName not like '%road%' and EnglishProductName not like '%mountain%'
```

The 'Results' section displays a table with two columns: 'Category' (EnglishProductName) and 'Values' (SalesAmount). The data is as follows:

Category	Values
EnglishProductName	SalesAmount [\$#,##0]
Touring-2000 Blue, 60	\$1,214,850
Touring-2000 Blue, 60	\$1,214,850
Touring-1000 Yellow, 50	\$2,384,070
Touring-1000 Blue, 60	\$2,384,070
Touring-1000 Blue, 54	\$2,384,070
Touring-2000 Blue, 54	\$1,214,850

At the bottom, there are buttons for 'RUN QUERY', 'SAVE', 'DELETE', and 'CLOSE'. A checkbox labeled 'First column contains ID' is also present.

For each query, 'Data source' has to be selected. If the data source is OLAP database, MDX query will be expected and if the data source is SQL database, SQL query will be expected.

Both MDX and TSQL queries always expect the first column as category column with any type of data, while all subsequent columns are considered a series of values and must be of numeric type.

Both MDX and TSQL queries expect at least one series of values (one category and one series columns of data).

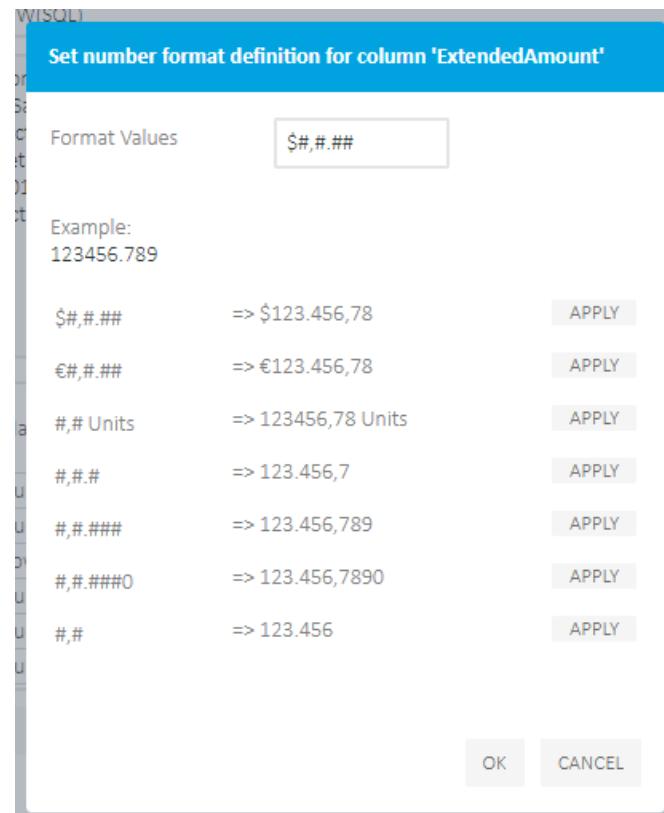
8.2. Formatting query values

For each column of the query data results, “Format string” definition could be defined to present the data with an appropriate formatting to the end-users.

```
select top 20 dimproduct.EnglishProductName, FactInternetSales.SalesAmount, FactInternetSales.ExtendedAmount
from FactInternetSales
left join dimproduct on DimProduct.ProductKey = FactInternetSales.ProductKey
where FactInternetSales.Freight > 10
and DueDate > '2013-02-01' and DueDate < '2014-02-01'
and EnglishProductName not like '%road%' and EnglishProductName not like '%mountain%'
```

Category EnglishProductName	Values SalesAmount [\$#,##0]	Values ExtendedAmount [€#,##0]
Touring-2000 Blue, 60	\$1.214,850	€1.214,85
Touring-2000 Blue, 60	\$1.214,850	€1.214,85
Touring-1000 Yellow, 50	\$2.384,070	€2.384,07
Touring-1000 Blue, 60	\$2.384,070	€2.384,07
Touring-1000 Blue, 54	\$2.384,070	€2.384,07
Touring-2000 Blue, 54	\$1.214,850	€1.214,85

Click on the column ‘Format string’ option and fill-in measure format string for the selected column.



To get required number formatting output for data usage.

Category EnglishProductName	Values SalesAmount [\$#,##.##0]	Values ExtendedAmount [€#,##.##]
Touring-2000 Blue, 60	\$1.214,850	€1.214,85
Touring-2000 Blue, 60	\$1.214,850	€1.214,85
Touring-1000 Yellow, 50	\$2.384,070	€2.384,07
Touring-1000 Blue, 60	\$2.384,070	€2.384,07
Touring-1000 Blue, 54	\$2.384,070	€2.384,07
Touring-2000 Blue, 54	\$1.214,850	€1.214,85

Examples of “Format string” for number **123456.789**

\$#,##.## => \$123.456,78

€#,##.## => €123.456,78

#.## USD => 123456,78 USD

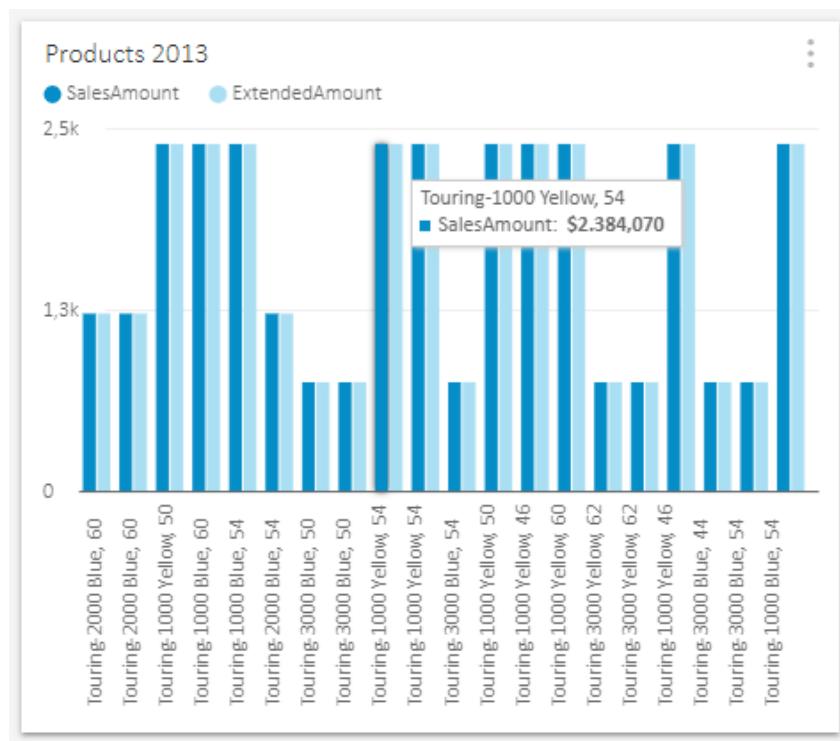
#,#.# => 123.456,7

#,##.### => 123.456,789

#,##.####0 => 123.456,7890

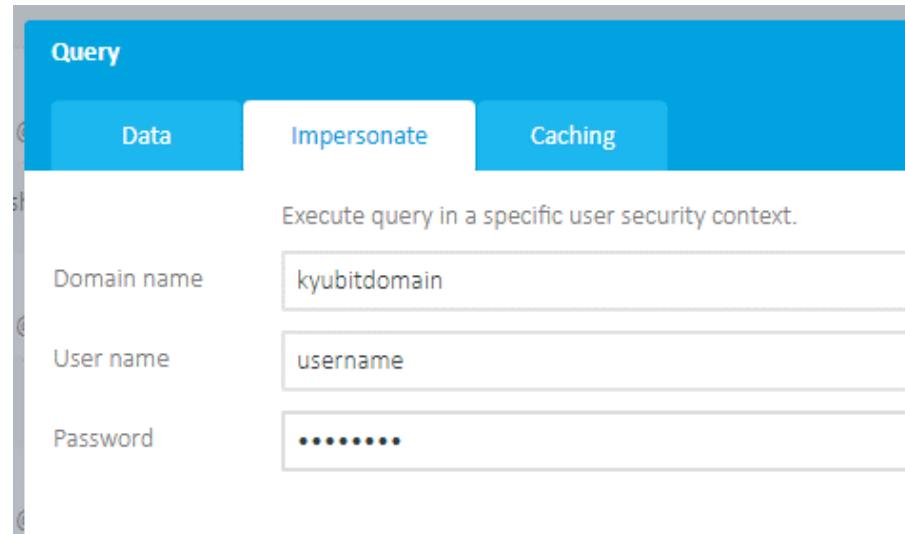
#,# => 123.456

Same measure unit will be displayed wherever this query is used on any of the dashboard visual elements (tiles).



8.3. Impersonate query execution

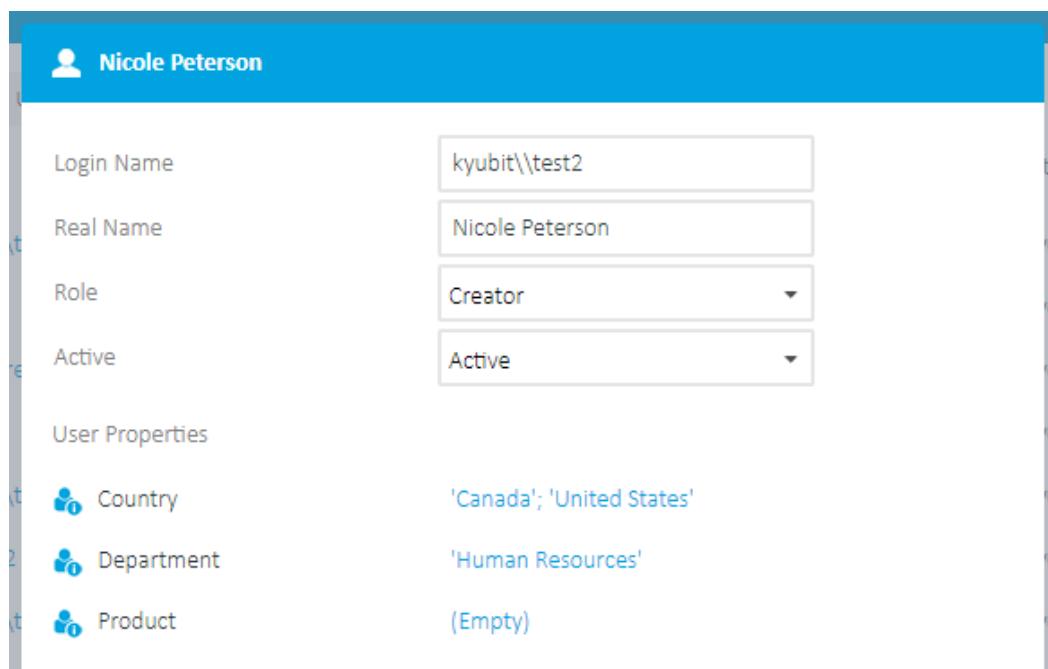
By default, the query will be executed in the context of the current user. If for any reason the data source needs to be accessed with different user credentials. Impersonate user credentials could be defined on ‘Impersonate’ tab on the query design form.

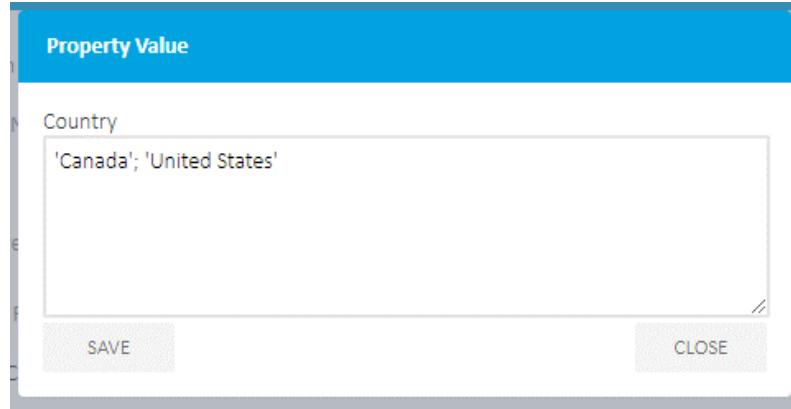


8.4. ‘User Properties’ as query additional filters

The query could be filtered using current **user properties** to show the data of interest for the current user. User properties are **Login Name**, **Real Name** of current user or **custom created** user properties that could be assigned and changed by the Kyubit administrator.

To create and manage user properties, Kyubit Administrator should navigate to Administration -> ‘Users and Admins’, create new custom user properties and click on each user to assign his custom property values.





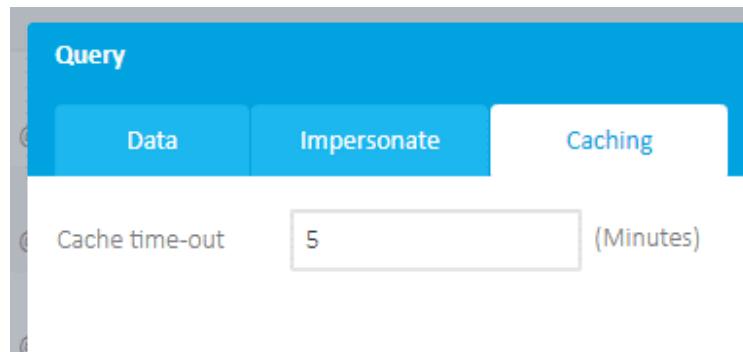
'User Properties' could be used to filter Analyses, Queries and Dashboards.

To add 'User Property' as query, add 'User Property' name with **double square brackets** to your SQL or MDX query. ([[UserPropertyName]])

Query Name	My Countries								
Query type	Any data								
Data Source	KyubitInternal(SQL)								
Query	select countryid, country from countries where country in ([[Country]])								
Results	<table border="1"><thead><tr><th>Category</th><th>Values</th></tr><tr><th>countryid</th><th>country</th></tr></thead><tbody><tr><td>2</td><td>Canada</td></tr><tr><td>12</td><td>Australia</td></tr></tbody></table>	Category	Values	countryid	country	2	Canada	12	Australia
Category	Values								
countryid	country								
2	Canada								
12	Australia								

8.5. Query caching

The query results could be cached to avoid production data sources from constant query execution and save hardware processing time and usage. Imagine hundreds of users opening the same dashboard and for each dashboard opening, the query to underlying data sources executes each time the dashboard is opened. That kind of query execution is unnecessary in most scenarios and caching queries for a certain amount of time is perfectly good for the most dashboard scenarios. To set the caching on a certain query, open the query design form and on 'Caching' tab set number of minutes for which the query results will be cached.



The query results are cached on two levels. First, the query results are cached on ASP.NET level within Kyubit Business Intelligence application memory. If for any reason, IIS is restarted or application is recycled within IIS execution, the query results are stored in the Kyubit Business Intelligence internal database. In both cases, cached query results will be expired after a defined amount of time and the original data source will be queried afterward.

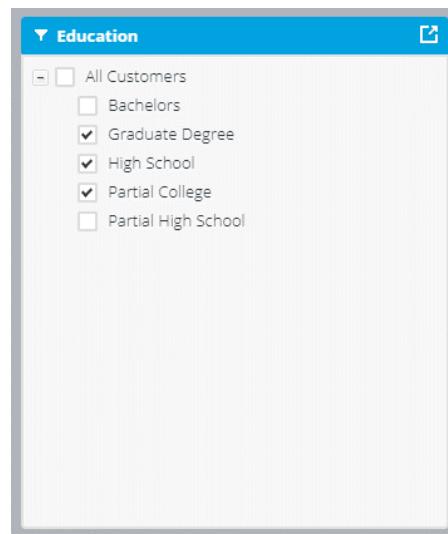
8.6. Setting Query permissions

If the query object should be visible to other users, click on the 'Permissions' options in the upper-right corner and add appropriate Active Directory/Kyubit users and groups to have 'Read' or 'Read/Write' permissions or set unrestricted access to the created Query. (See chapter 7.1. for more details)

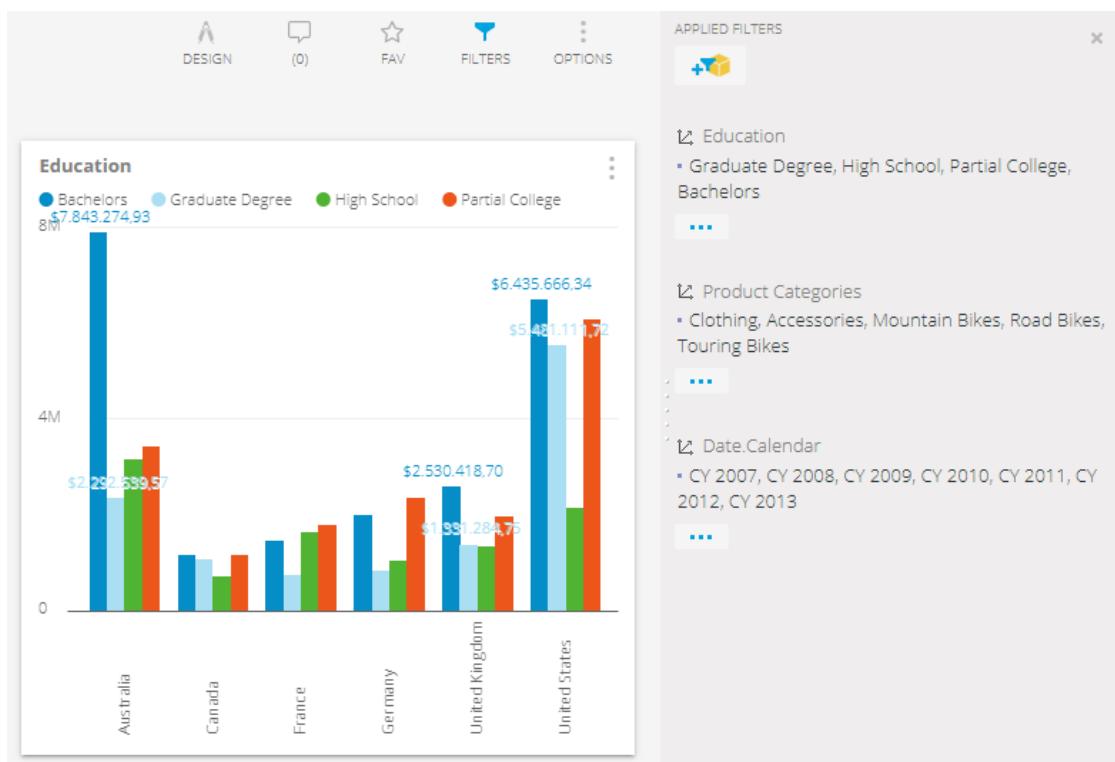
9. Dashboard Analytic Features

9.1. OLAP/Analytic Model Slicers

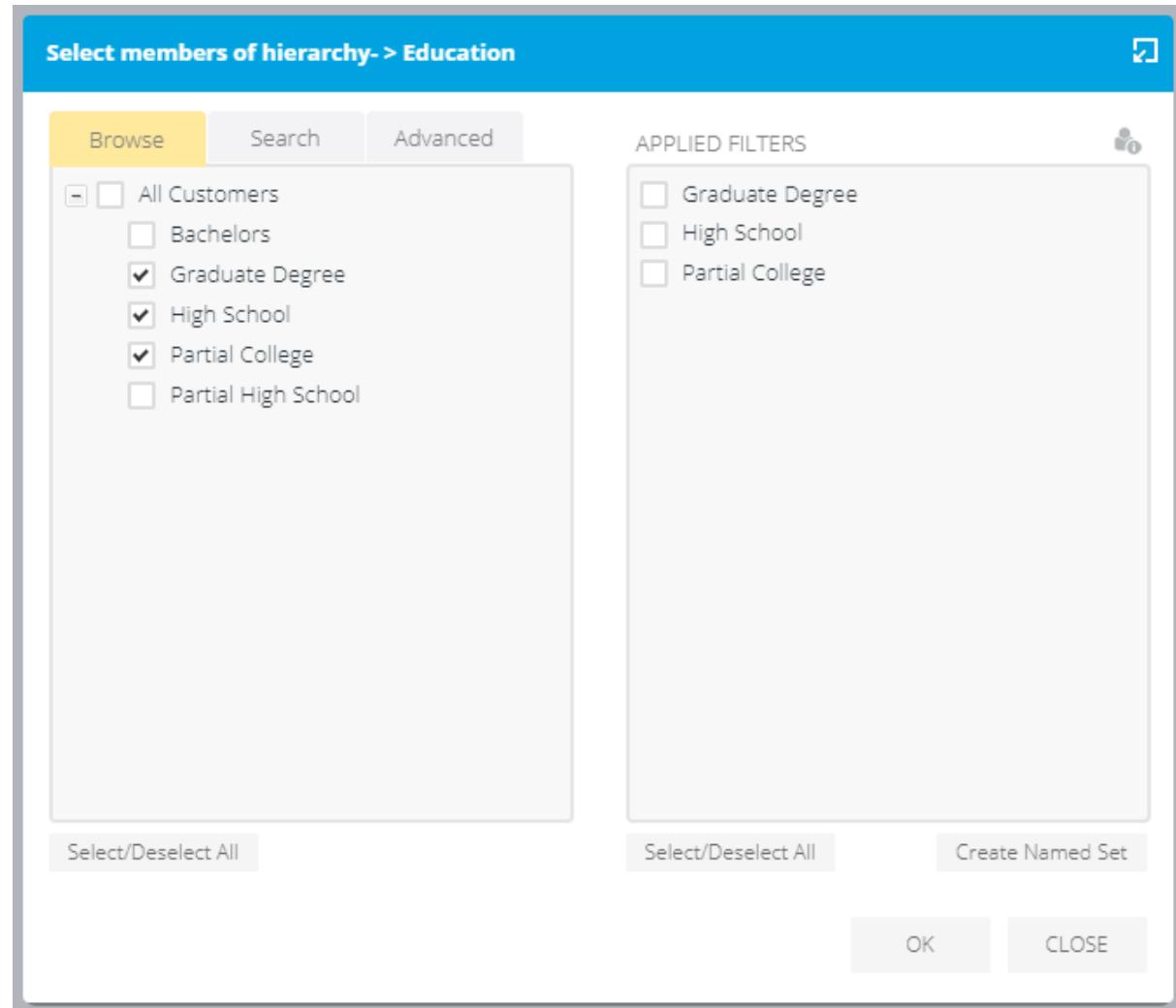
All data on dashboards that are based on the OLAP data source or Analytic Models could be manipulated with data slicers that could be added in the design or production time. If a slicer is added in the design time, it will be part of the dashboard whenever the dashboard is opened. Also, users who are not dashboard designers, but only use the dashboard, could also add the dashboard slicer that will be only a temporary supplement to the dashboard, while the dashboard is opened.



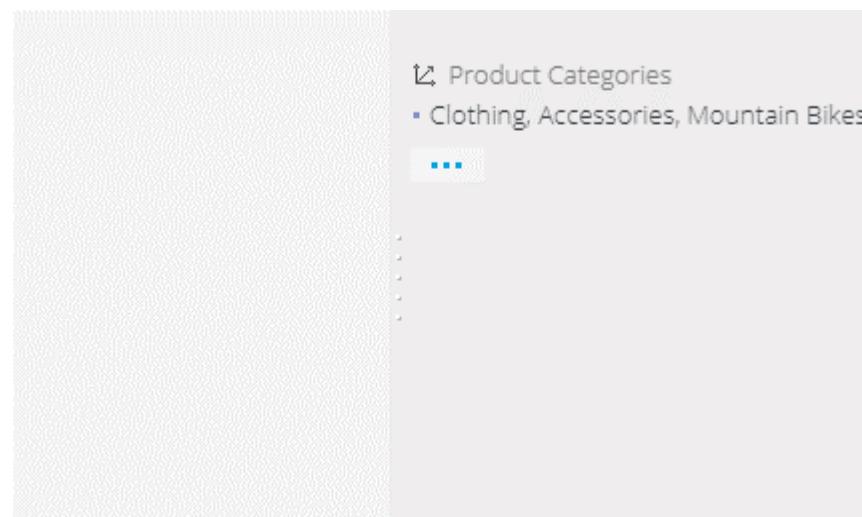
Adding a slicer for certain OLAP/Analytic Model data source will automatically filter (refresh) all tiles based on the same data source with the slicer dimension members. Slicers could be additionally changed, reordered and removed to provide fine analysis tool while exploring OLAP/Analytic Model data.



Filter dialog box in advanced view with options to search for dimension members, apply 'User Properties' or 'Time Intelligence'

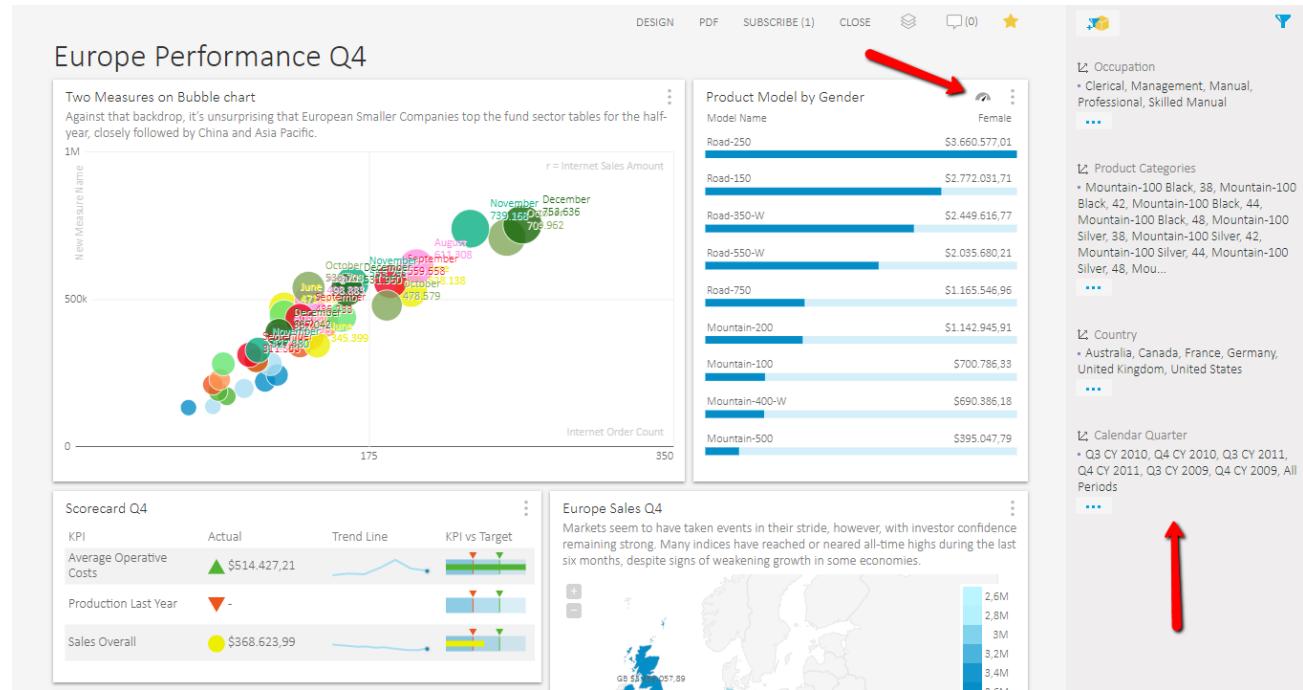


State of the filters panel (opened/closed) and its width (drag left-right to resize) is saved with the dashboard and opened next time the way it is saved.

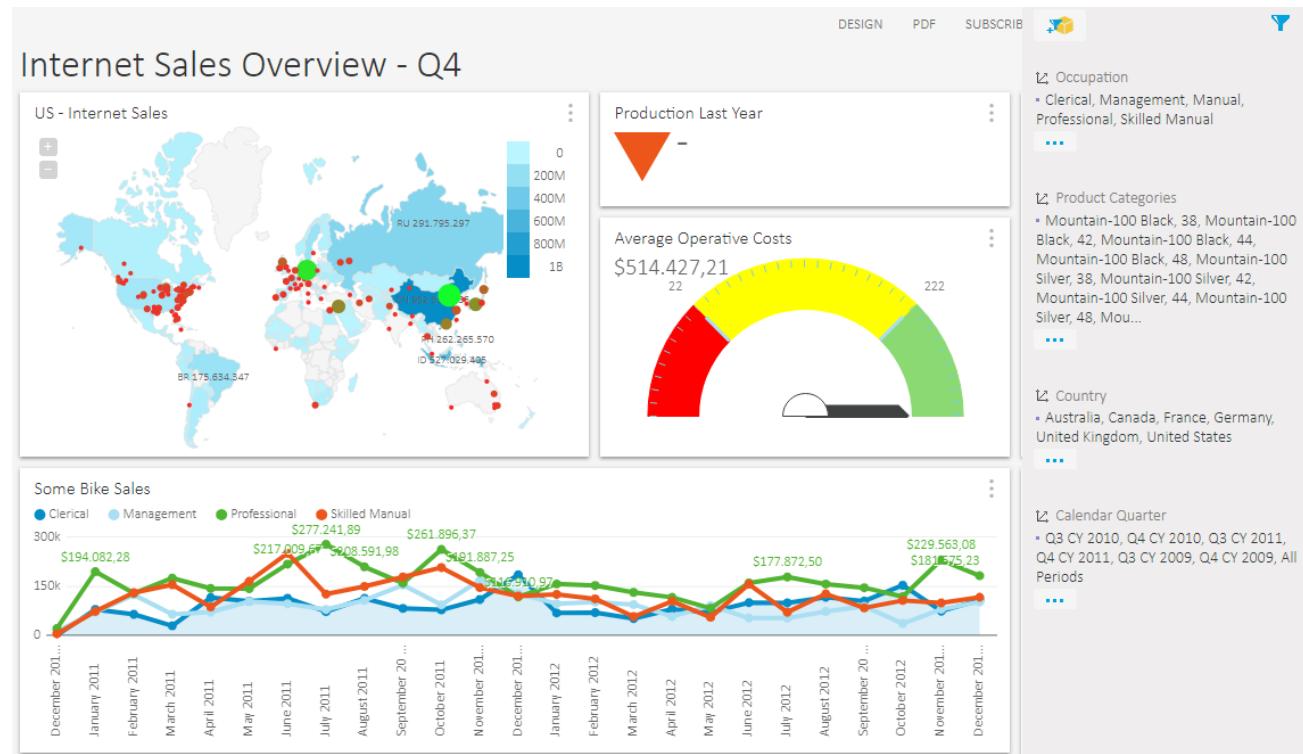


9.1.1. OLAP/Analytic Model filters inheritance to child dashboards

The dashboard could contain tiles that have 'Child dashboard' configured to open as a separate dashboard in the new browser tab. If the parent dashboard has filters defined, opening 'Child dashboard' will pass (inherit) all OLAP/Analytic Model filters from parent to child dashboard.



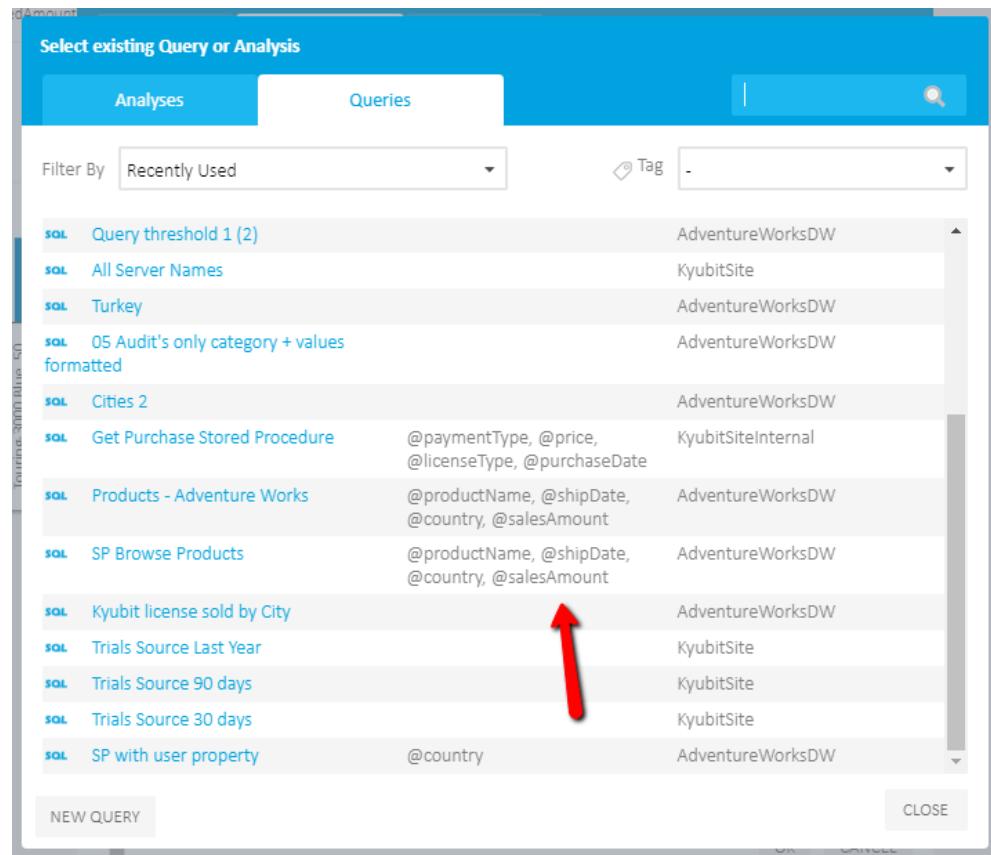
Child dashboard has gray OLAP filters that are inherited by opening from parent dashboard.



9.2. SQL data filtering

Data on the dashboard could also be filtered by adding SQL data filters. For this concept to work, SQL Queries with ‘Input parameters’ have to be created that requires some basic SQL knowledge (see 8.2.1 Creating SQL queries with ‘Input parameters’). Once you create the dashboard chart that is based on the SQL query with ‘Input parameters’ you can add SQL filters that would filter/slice data on the dashboard. SQL Filters could be static ‘Numeric’ and ‘Date Time’ input fields, or they could be a drop-down list of values that comes from SQL queries defined as ‘Query Type’ = ‘Filter values’.

While selecting the query for visualization on the dashboard, a user can see if created query accepts ‘Input parameter’.



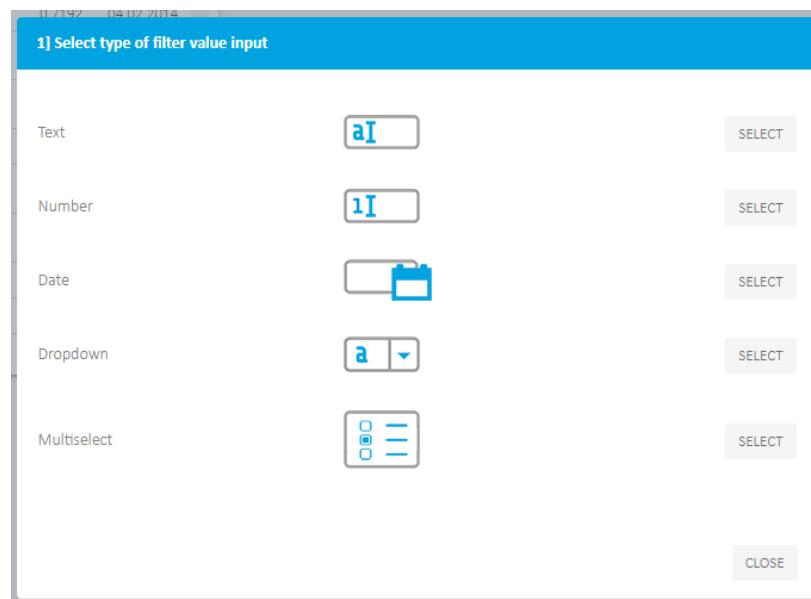
After adding a query to a dashboard visualization in the design mode, moving mouse over tile title will display ‘Input parameters’ this visualization accepts. Now, this dashboard tile visualization is ready to be filtered.

New Dashboard

Products 2013

Product Name	Region Name	Amount	Ship Date
AWC Logo Cap	Canada	8,9900	0,7192 04.02.2014
All-Purpose Bike Stand	Canada	159,0000	12,7200 04.02.2014
Fender Set - Mountain	Canada	21,9800	1,7584 04.02.2014
AWC Logo Cap	Canada	8,9900	0,7192 04.02.2014
Fender Set - Mountain	Canada	21,9800	1,7584 04.02.2014
Sport-100 Helmet, Red	Canada	34,9900	2,7992 04.02.2014
HL Mountain Tire	Canada	35,0000	2,8000 04.02.2014
Mountain Tire Tube	Canada	4,9900	0,3992 04.02.2014
AWC Logo Cap	Canada	8,9900	0,7192 04.02.2014

Adding a filter ...



Adding a SQL filter will show a dialog to choose another query that return drop-down list of values that would be used to filter data or to select static input field that would be used for filtering. 'Number' or 'Date Time' filter type.

Query Name	Output Parameter	Data Source
All Server Names	serverName	KyubitSite
countries	country	AdventureWorksDW
My countries	country	AdventureWorksDW

(Selecting query for a drop-down list of values for filtering. A filter will be applied only to visualizations with same 'Input parameter' name as defined of query filter.)

Filter Input Type:	Date
Filter Name:	Ship Date
Output Parameter:	@shipDate

(Select input field that will be used for SQL filtering. Filter will be applied only to visualizations with same 'Input parameter' name as defined for 'Output parameter' on this input field).

JANUARY 2019							FEBRUARY 2019						
SU	MO	TU	WE	TH	FR	SA	SU	MO	TU	WE	TH	FR	SA
			1	2	3	4	5				1	2	
6	7	8	9	10	11	12	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23
27	28	29	30	31			24	25	26	27	28		
"/>

(Added SQL filters appear on the slicer panel with the option to change filter values)

Applying SQL filters immediately show sliced data for the dashboard tiles with 'Input parameters' that match added filter 'Output parameter' name.

9.2.1. Creating SQL queries with ‘Input Parameters’

To create SQL query with ‘Input Parameters’ some basic SQL knowledge is required for the query text manipulation. For example, the following query...

```
select top 200 DimProduct.EnglishProductName, DimGeography.EnglishCountryRegionName, s.SalesAmount,  
s.ShipDate  
from [dbo].[FactInternetSales] s  
left join DimCustomer on s.CustomerKey = DimCustomer.CustomerKey  
left join DimGeography on DimCustomer.GeographyKey = DimGeography.GeographyKey  
left join DimProduct on DimProduct.ProductKey = s.ProductKey
```

... returns values without the option to be filtered in the dashboard.

Now, we would like to have the ability to filter products based on several filter inputs. To add filter parameter input open curly brackets, add the name of the filter parameter that must start with @, then add ‘colon’ character following with the SQL expression that will be used if the filter parameter value is actually supplied.

```
select top 200 DimProduct.EnglishProductName, DimGeography.EnglishCountryRegionName, s.SalesAmount,  
s.ShipDate  
from [dbo].[FactInternetSales] s  
left join DimCustomer on s.CustomerKey = DimCustomer.CustomerKey  
left join DimGeography on DimCustomer.GeographyKey = DimGeography.GeographyKey  
left join DimProduct on DimProduct.ProductKey = s.ProductKey  
where 1=1  
  
{@productName: and EnglishProductName like '%@productName%' }  
{@shipDate: and s.ShipDate < '@shipDate' }  
{@country: and EnglishCountryRegionName in (@country)}  
{@salesAmount: and s.SalesAmount > @salesAmount}  
  
order by s.SalesOrderNumber desc
```

This semantic ensures that SQL query will be correctly executed if no filter parameter values are supplied and also if any number of filter parameter values is supplied.

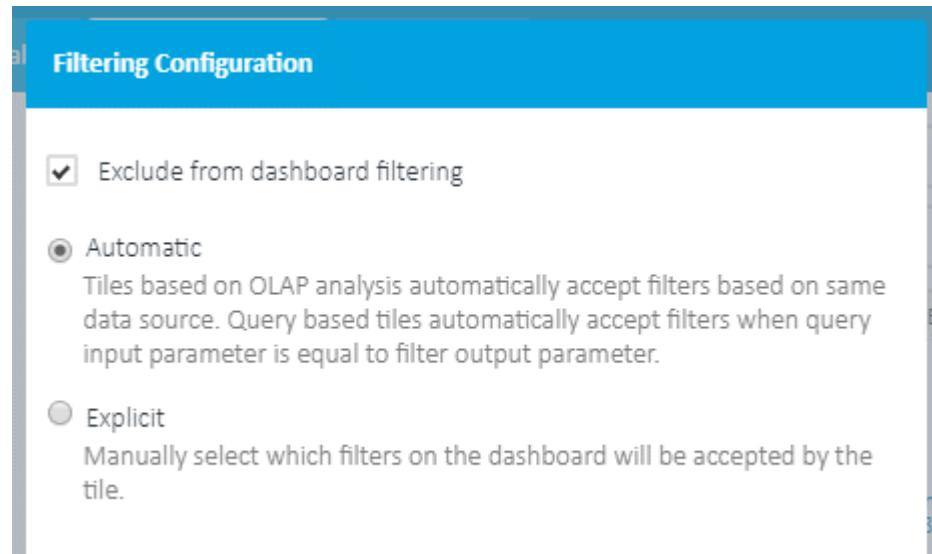
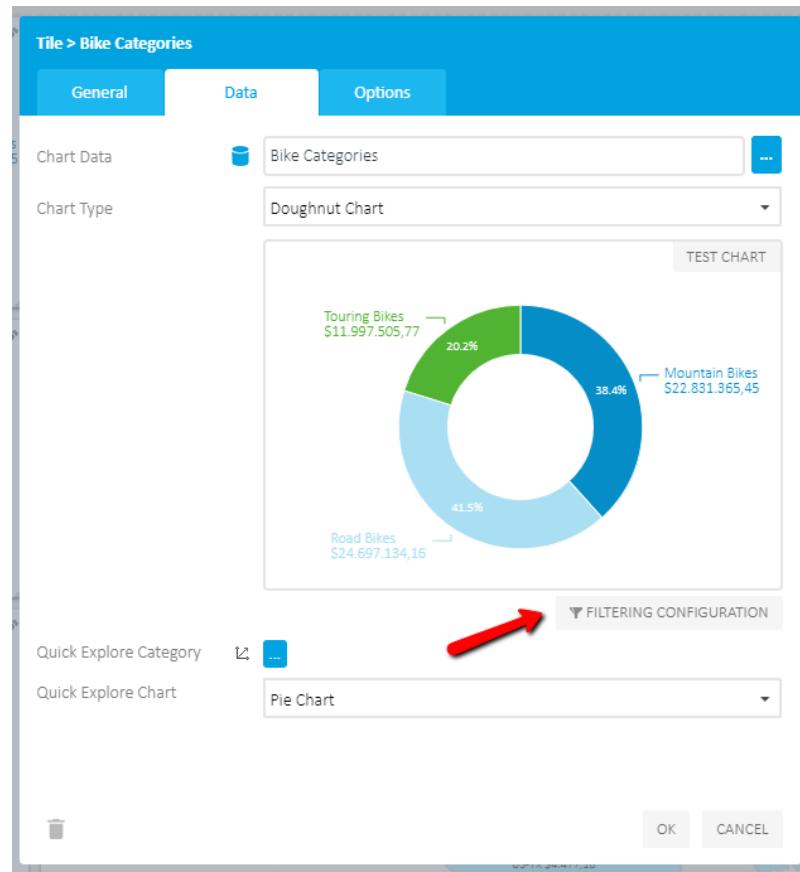
If @productName parameter is supplied, SQL expression will be included in the query:

and EnglishProductName like '%@productName%' (where @productName will be replaced with the actual filter parameter value).

Filter parameters provided on this way could be used on the same way for any technology supporting SQL language to retrieve the data (MS SQL server or any other data source supporting ODBC query calls).

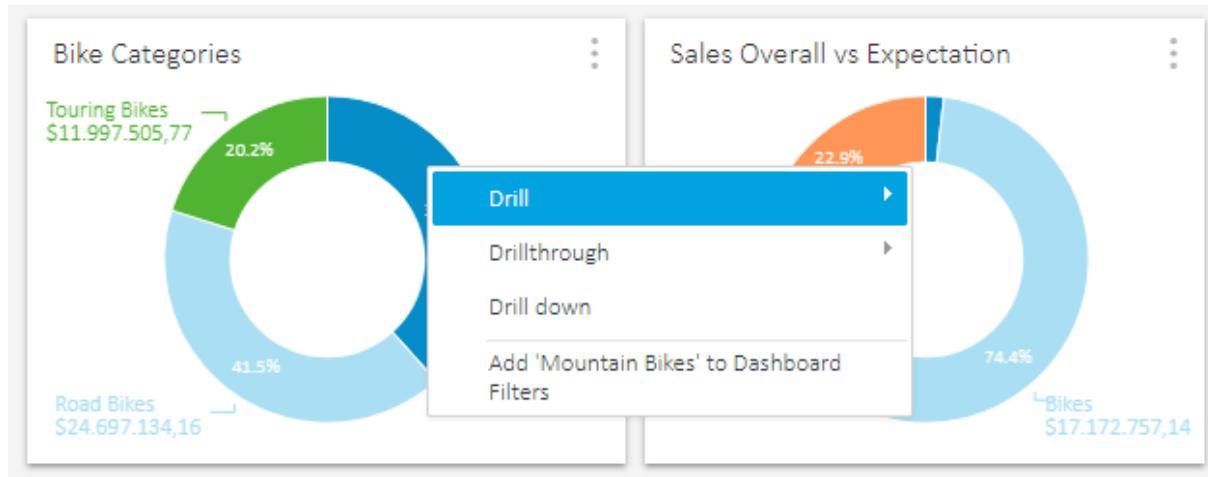
9.3. Exclude dashboard chart from the filtering

By default, all dashboard tiles accept filters defined on the dashboard level. Each dashboard tile can be excluded from accepting filters added to the dashboard, which will be ignored in such case.



9.4. Chart drill-down, drill-through actions on the dashboard

All dashboard tiles based on the **OLAP/Analytic Model** data source could be **drilled-down**, sliced or **drilled-through** in place within the dashboard. Right click on the **OLAP/Analytic Model** dashboard chart and selected one of the available analytic actions.

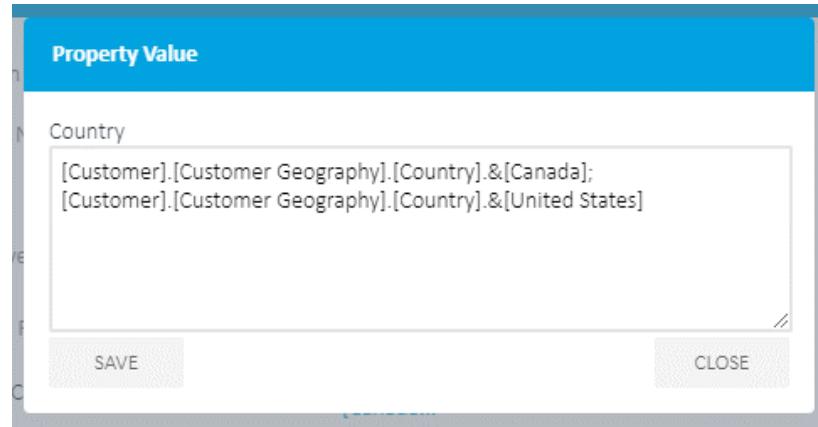


9.5 ‘User Properties’ as Dashboard filters

The dashboard could be filtered using current user properties to show the data of interest for the current user. User properties are **Login Name**, **Real Name** of current user or **custom created** user properties that could be assigned and changed by the Kyubit administrator.

To create and manage user properties, Kyubit Administrator should navigate to Administration -> ‘Users and Admins’, create new custom user properties and click on each user to assign his custom property values.

User Properties	
Country	[Customer].[Customer Geography].[Country].& [Canada...]
Department	[Department].[Departments].[Department Level 01]
Product	(Empty)



'User Properties' could be used to filter Analyses, Queries and Dashboards.

To add 'User Property' to **OLAP/Analytic Model** analysis as a filter, while in a filter dialog form, click on the 'User Property' icon on the upper right and choose one of the existing User Properties. More values under the same property should be delimited with a semicolon (;).

Select members of hierarchy- > Customer Geography

Browse Search Advanced

All Customers

- Australia
- Canada
- France
- Germany
- United Kingdom
- United States

APPLIED FILTERS

(UserProperty).(Country)

Every time the user opens an analysis, 'User Property' value will be resolved and used to filter analysis data using the current user property value.

9.5. Define dashboard filter values using URL query string

If the dashboard contains SQL or OLAP filters, filter values could be set using URL opening the dashboard. This gives great flexibility how data will be sliced and manage dashboard data scope outside Kyubit application. In this example, we added the filter with title ‘Customer Geography’ which is identified with parameter ID = ‘[Customer].[Customer Geography]’. In order to supply the value for this filter using URL, we add the member unique name for the ‘France’ member -> [Customer].[Customer Geography].[Country].&[France] ...

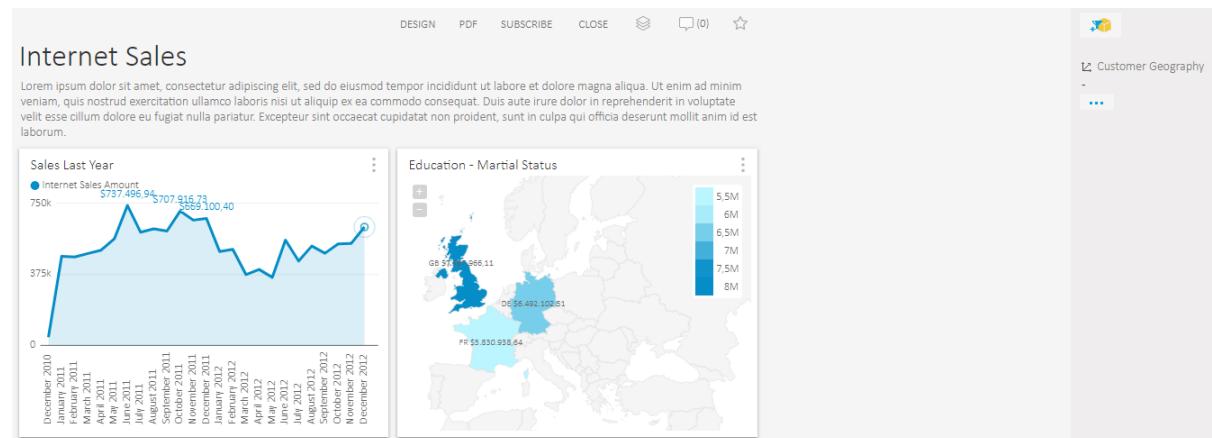
@[Customer].[Customer Geography]=[Customer].[Customer Geography].[Country].%26[France]

... to dashboard URL. Note that ‘&’ character is replaced by %26 HTML escape code for ampersand character. If the filter parameter requires more values, separate them with (;) the semicolon.

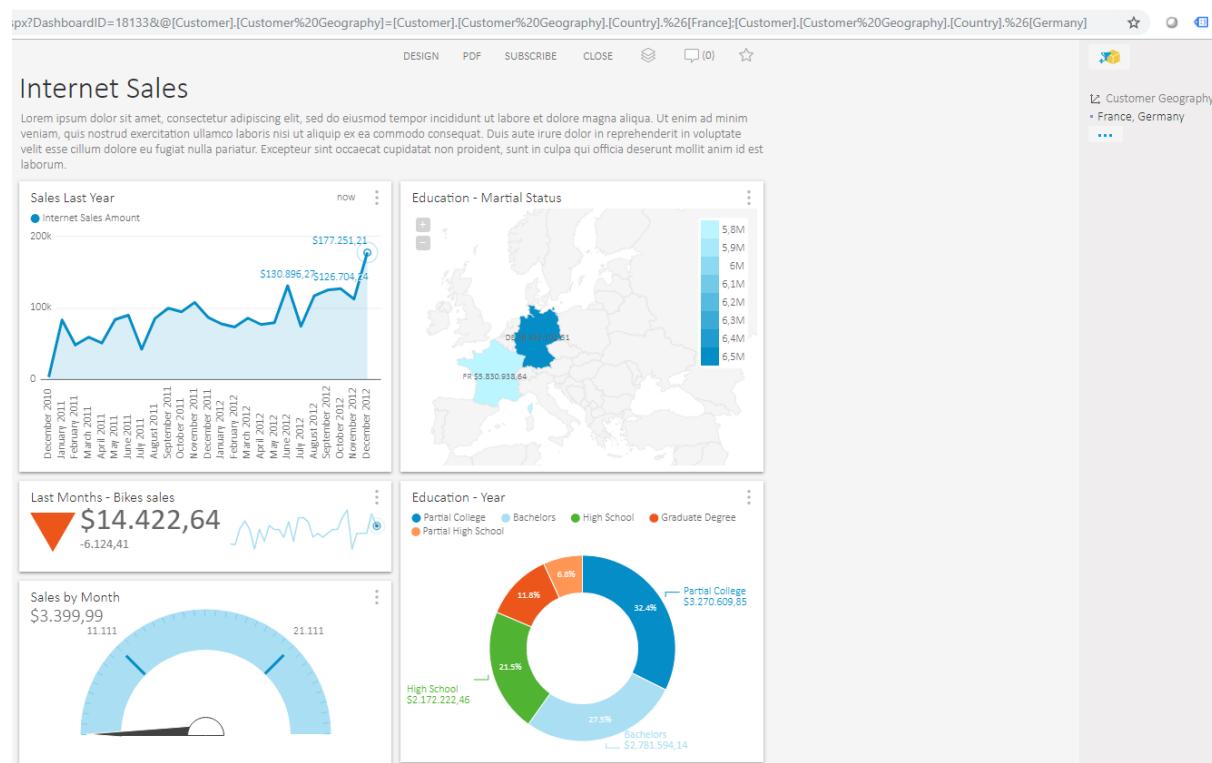
**@[Customer].[Customer Geography]=[Customer].[Customer Geography].[Country].%26[France];
[Customer].[Customer Geography].[Country].%26[Germany]**

... creating final URL ...

[http://localhost:85/Forms/Dashboard.aspx?DashboardID=3028&@\[Customer\].\[Customer Geography\]=\[Customer\].\[Customer Geography\].\[Country\].%26\[France\];\[Customer\].\[Customer Geography\].\[Country\].%26\[Germany\]](http://localhost:85/Forms/Dashboard.aspx?DashboardID=3028&@[Customer].[Customer Geography]=[Customer].[Customer Geography].[Country].%26[France];[Customer].[Customer Geography].[Country].%26[Germany])



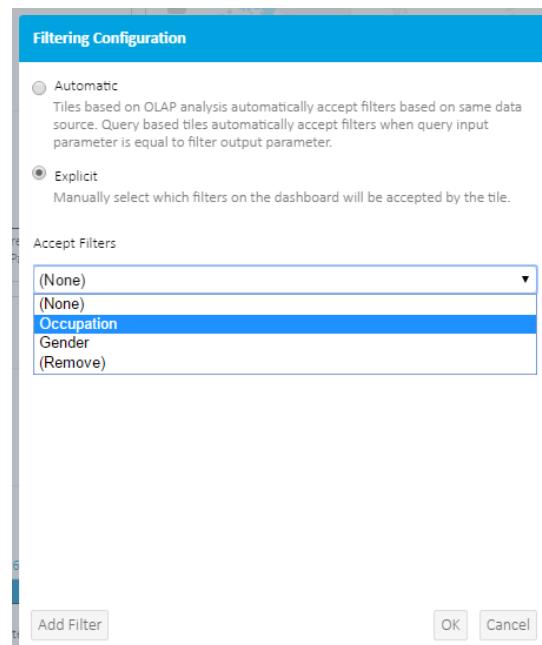
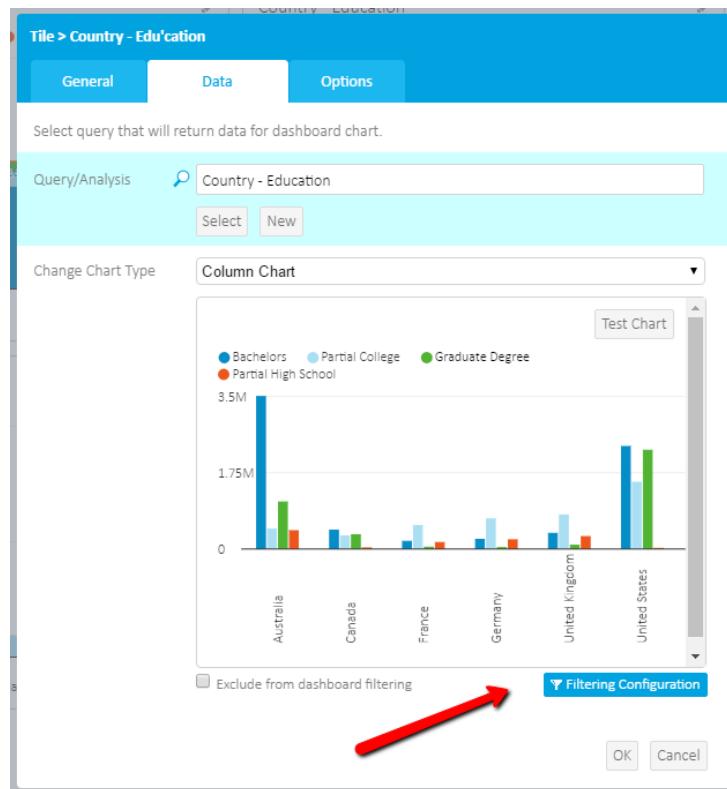
URL filters applied ...



9.6. Dashboard filters configuration

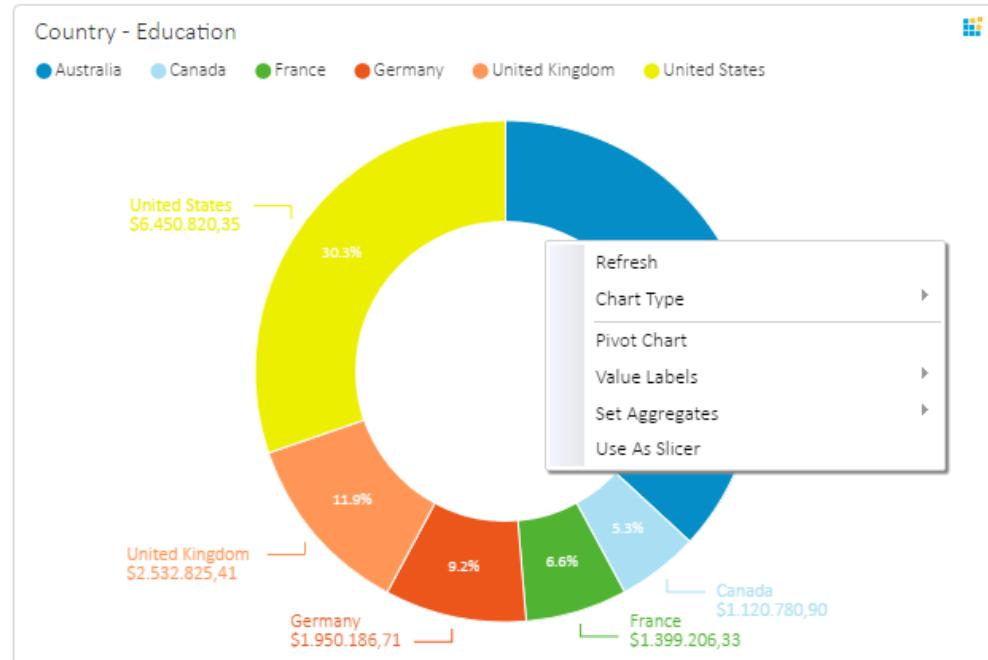
'Automatic Filtering Configuration' is the default way of handling the dashboard filters. For OLAP/Analytic Model data, this means, when the dashboard filter is added, it would automatically be applied on all dashboard tiles that are based on the same OLAP/Analytic Model data source. For SQL data-based tiles, this means that filter would be automatically applied to all queries based upon the same 'Input parameter'.

'Explicit Filtering Configuration' is the process in which a dashboard designer could select for each dashboard tile which dashboard filters it will use when retrieving data from data sources. On this way, a dashboard designer can fine tune, how filters will be implemented for each tile on the dashboard. For example, a dashboard tile based on the OLAP/Analytic Model data could accept filter values that are based on some other OLAP/Analytic Model data source.

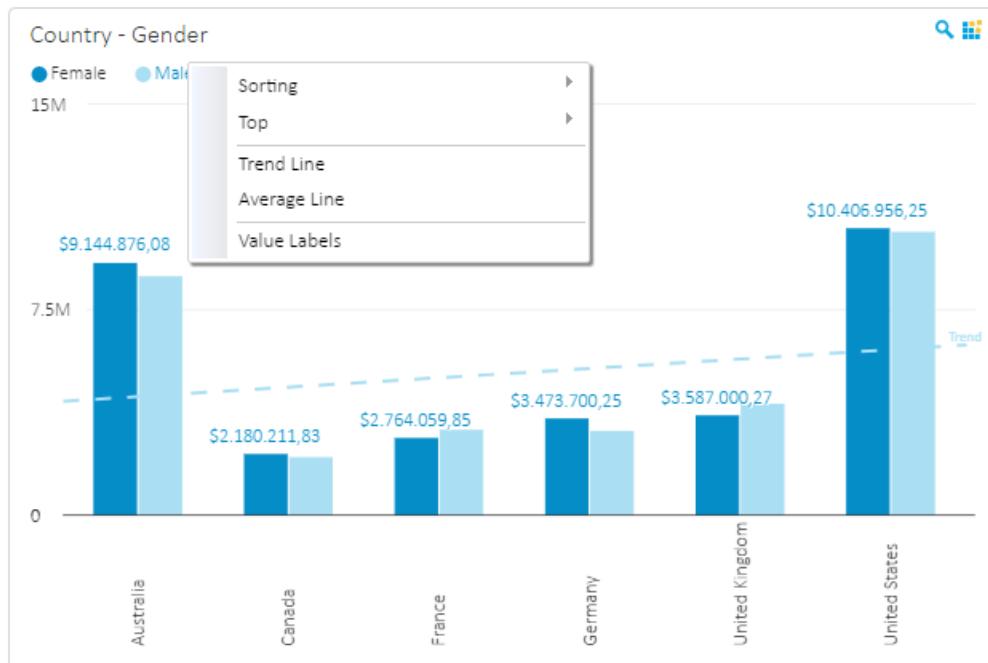


9.7. End-User actions on the dashboard chart

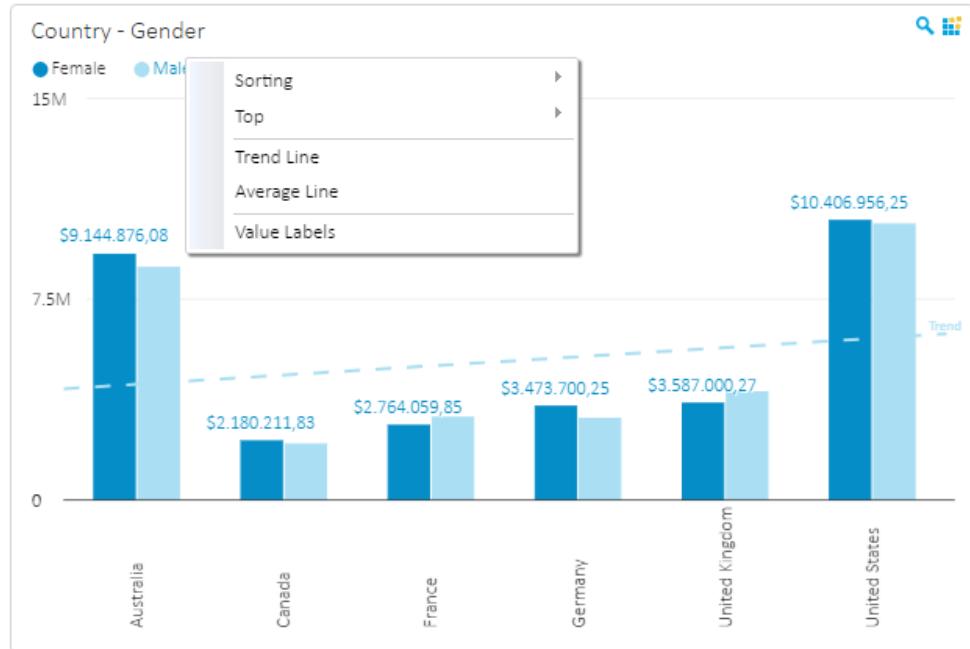
After the dashboard is rendered in the production usage to end-users, there are several options a user can choose to additionally arrange and visually analyze data. Right-click on the dashboard tile to show main user actions, such are ‘Refresh’ tile data, change ‘Chart Type’, pivot tile data category and series values for the tile with ‘Pivot Chart’ action, show ‘Value Labels’ on the chart with additional selection on how many items labels would be displayed, set temporary ‘Aggregate’ (SUM or AVG) value that could be used to compare with the existing tile chart values or click on ‘Use as Slicer’ option to set tile chart to act as a dashboard slicer.



Right-click on the chart legend shows additional actions that could be used on a particular series of values on the chart. Such is ‘Sorting’ of the data on the chart, display ‘Top X’ items on the chart,



... or toggle display of ‘Trend’ or ‘Average’ line on the chart and ‘Value Labels’ for a particular series of values on the chart.



9.8. Use a chart as 'Slicer' chart

From version 3.7 of Kyubit Business Intelligence app, end-user while working on the dashboard can choose several chart types and turn them into dashboard slicers. Chart types ‘Pie Chart’, ‘Doughnut Chart’, ‘Column Chart’, ‘Line Chart’ and ‘TreeMap Chart’ could be toggled to ‘Use as slicer’ mode with a single click of end-user if data chart is based upon OLAP/Analytic Model data. At the same time, more than one chart on the dashboard could be set to work in a ‘Slicer’ mode, giving many possibilities to slice and analyze data of interest on the dashboard.



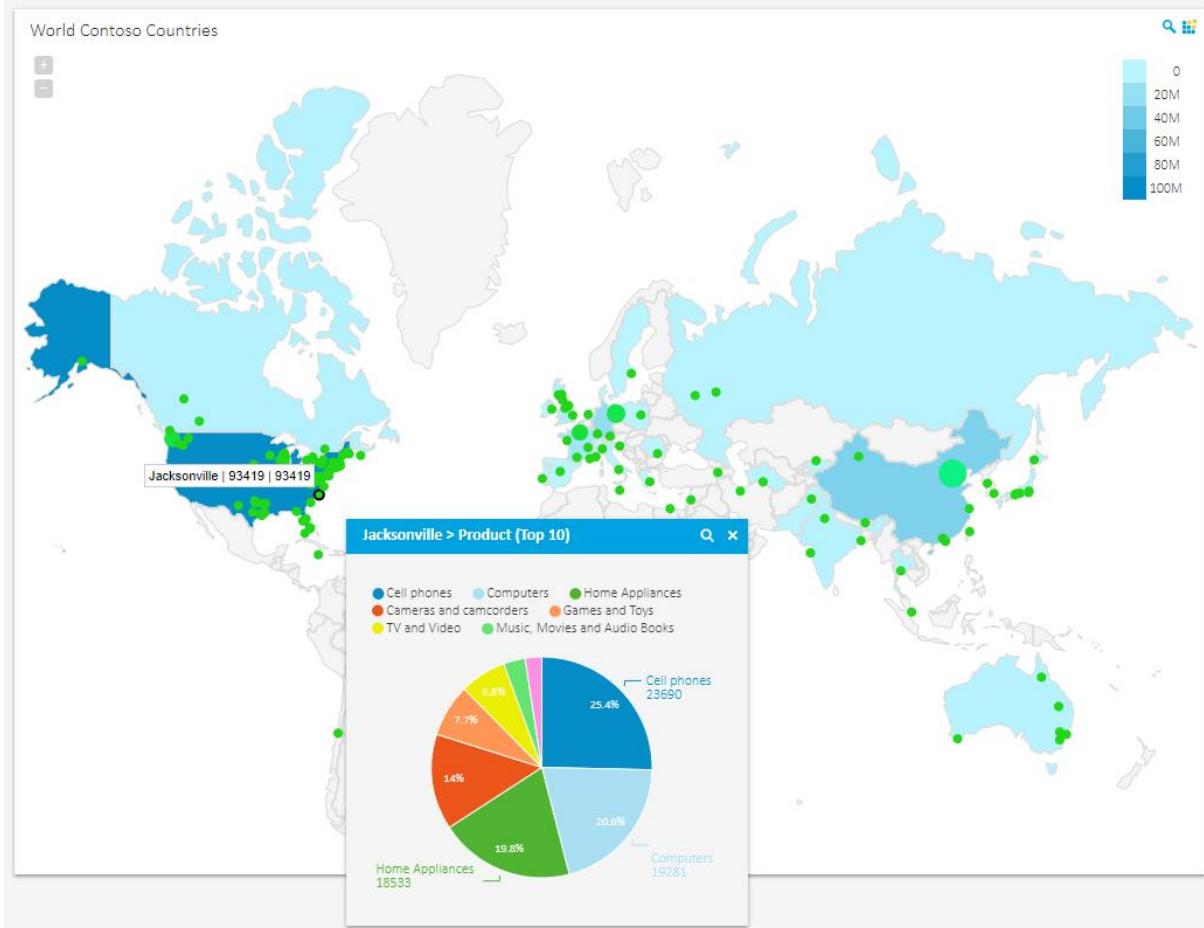
9.9. ‘Quick Explore’ dashboard analytic feature

‘Quick Explore’ feature is designed to get quick insight about specific chart segment related to some other dimension. For example, if chart displays the product sales values, with ‘Quick explore’ feature a user could get quick insight how specific product sales was in the past, by using ‘Quick explore’ with Time dimension. **Quick explore dimension** and **Quick explore chart type** could be defined on the dashboard chart during design time or production time by the designer or end-user.

Once ‘Quick Explore’ feature is set, it is enough to click on the any chart segment to get small chart visualization of the selected member using other dimension.

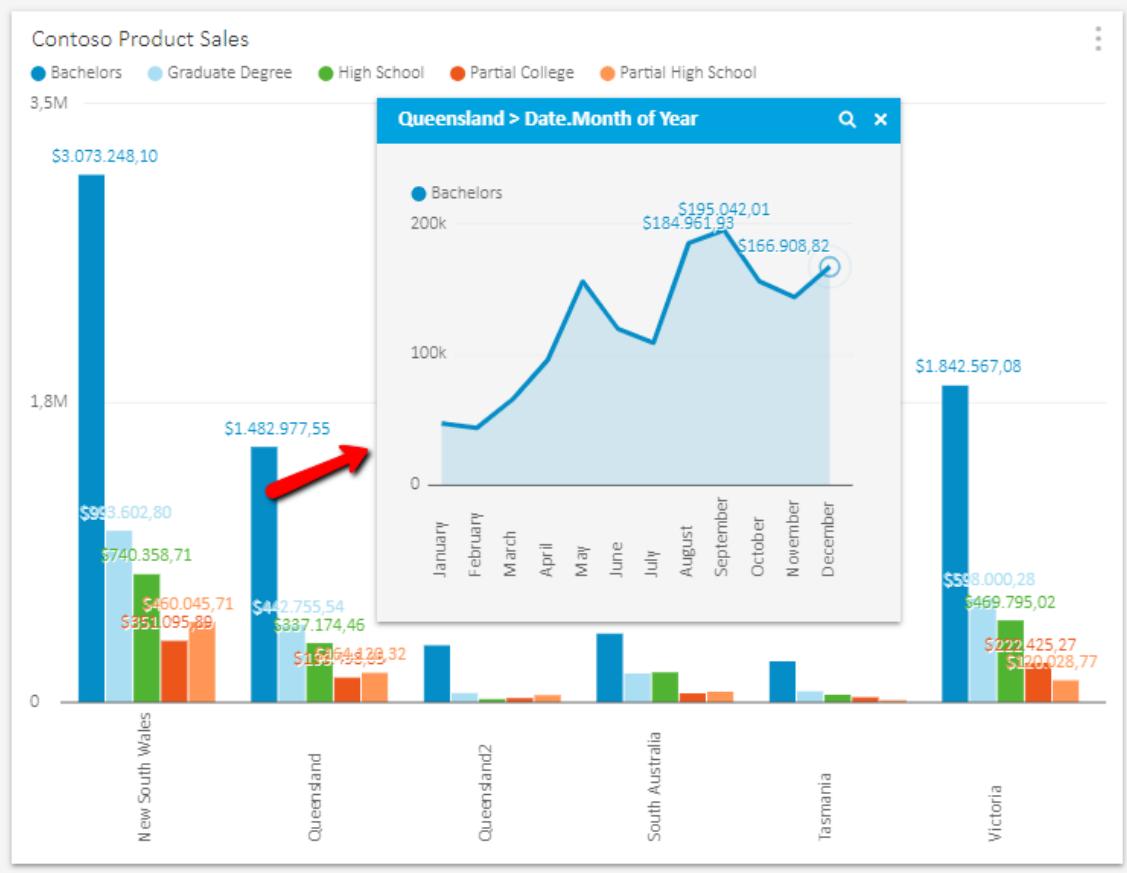
‘Quick Explore’ display additional dimension in a small separate window ...

Contoso World

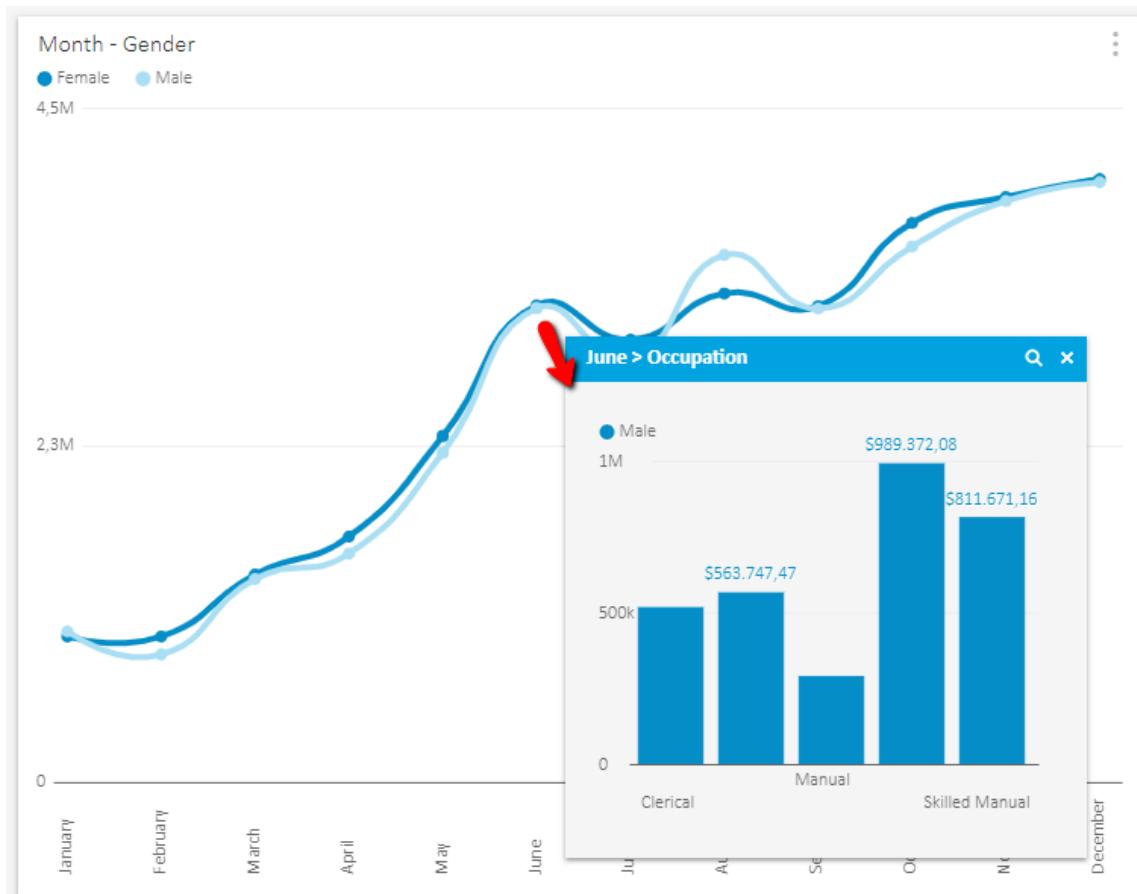


For example, when a user clicks on 'Jacksonville' city, 'Quick Explore' window will pop-up showing Jacksonville sales data by the products. Same could be applied for any measure and using various charts. 'Quick Explore' chart could be further drilled-down to a particular dimension or displayed as an enlarged chart in the full screen mode.

Click on the Queensland/Bachelors column open ‘Quick Explore’ values for the same item over the months ...

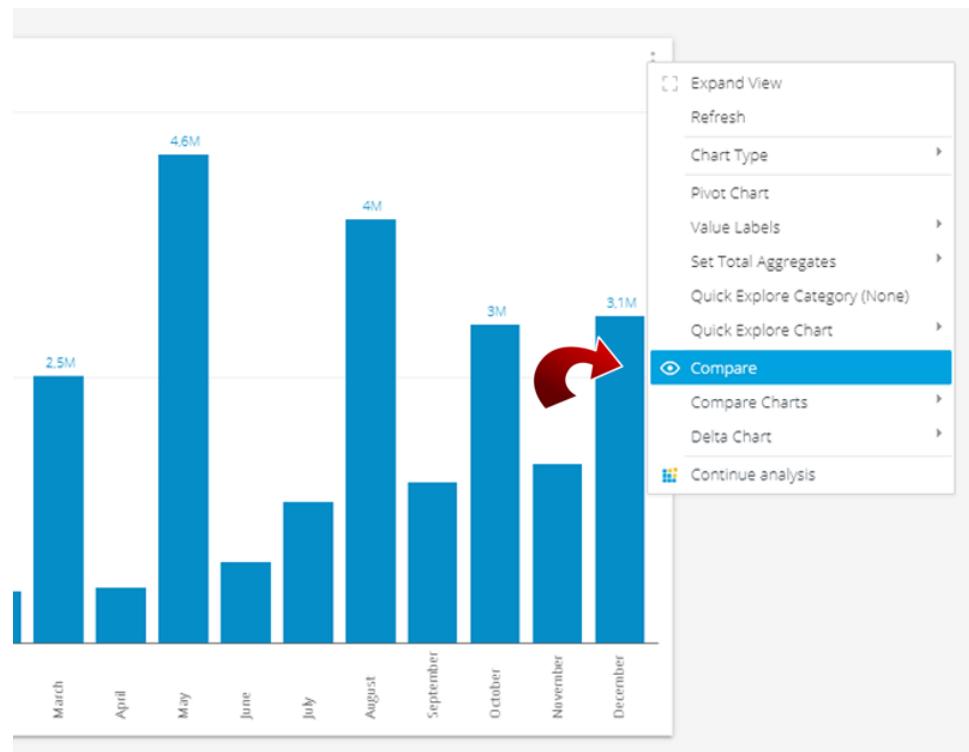


Click on the Male/June chart point opens ‘Quick Explore’ window with ‘Occupation’ data for the same point ...

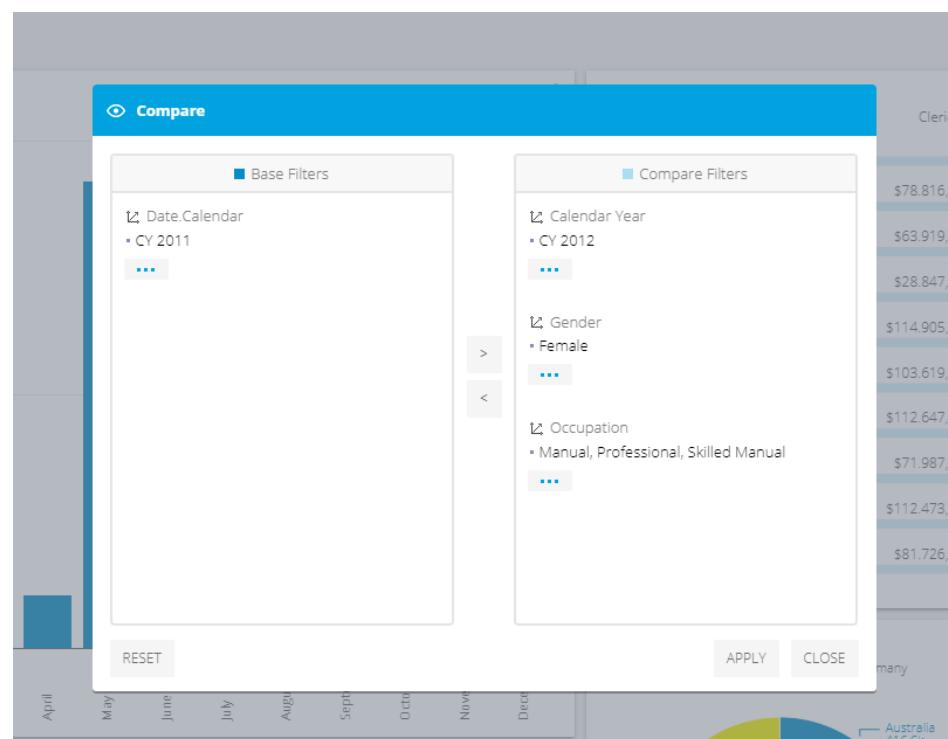


9.10. Compare Analysis

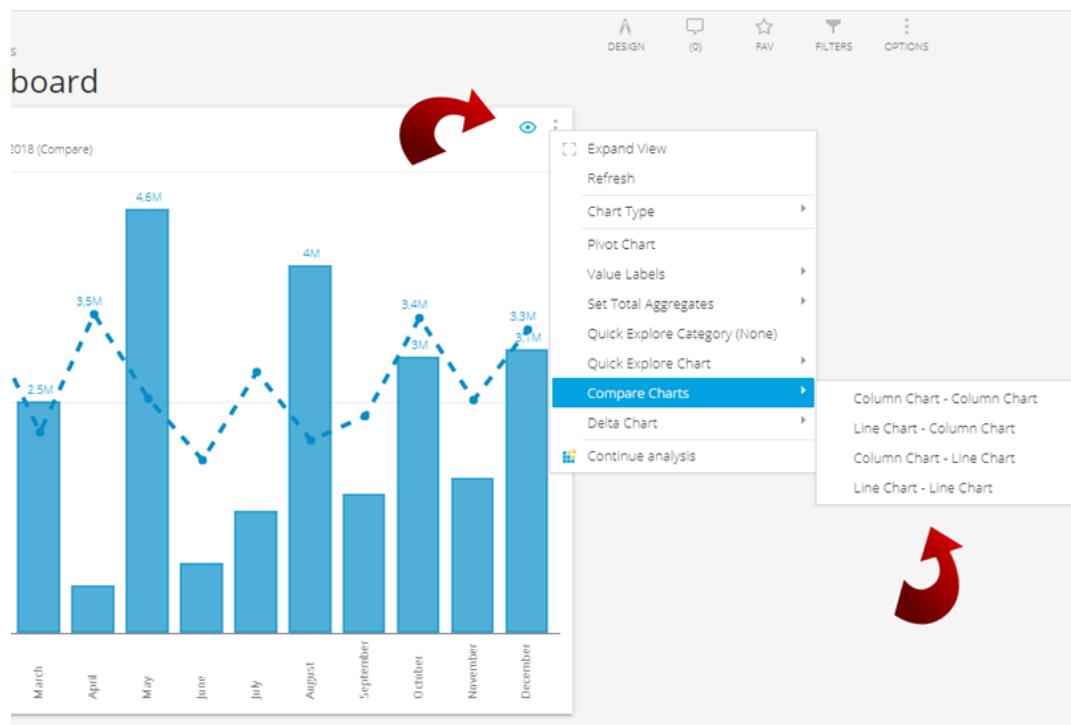
When observing a dashboard chart based on OLAP or Analytic Model analysis, a user has an option to compare currently displayed data with the same data when applied using a different set of filters. Compare form shows filters applied to the original data-set and the compare data-set. On the same chart, both sets of data are displayed for easy comparison.



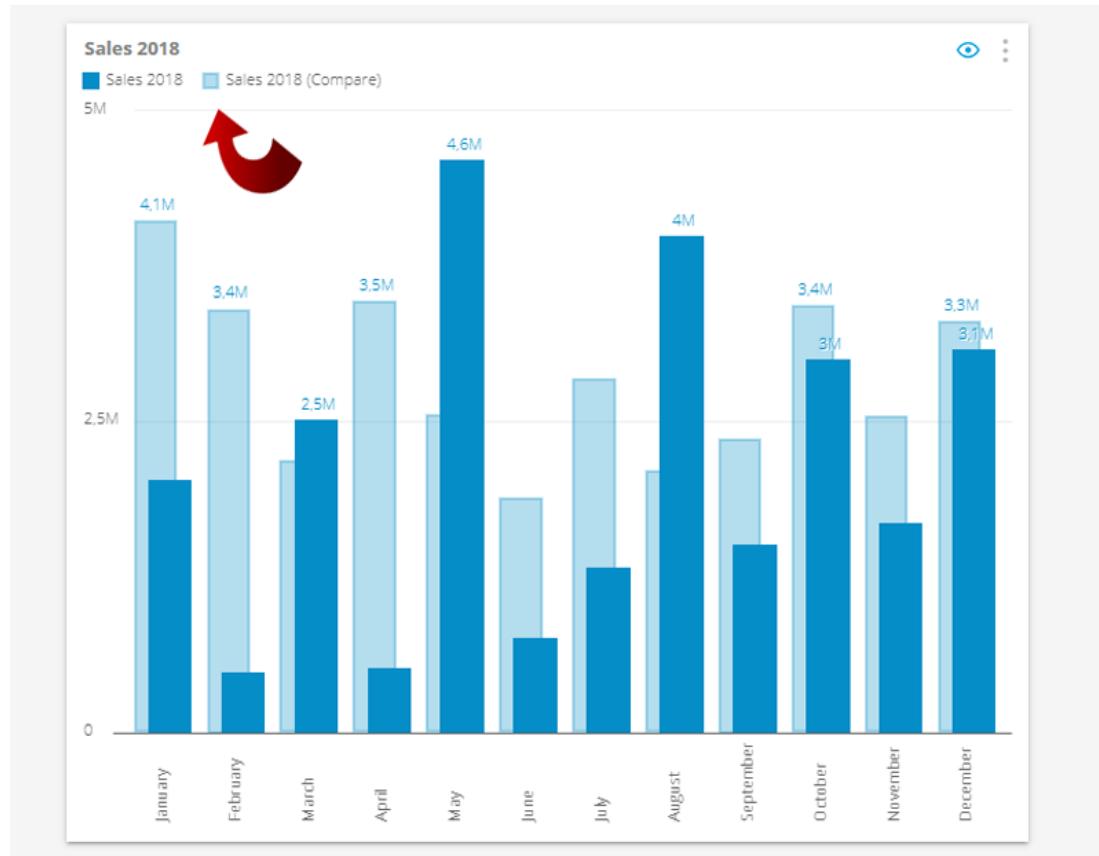
For example, if the original chart display sold items over the year, a user can quickly compare the same set with sold items from the previous year, gender female from Europe, for instance.



When using the 'Compare Analysis' a user could use all features that applies to 'Combo chart', choosing display of Line/Column chart combination, using delta chart to display differences, etc.

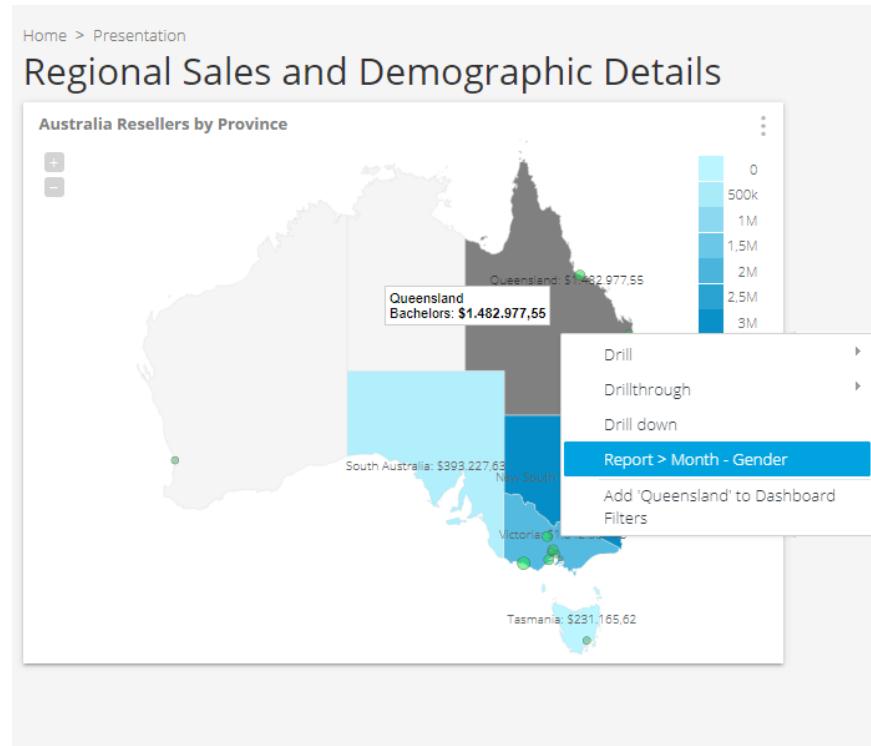


Base and compare filter sets are displayed as two items in the chart legend.



9.11 Master-Detail Report

Open a report analysis in the context of particular chart point on the dashboard. Analysis in a Report View will be opened for that particular point, passing a point member and other dashboard filter members to the report filtering. The ideal way for end-users to observe master-detail insights from a dashboard chart (master view) to a particular analysis for a particular selected value on the chart (details view). Select a ‘Report’ in Tile > Options > Master-Detail Report field to be used with this feature.



Right-click on any point on the dashboard chart. If defined, Master-Detail Report option will be visible. (Use Tile > Options to define Master-Detail Report). Report View will open for a clicked point on the dashboard and also passing existing dashboard filters.

Month Orders

▼ Filters:
 (1) [Gender](#): Female,
 (2) [Occupation](#): Clerical, Management, Manual, Professional, Skilled Manual,
 (3) [Customer Geography](#): Queensland

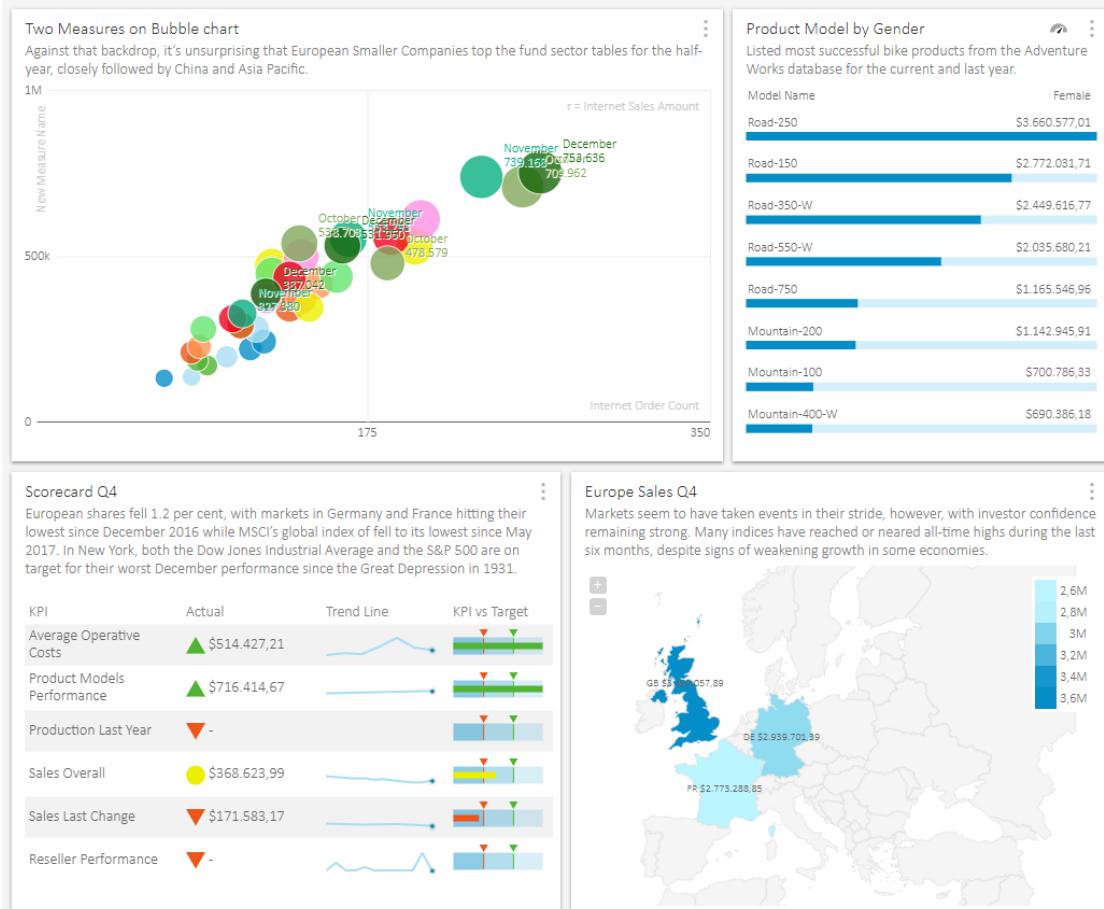
Date.Calendar	Internet Order Count	Internet Order Count
December 2010	0,16%	0,16%
January 2011	0,95%	0,95%
February 2011	0,47%	0,47%
March 2011	0,79%	0,79%
April 2011	0,32%	0,32%
May 2011	0,95%	0,95%
June 2011	0,95%	0,95%
July 2011	0,95%	0,95%
August 2011	0,47%	0,47%
September 2011	1,26%	1,26%
October 2011	1,26%	1,26%
November 2011	1,42%	1,42%
December 2011	0,79%	0,79%
January 2012	1,42%	1,42%
February 2012	1,58%	1,58%
March 2012	0,95%	0,95%
April 2012	1,90%	1,90%
May 2012	1,74%	1,74%
June 2012	1,90%	1,90%
July 2012	1,42%	1,42%
August 2012	1,58%	1,58%
September 2012	0,47%	0,47%

10. Dashboard descriptive text features

The dashboard and its charts contain features to include text that would additionally describe the content for the end-user. Dashboard itself contains header and footer text that should generally describe dashboard overall content, while individual dashboard charts could have chart description text that explains the data on the particular dashboard chart.

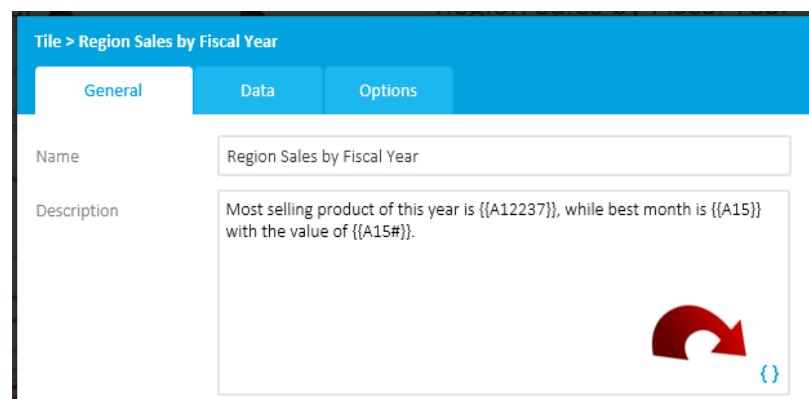
Europe Performance Q4

The FTSE 100 fell to a 27-month low on Thursday, following bid falls on Wall Street and Asian markets as fears grew about the future of the global economy. The blue-chip index of leading shares slumped to 6,646.45 before recovering to close down 0.8 per cent at 6,711.93. A broad-ranging sell-off hit mining and commodities stocks hardest, with traders believing they will bear the brunt of a worldwide slowdown.



10.1. ‘Dynamic Text’ on the dashboard

The text of the Dashboard can contain dynamic values from previously created analysis and queries. For example, now you can quickly set description text explaining which is the most sold product this year using the words.



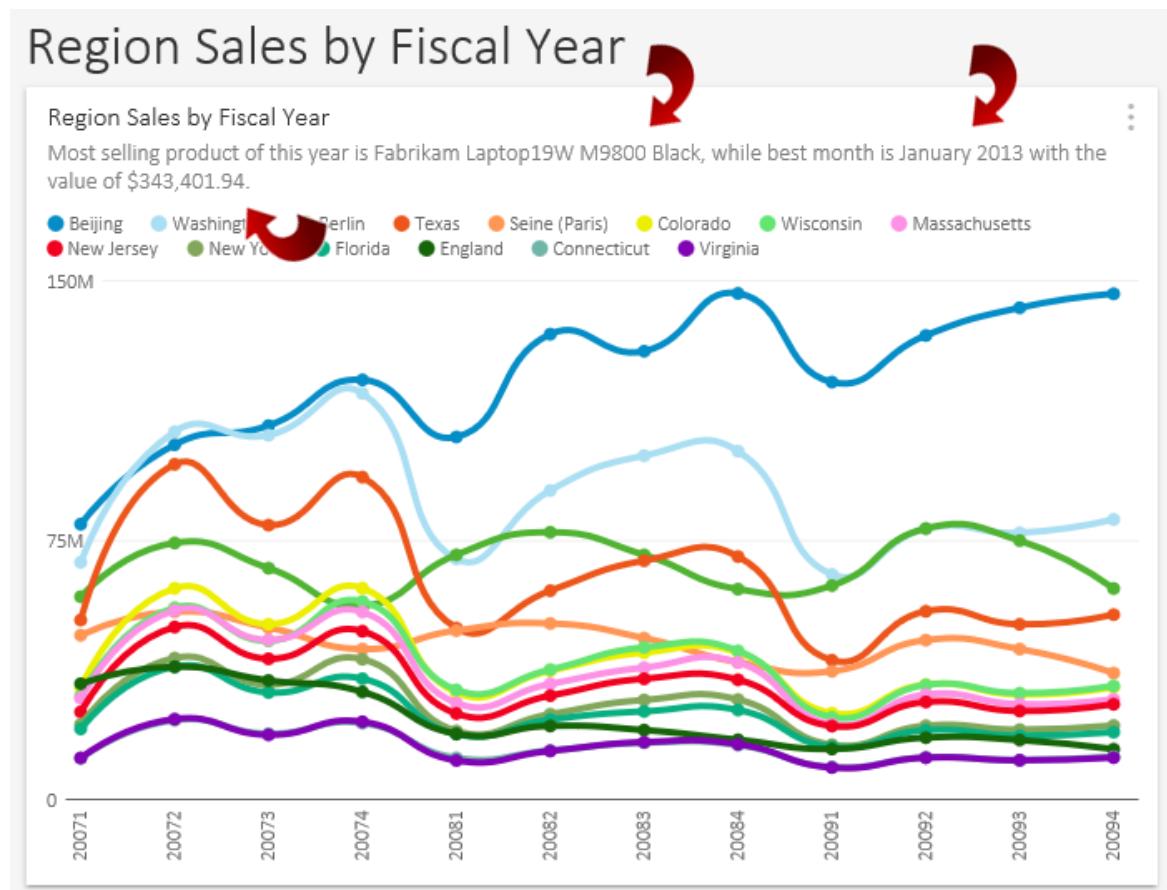
'Dynamic Text' picker icon ({{}}) suggests that this text input could contain dynamic values that are result of existing query/analysis execution. First cell in the query/analysis will be taken as relevant and its data will be inserted in the existing text input on the position as specified. Dynamic text placeholder that consist of double curly brackets will be replaced by the value from query or analysis. Dashboard designer could manually set dynamic text by adding query/analysis ID into double curly brackets (for example, {{A101}} for analysis with ID 101 or {{Q202}} for the query with ID of 202) or he could click on the 'Dynamic Text' picker icon ({{}}), which will open dialog to search and select existing query or analysis and its ID will be embedded to existing text at the precise position where cursor was positioned at the time picker was selected.

'Dynamic Text' with first **item name** from query or analysis is defined with ID inside curly brackets.

For example, {{A101}}

'Dynamic Text' with first **item value** from query or analysis is defined with ID inside curly brackets with hashtag (#) after ID number.

For example, {{A101#}}



10.2. HTML support for dashboard descriptive text

The text of Dashboard Header/Footer and Tile Description can contain HTML, which is a convenient way to provide enhanced text for end-users but also to add a custom link or similar. Inside dashboard header/footer or tile description simply enter HTML text, that will be rendered on the dashboard. This feature should not be used to add some complex HTML to text descriptions. While exporting dashboard to PDF, plain text (without HTML) will be used.

Tile > Region Sales by Fiscal Year

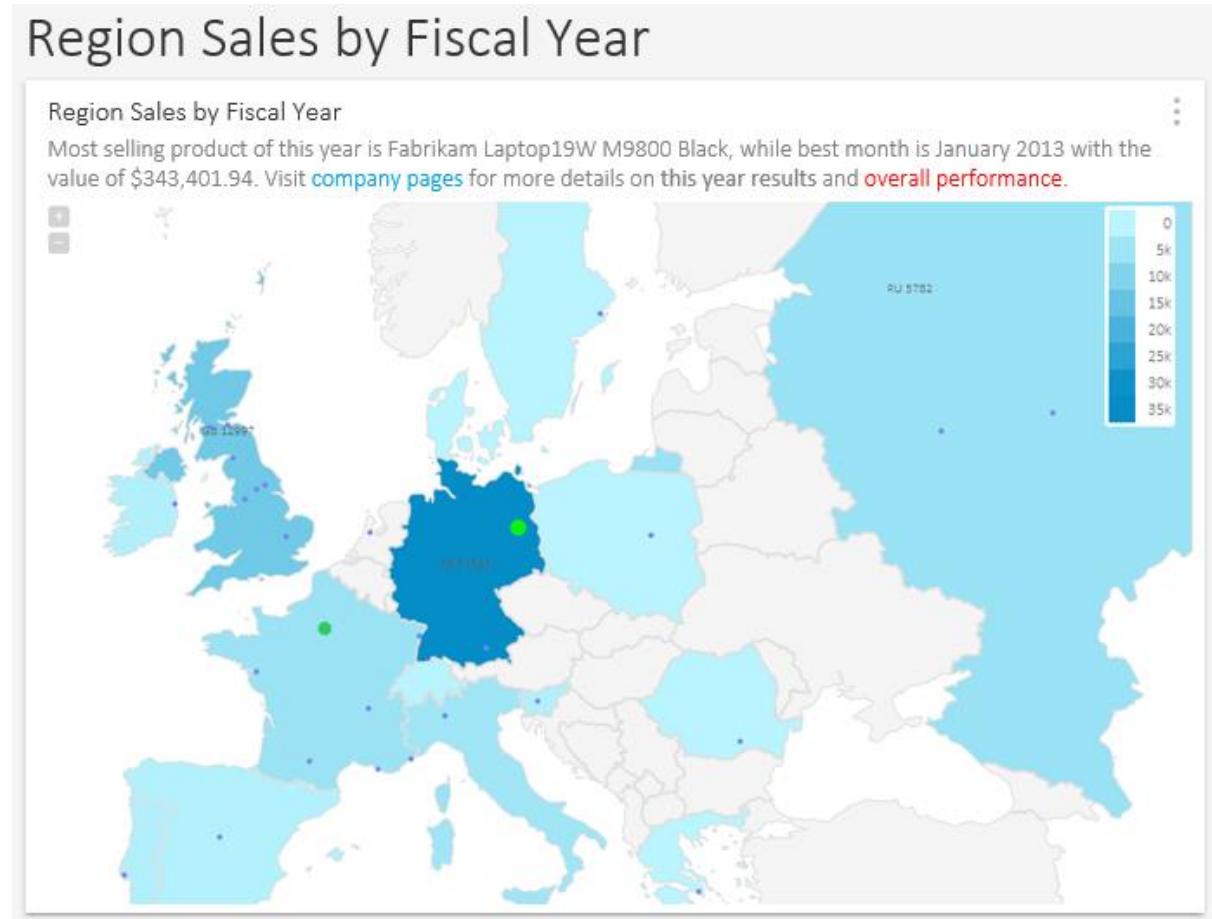
General Data Options

Name: Region Sales by Fiscal Year

Description: Most selling product of this year is {{A12237}}, while best month is {{A15}} with the value of {{A15#}}. Visit company pages for more details on this year results and overall performance.

{}

Rendered dashboard chart with HTML in the description text ...



11. Exporting dashboard to a PDF file

A user can export complete dashboard or particular dashboard chart to the PDF file at any time. PDF export features include **Simple** and **Detailed** dashboard export and additional options for end-user to select PDF document settings.

Simple export ...

The screenshot shows the Kyubit Business Intelligence dashboard titled "Internet Sales Overview - Q4". At the top right, there are several buttons: DESIGN, PDF (highlighted with a red arrow), SUBSCRIBE, CLOSE, and others. A modal window titled "PDF Report Preference" is open over the dashboard. It contains options for "Portrait" (PDF icon) and "Landscape" (PDF icon). Below these are "Margins" settings (Top: 20 px, Right: 30 px, Bottom: 20 px, Left: 40 px), "Font size" (9), and "Filters" (Show dropdown). An "Options" dropdown menu is set to "Simple Dashboard Export (PDF)". At the bottom of the modal, there are "PDF" and "CLOSE" buttons, with a red arrow pointing to the "PDF" button.

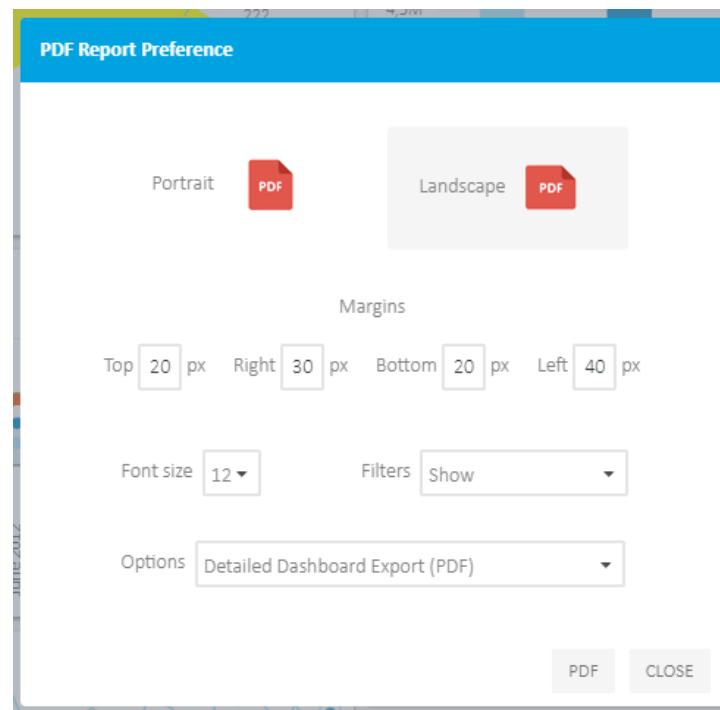
Simple export PDF file ...

The screenshot shows a generated PDF report titled "Report" and "Internet Sales Overview - Q4". The report was created on "25. siječanj 2019.". The content of the report includes the following sections:

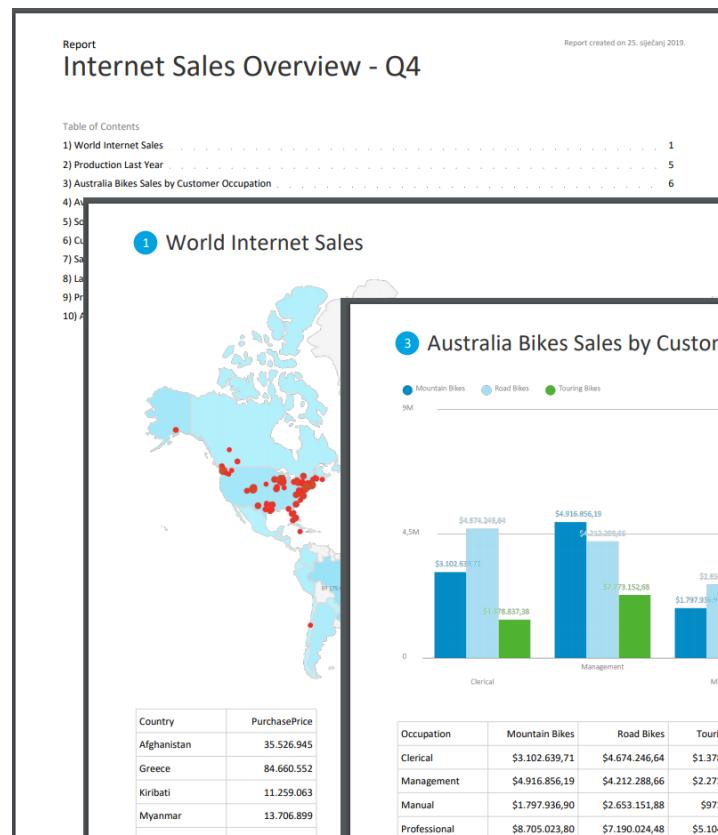
- US - Internet Sales:** A world map showing sales distribution with various colored dots representing different regions.
- Production Last Year:** A callout showing "Production Last Year" with a value of "\$1.108,84" and a green upward arrow.
- Average Operative Costs:** A gauge chart showing a value of "\$158,94".
- Australia Bikes Sales by Customer Occupation:** A bar chart comparing sales across four customer occupations: Clerical, Management, Professional, and Executive.
- Some Bike Sales:** A line chart showing bike sales over time for four categories: Clerical, Management, Professional, and Executive.
- Sales by Month:** A line chart showing monthly sales for the same four categories.
- Last Months - Bikes sales:** A callout showing "Last Months - Bikes sales" with a value of "\$76.117,18" and a red downward arrow.
- Australia - Education by Occupation:** A donut chart showing the distribution of education levels across four categories.
- Current Performance:** A section displaying various KPIs with their current values, targets, and trends. Examples include "Average Operative Costs" (\$158,94), "Product Models Portfolio" (110), "Production Last Year" (1.108,84), "Sales Overall" (76.117,18), and "Retailer Performance" (\$102,81).

A ‘**Simple**’ dashboard export, creates PDF file that contains all the charts on the single page. If dashboard contains ‘Table’ charts, those are rendered on the subsequent pages, because it is not possible to render many rows and columns on the single page.

A ‘**Detailed**’ dashboard export created PDF file that contains each dashboard chart on a separate page. First page is dashboard title and index of dashboard charts. User can opt to export charts with values, in which case below every chart there will be table of chart values used to render visualization.



Rendered ‘Detailed’ PDF export of the dashboard ...



11.1. Include Company Logo image in the exported PDF

Set your company logo image to be visible in the exported dashboard PDF header. This option is available to Kyubit instances with registered ‘Company Edition’ license or ‘Enterprise Edition’ license.



To setup company logo image, navigate to C:\Program Files\Kyubit\BusinessIntelligence\WhiteLabel folder and replace CompanyLogo.png with the image of your preference. Make sure the image is of the same size 400px x 200px.

Note: Even if the image is located in the WhiteLabel folder, this feature is not directly related to “White Label” feature of Kyubit BI application that allows to customize logo on the complete Kyubit application.

12. Folders and dashboards access permissions

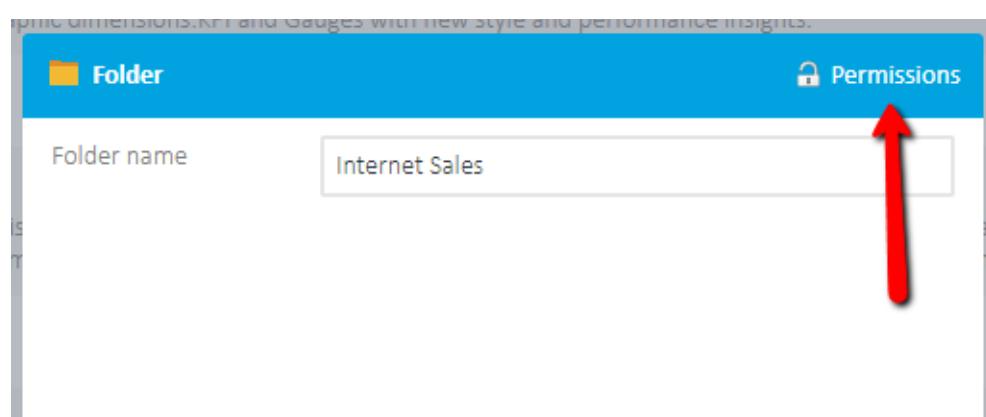
To group more dashboards into a logical group that shares same user permissions, **folders** could be created to contain any number of dashboards. When created, dashboard by default is located in 'My Dashboards' folder, visible only to the dashboard creator. At any time, user can share the dashboard with other users by moving dashboard to folder that is shared with other users.

The screenshot shows the Kyubit Business Intelligence dashboard interface. On the left, there's a sidebar with links for Home, Analyses, Dashboards, Recently Used, My Dashboards, 4.1 Preliminary, Administration, Audit, Financial, Internet Sales (which is selected and has an 'EDIT' button), Kyubit, Presentation, Production, Release 3.7, and Sales. The main area is titled 'Dashboards Recently Used' and lists several dashboards with their titles and brief descriptions. A red arrow points to the 'EDIT' button next to the 'Internet Sales' item in the sidebar.

To create a new folder, click on the button 'Create New Folder', fill-in the folder title and click save. New folder will appear in the list of folders. New folder is by default visible only to the folder creator and administrators. To give other people access to the folder, open the same folder (Edit option) and select 'Permissions' in the upper-right corner.

12.1. Setting object permissions

To set permissions for any Kyubit Business Intelligence object, click on the 'Permissions' option in the upper-right corner of the form and edit object permission.

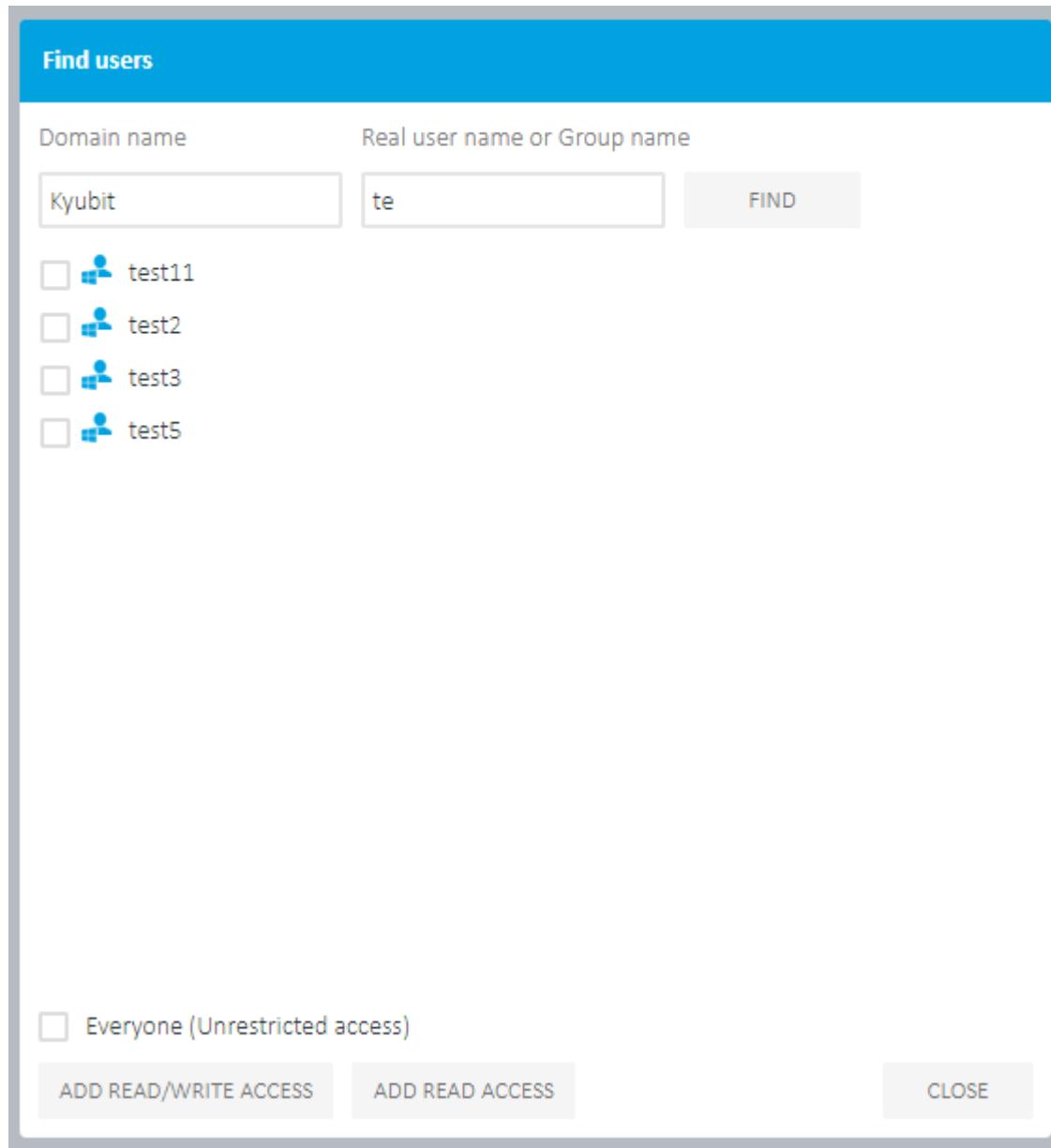


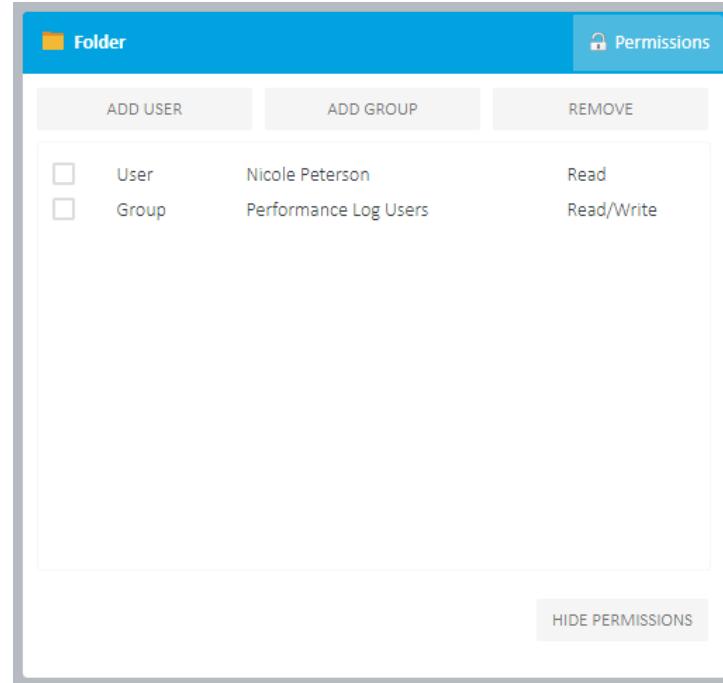
Search for Active Directory/Windows/Kyubit users and groups to set the appropriate permissions. (depending on which authentication is configured for Kyubit application)

Read/Write permission gives full rights to the user on the folder and all dashboards within that folder.

Read permission gives the right to see the folder and open all dashboards within that folder. No changes are allowed.

By setting permissions to 'Everyone' (unrestricted) gives (Read or Read/Write) permission to any user that is trying to access the folder and all dashboards within that folder.





13. Subscriptions

An Important aspect of Kyubit Business Intelligence dashboards usage is to deliver dashboards to the users using email subscriptions which contain dashboard data in the form of HTML with embedded dashboard images or attached PDF document with dashboard details. Every user of the Kyubit Business Intelligence with at least ‘Read’ permission has privileges to make a subscription on a dashboard and receive the dashboard on the email within scheduled time of delivery. To create subscriptions, a user needs to update his ‘email address’ and ‘credentials’ in the user settings form (upper left icon in the ‘Home’ page).

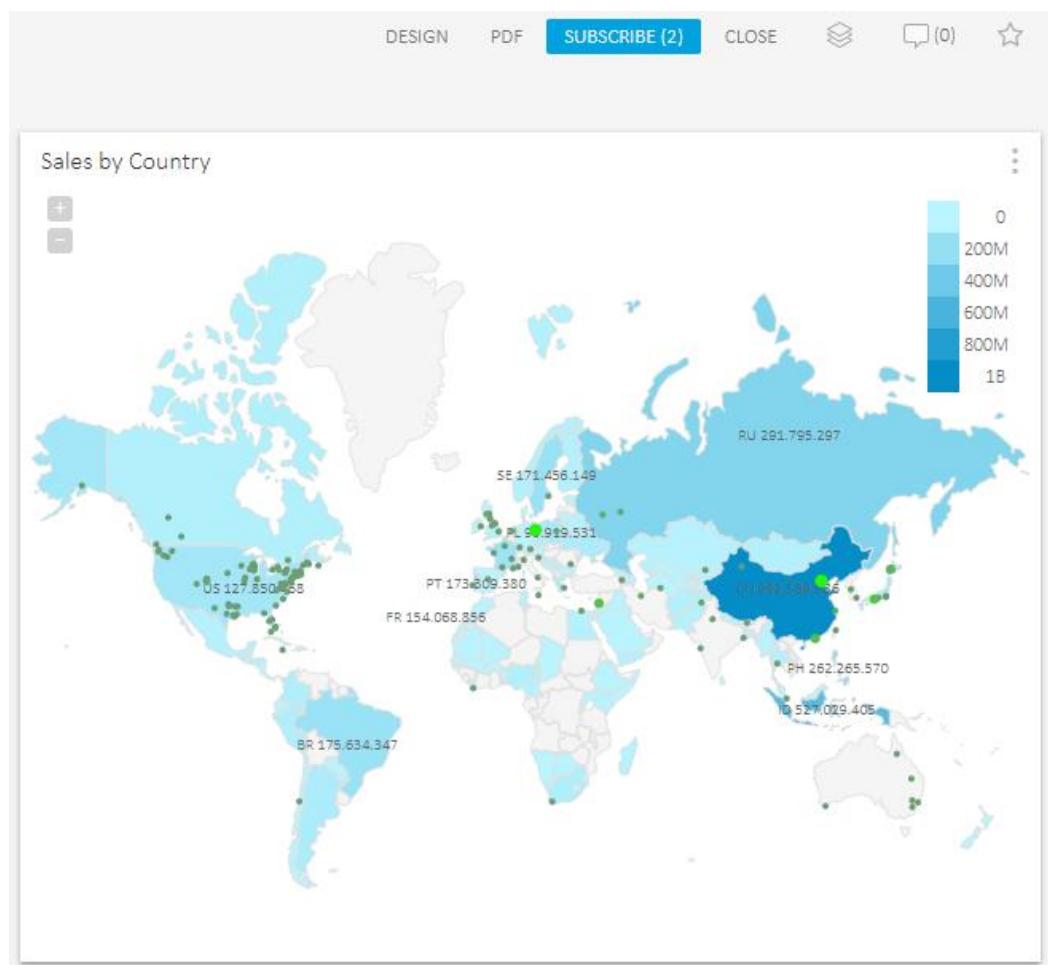
13.1. My subscriptions

Every user can see all his own subscriptions (Analysis and Dashboards) in the Kyubit Business Intelligence application -> Dashboards section, where all his subscriptions could be managed.

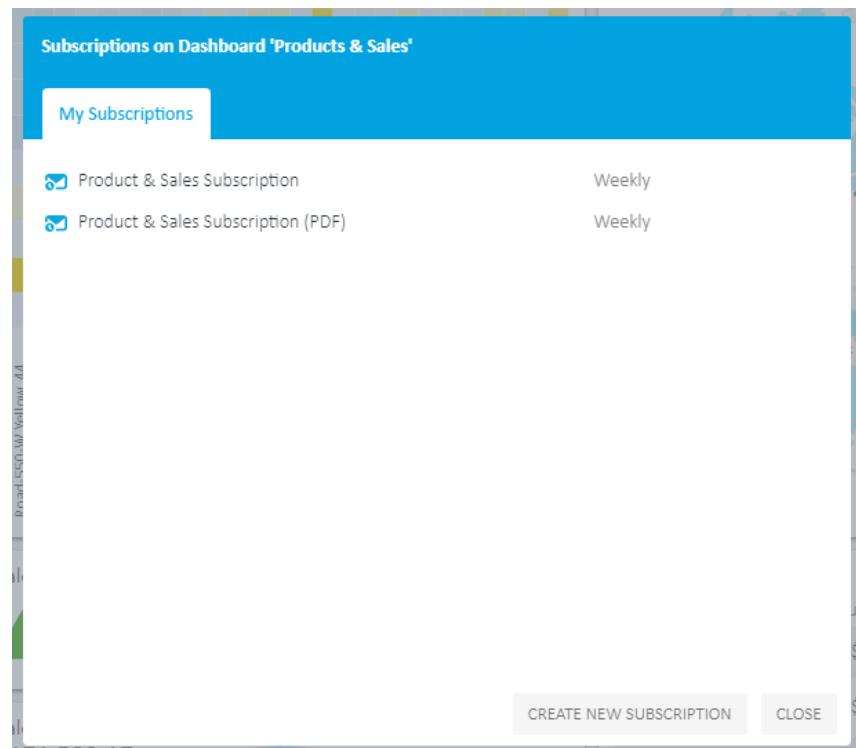
Title	Occurrence	Time
Education	Weekly	09:30
Free Position	Weekly	17:00
Internet Sales	Weekly	09:55
Internet Sales (2)	Weekly	10:00
kpis with slicer	Weekly	11:55
kpis with slicer (2)	Weekly	12:00
Product & Sales Subscription	Weekly	12:40
Product & Sales Subscription (PDF)	Weekly	12:40

13.2. Subscriptions within the dashboard

When a user opens certain dashboard, he can immediately see if he already has some subscriptions created on the same dashboard.



By clicking on “Subscribe” link, form with existing subscriptions of the current user will be displayed with the option to create a new subscription, edit or delete existing.



13.3. Subscription details

There are several subscription settings that could impact the way users are receiving subscriptions.

The screenshot shows the 'Subscription' dialog box with the 'Details' tab selected. The form fields include:

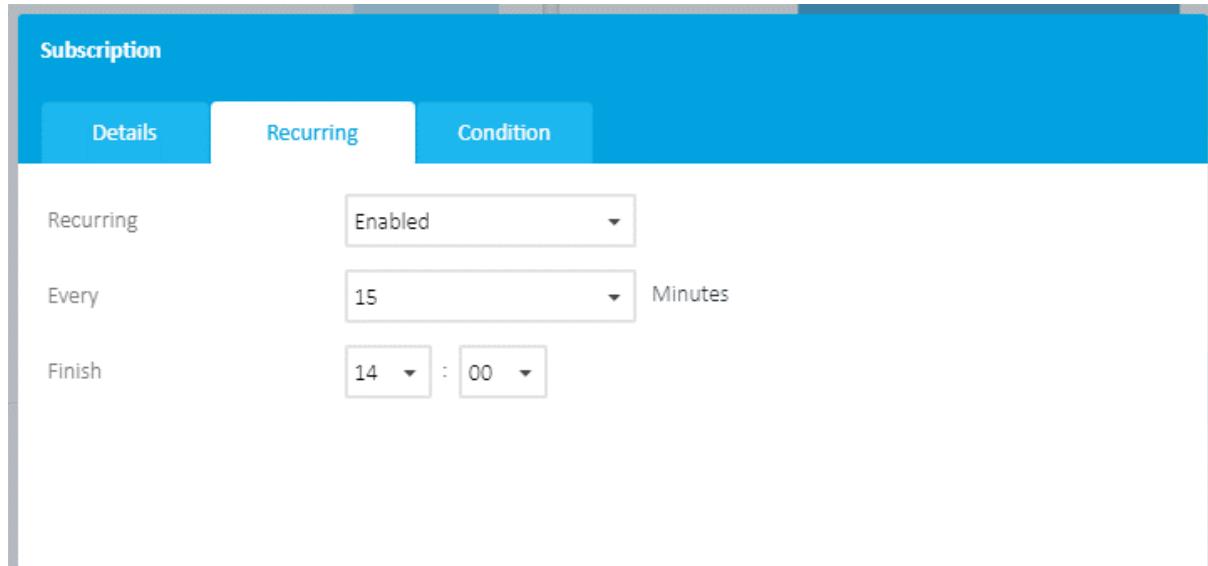
- Title:** Product & Sales Subscription (PDF)
- Item:** Dashboard (selected) and Products & Sales (dropdown menu)
- Occurs:** Weekly (dropdown menu)
- On these days:** Thursday is checked, while Monday, Tuesday, Wednesday, Friday, Saturday, and Sunday are unchecked.
- At this time:** Set to 12:40 UTC+01:00 Sarajevo, Skopje, Warsaw, Zagreb.
- CC Recipients (Optional):** An empty text area.
- Include:** PDF Attachment (dropdown menu).
- PDF Report Preference:** Orientation is set to Landscape, with margins Top: 20, Right: 30, Bottom: 20, Left: 40.
- Font size:** 9.
- Filters:** Show.
- Options:** Detailed Dashboard Export with all values (PDF).
- Disabled:** A checkbox is unchecked.

At the bottom right are buttons for **SAVE**, **DELETE**, and **CLOSE**.

- **Subscription title** sets the name that will appear when delivering the dashboard/analysis inside the email message.
- **Subscription item** selects Kyubit Business Intelligence content (Analysis or Dashboard) to deliver within the subscription. The user can subscribe to all content with at least 'Read' permission.
- **Occurs**, defines the scheduled time to deliver the subscription. There are three different time scheduling categories:
 - **Weekly**, set the weekdays to deliver the subscription
 - **Monthly**, set the month days to deliver the subscription
 - **Once**, set a single day to deliver the subscription
- **Time** sets the time within a day to deliver the subscription
- **CC Recipients**, an optional list of email addresses to deliver the subscription (separated by semicolon)
- **Include**, type of delivered content
 - **Only link** to Kyubit Business Intelligence dashboard
 - **Link + embedded dashboard image** (user immediately sees dashboard image when opens email message)
 - **Link + PDF dashboard document (Simple)**
 - **Link + PDF dashboard document (Detailed)**
- **Disable** - All subscriptions marked as 'disabled' will not be delivered at the scheduled time.

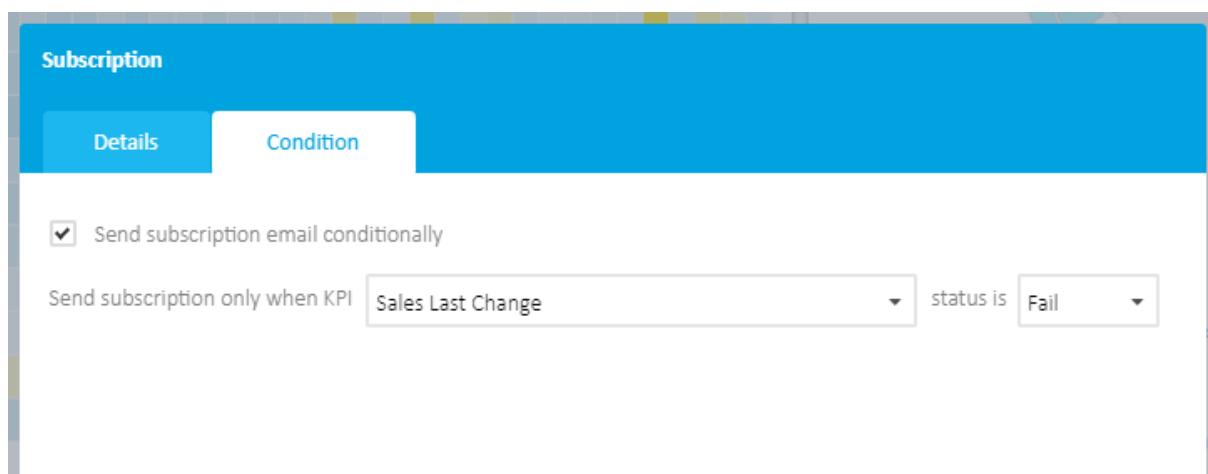
13.4. Recurring subscriptions

To create a single subscription that would send multiple subscription emails during the same day, it is not necessary to create multiple subscriptions, but a single subscription that has enabled recurring options. To set recurring subscription execution, set ‘Recurring’ to enabled on the ‘Recurring’ tab, email frequency in minutes and ending time of the subscription recurring execution.



13.5. Send subscriptions conditionally

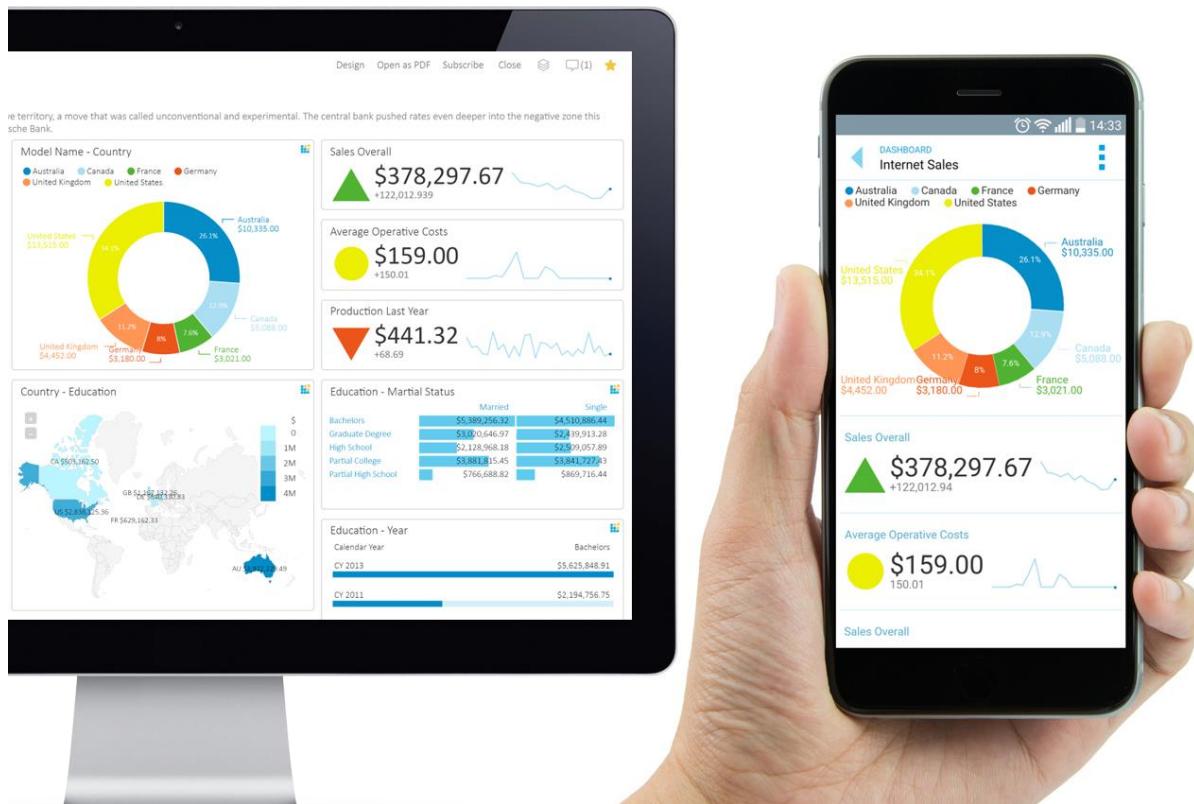
Dashboard subscriptions have ability to be sent conditionally, depending on the one of the containing KPI status.



If the dashboard contains at least one KPI, it could be used to set the condition to send the subscription. For example, if some Key performance indicator is in the ‘Fail’ status, subscription could be sent to alarm and inform appropriate users.

14. Mobile Dashboards View

All dashboards and the dashboard folders created within 'Kyubit Business Intelligence' web application are available to be used from mobile devices. A user is authorized to see exact same dashboard objects and data as within 'Desktop view' of the Kyubit application. Kyubit BI can be used internally to access data from mobile devices on the local intranet and wireless connection or Kyubit application can be exposed externally on the web and users can reach their business data, visualizations and analytics from anywhere. Prepared dashboards based on the SQL and OLAP data can be accessed using mobile devices and mobile user interface to visualize and analyze data in the real-time. Mobile BI with Kyubit software is accessible using modern web technologies (HTML5, CSS3) and mobile web browsers.



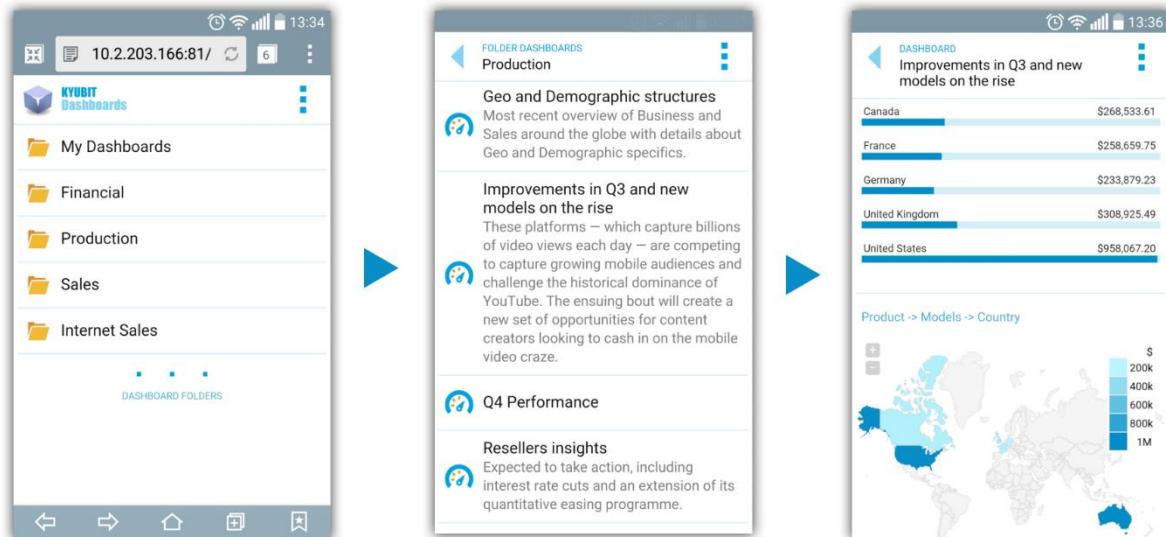
14.1. Connect Mobile Device to Kyubit Business Intelligence

To connect to Kyubit Business Intelligence and display created dashboards, simply open the web browser on your mobile device and type URL of your Kyubit BI web application. If your Kyubit web application is exposed on the internet, enter URL of the Kyubit app public web address and add '/Mobile/Index.html'

(For example, <http://yourkyubitaddress/mobile/index.html>)

To access Kyubit BI on the local intranet:

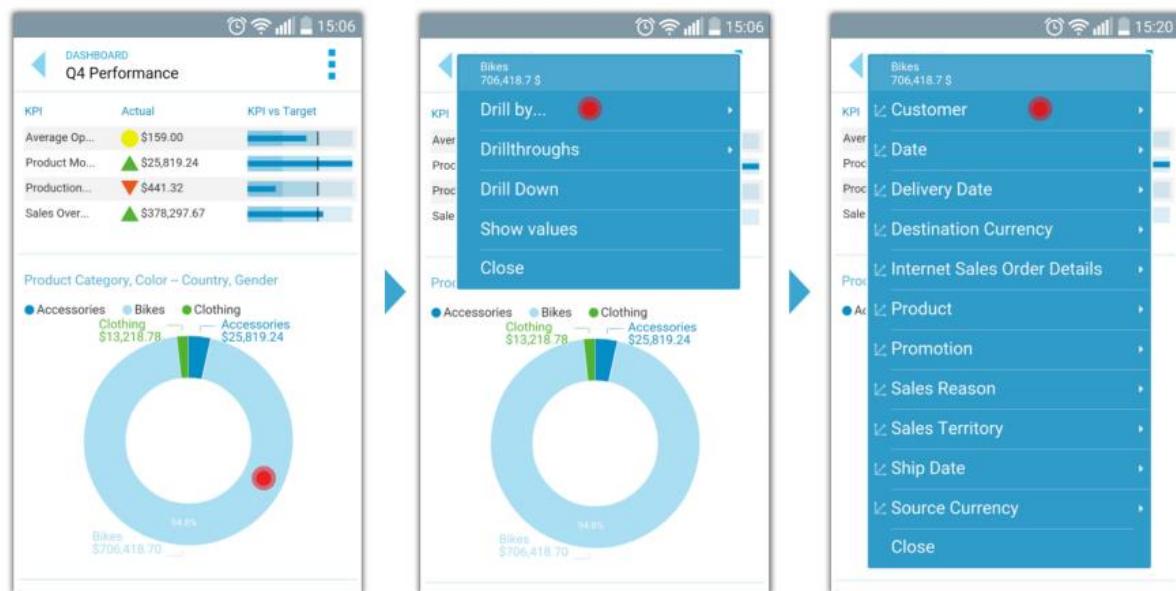
- 1) Find your server IP address. (Command prompt -> IPCONFIG)
- 2) Type URL to the mobile device browser together with the port number and /Mobile/Index.html (For example, <http://10.2.203.166:81/Mobile/Index.html>)
- 3) The first time you will need to enter your Windows/Kyubit credentials to access the application.

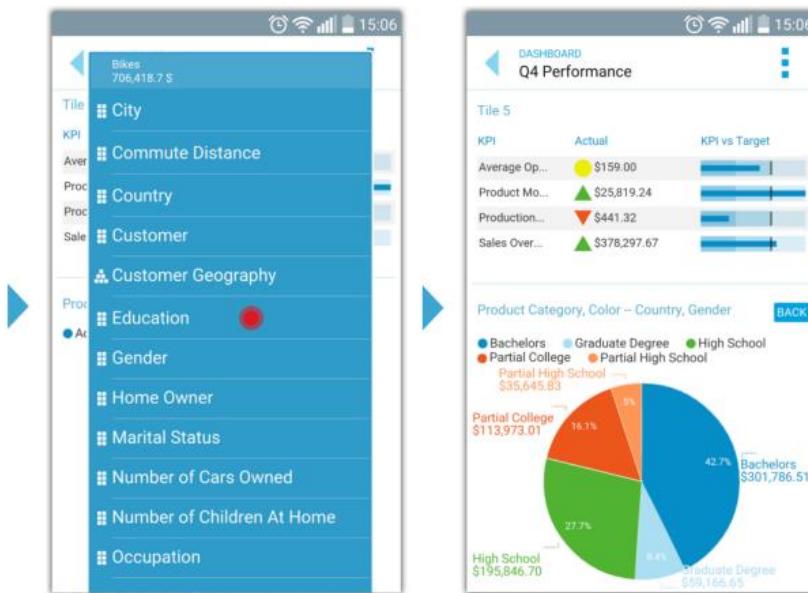


12.2. OLAP Analysis on Mobile Dashboards

Perform OLAP analysis **Drill-Down** and **Drill-through** actions to find more in-depth details of your data with the touch of your fingers from Dashboards Mobile view. Select OLAP dimension level to Drill the current data with multiple Drill-Down steps or get back to the previous state of analysis. Select predefined Drill-through actions that will return row details of the current OLAP visualization.

- 1) Open the Dashboard with charts based on the OLAP data
- 2) Touch the chart segment you would like to explore to discover new details (Drill).
- 3) Select OLAP action: Drill-by, Drill-Down or Drill-Through.
- 4) Select the OLAP dimension to drill.
- 5) Select OLAP dimension hierarchy - level to drill
- 6) The chart on the dashboards mobile view transforms to display drill-down dimension level.
- 7) Repeat this step multiple times to reach analysis data of the interest.
- 8) Select 'Back' to return to previous states of the OLAP analysis





All dashboard visualizations available at the dashboard design time will be rendered on mobile devices with all custom display options defined while designing the dashboard. Visual options and data settings like, Color Theme Pallets, Value Labels, Average/Trendlines and others will behave the same way on mobile and desktop view of the dashboard. For each dashboard tile, the user can select chart visualization and the option to 'Show Values' to see pure values that are base for the chart visualization. OLAP data chart visualizations have the option to 'Drill-Through' data for specific chart segment to see all leaf-level data details that are related to the chart segment of the interest.



15. Multipage Reports

The ‘Multipage Report’ consist of more analyses and dashboards on the same report with tabs above the page to quickly switch from one analysis or dashboard to another. Multipage Report groups dashboards and analyses of common interest, so the users do not have to look for the related data on several different places on the portal. After you create Multipage Report, simply send the link to someone who will be able to see all related BI content without having to leave the page.

To create a Multipage report, follow these steps:

- 1) Click on a ‘New Multipage Report’ button
- 2) Select analyses and dashboards to appear on the Multipage report
- 3) Select order of appearance of Dashboards and Analyses
- 4) Set Name and the Description for Multipage Report and Save it.
- 5) Multipage Report is displayed in the Folder with Dashboards and could be shared with other users by moving to any shared folder.

Multi-Page Report

Name: Sales Performance Overview

Description:

Analyses **Dashboards**

- Australia - Education by Occupation
- Country - Education
- Country - Gender
- Date - Product Model Name
- Day of Month - Bikes
- Education - Martial Status
- Education - Year
- Employee - Reseller
- Geography expanded
- Home Owner -> Product Model Decomposition
- Home Owner -> Product Model Decomposition
- January Sales - United States
- Model Name - Country
- Month of the Year - Occupation

Refresh

Report Pages

- Financial Overview
- Geo and Demographic structures
- Education - Year
- January Sales - United States
- Model Name - Country

Select/Deselect All

Up Down

Save Close

Sample Multipage Report

INTERNET SALES BY PRODUCT Q3 AUSTRALIA - EDUCATION BY OCCUPATION HOME OWNER -> PRODUCT MODEL DECOMPOSITION 4.1 DECOMPOSITION

PDF SUBSCRIBE (0) ☆

Internet Sales by Product Q3

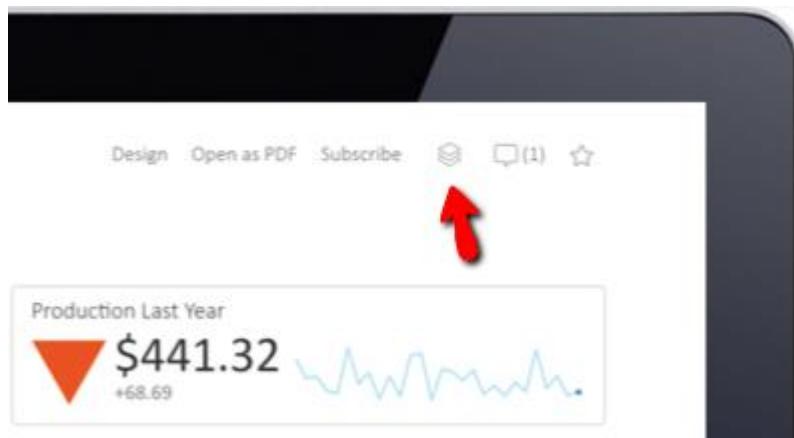
Country - Education

Month of the Year - Occupation

Country - Gender

16. Dashboard Data Slideshow

Click the 'Slideshow' button that will start the full-screen dashboard slideshow querying data sources and presenting visualizations and metrics in the real-time.

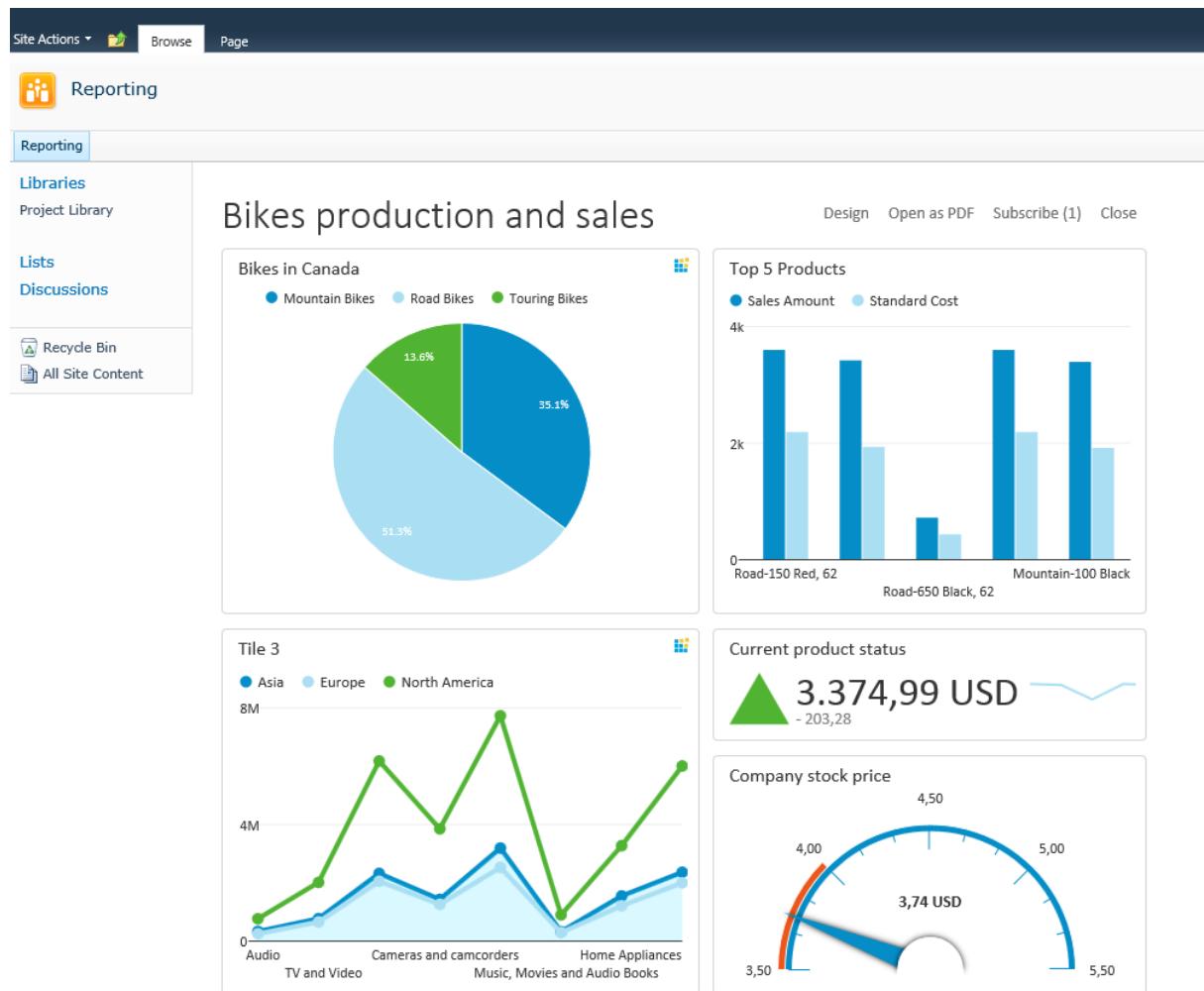


While designing Dashboard user set slides transition duration and caching options that could cache returned data and not query data sources for the same visualization for a defined time in minutes. All dashboard visualizations are transformed to full-screen mode during slideshow presentation, presenting only chart/metric data, dashboard tile title and description for the displayed visualization. Slideshow logic rotates all dashboard visualization one by one, repeating until slideshow page is closed.



17. Integrate dashboards with other web applications and sites

The dashboard created within the Kyubit Business Intelligence application could be easily embedded/included in any HTML page using IFRAME element, allowing number of configuration options to customize dashboard appearance to best fit visually into existing HTML page.



Simple example of embedded dashboard using IFRAME element:

```
<iframe id="dashFrame" src="http://KyubitBI/Forms/Dashboard.aspx?DashboardID=3" width="800px" height="1000px" frameborder="0" scrolling="no"></iframe>
```

Add IFRAME element and set SRC attribute to URL of the dashboard from the Kyubit Business Intelligence application (Same URL if opened from Kyubit Business Intelligence application).

Additional URL attributes to customize dashboard appearance:

- **Align**, alignment of the dashboard within IFRAME element
- **Font**, dashboard fonts
- **FontColor**, dashboard font color
- **TileFontSize**, dashboard title size
- **HideDesignButton**, hides 'Design' button
- **HideCloseButton**, hides 'Close' button

- **HideOpenPDFbutton**, hides 'Open PDF' button
- **HideSubscribeButton**, hides 'Subscribe' button

Example with all attributes:

```
<iframe id="dashFrame"
src="http://KyubitBI/Forms/Dashboard.aspx?DashboardID=3&align=right&font=helvetica&fontColor=red&tileFontSize=11px&hideDesignButton=1&hideCloseButton=1&hideOpenPDFbutton=1&hideSubscribeButton=1"
width="800px" height="1000px" frameborder="0" scrolling="no"></iframe>
```