



IBM Cognos Analytics - Getting Started with Dashboards

Duration: 2 Hours (estimated)

Instruction Update:

This demo has been updated to use IBM Cognos Analytics on the Cloud version 11.2.

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Explore the key capabilities of IBM Cognos Analytics Dashboards: Data Discovery, Visualizations & Exploration

IBM Cognos Analytics provides users with data discovery capabilities to visually explore and interact with their data to identify the key insights for improving data driven decisions. Users can perform data discovery and then quickly assemble that information which is most relevant to them into interactive, visually appealing dashboards, all without the need for IT assistance or formal training and without leaving a single User Interface.

In this tutorial, you will explore the following key capabilities:

- Cognos Analytics User Interface
- Uploading Personal Data Sources
- Dashboard Assembly
- Create a New Dashboard from an existing Asset
- Explore Your Data for New Insights
- Work with the Cognos Analytics Assistant

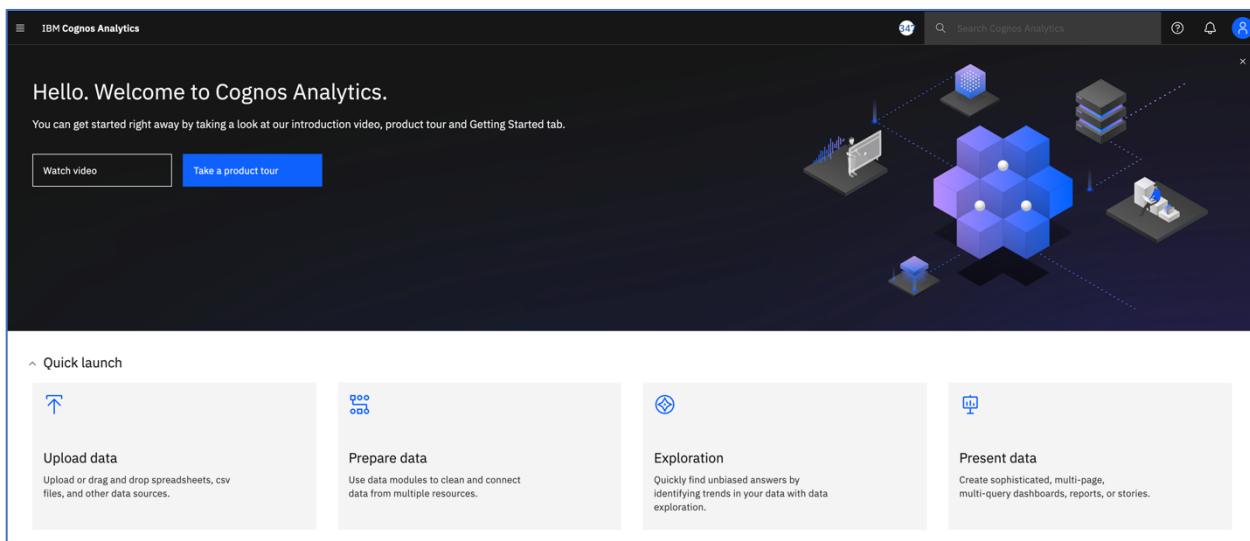


Step 1. Start Cognos Analytics for your Tutorial

From your desktop, open **Chrome** (this is the preferred browser, however, you can also use: Firefox, or Safari).

Navigate to the Cognos Analytics launch page: <https://www.ibm.com/products/cognos-analytics>

Enter your **IBM ID sign-in credentials** to launch IBM Cognos Analytics. You will land on the welcome page.

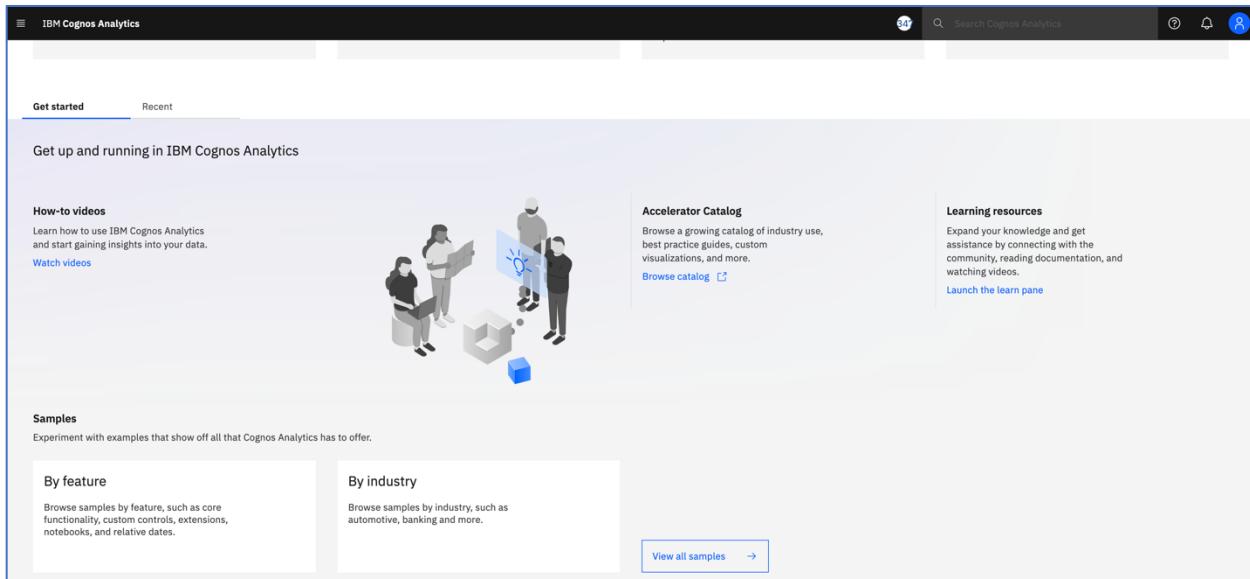


Hello. Welcome to Cognos Analytics.
You can get started right away by taking a look at our introduction video, product tour and Getting Started tab.

Watch video Take a product tour

Quick launch

- Upload data
- Prepare data
- Exploration
- Present data



Get started Recent

Get up and running in IBM Cognos Analytics

How-to videos

Learn how to use IBM Cognos Analytics and start gaining insights into your data.

Watch videos

Samples

Experiment with examples that show off all that Cognos Analytics has to offer.

By feature

Browse samples by feature, such as core functionality, custom controls, extensions, notebooks, and relative dates.

By industry

Browse samples by industry, such as automotive, banking and more.

View all samples →

Accelerator Catalog

Browse a growing catalog of industry use, best practice guides, custom visualizations, and more.

Browse catalog

Learning resources

Expand your knowledge and get assistance by connecting with the community, reading documentation, and watching videos.

Launch the learn pane



Part 1. Business use Case for this workshop

For the purposes of this Workshop, you will be playing the role of a retail marketer.

You have just received the following email from one of the Product Managers asking for assistance:

Steve,

Sales for one of our product lines, smart electronics, is quite flat, yet we know smart electronics and home automation is a very popular emerging market.

In looking at the average sale price, we believe unit prices are out of sync with the market. We've been running coupon programs and customer loyalty programs, but not sure this is having much of an impact.

Can you please investigate this further with the following file provided?

Thanks,

Julie

Using the dashboarding capabilities in Cognos Analytics will help you understand what's happening in your business.

You'll begin by uploading this file and building a Cognos Analytics dashboard to analyze department sales. Using a dashboard template, you'll quickly assemble content for your analysis.

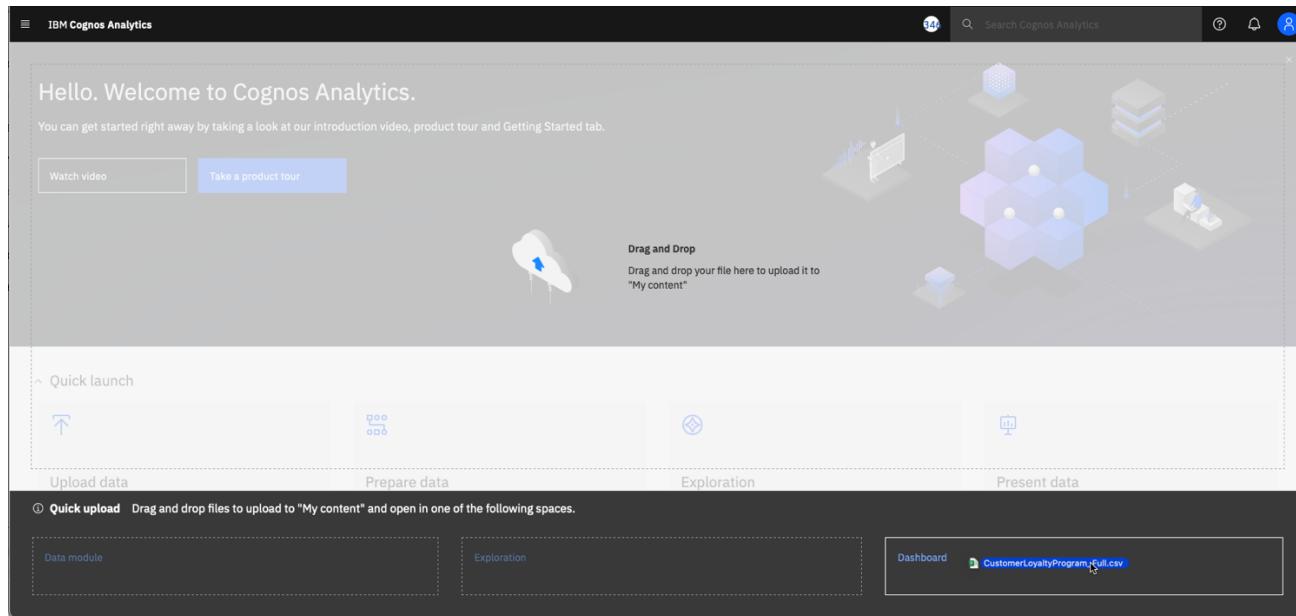
Once your content is assembled, you will move on to formatting each of your widgets to polish it up and really make it shine so you can share your findings with others in your organization.

Part 2. Uploading External Data Files

The ability for business users to leverage their personal/external data for discovery dramatically broadens the landscape of users who can make new data available for analysis. Users may upload an external data file and immediately begin self-service data discovery, ad hoc analysis and building dashboards.

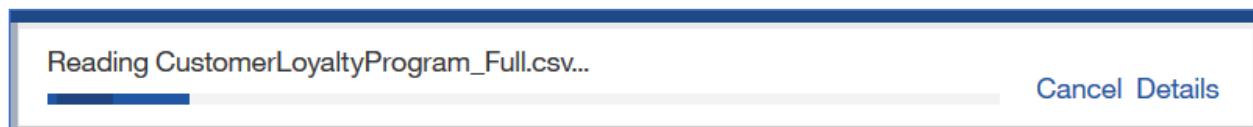
For this exercise, you will be using the file “***CustomerLoyaltyProgram_Full.csv***”. Depending on where you drop the file, certain Cognos Analytics functionality will be initiated.

For this workshop, drag the file over the canvas until the ***Quick Upload*** menu appears at the bottom of the screen. This panel will allow you to select your intent on how you wish to interact with the data you are uploading. Drop the file over the ***Dashboard*** option.



Using this method, Cognos Analytics will automatically upload the file to your folder and launch the Dashboard capabilities to begin working with your data.

As the file uploads, notice that under the Switcher Menu, a series of **status bars** will be visible as the upload process reads and analyzes the data being brought in.





Analyzing CustomerLoyaltyProgram_Full.csv

[Cancel](#) [Details](#)

Once it completes, the status bar will update to show the successful completion before closing.

CustomerLoyaltyProgram_Full.csv was uploaded successfully.

[Hide](#) [Details](#)

Since you selected to upload the data and launch a Dashboard, the [Create a Dashboard](#) interface will immediately open after the upload is complete. You're now ready to start to build out your first dashboard from this data.

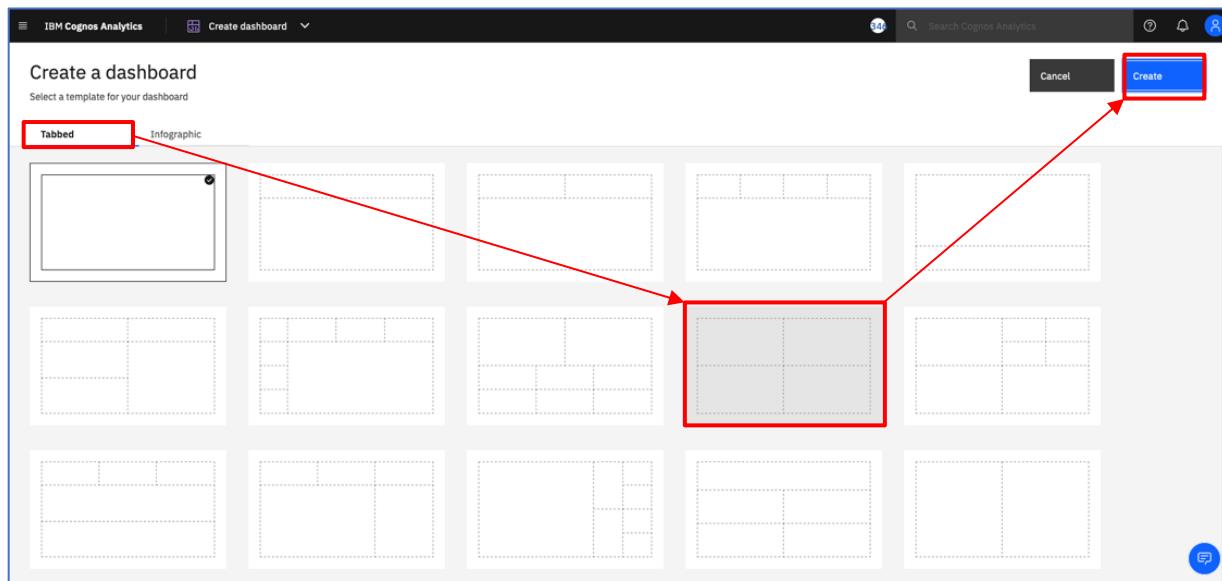
Part 3. Working with Templates

Dashboard templates provide many easy to use, predefined layout styles for to assist users in the layout of content. Templates contain one or more panels where users quickly assemble various content items, known as “widgets”, onto a dashboard.

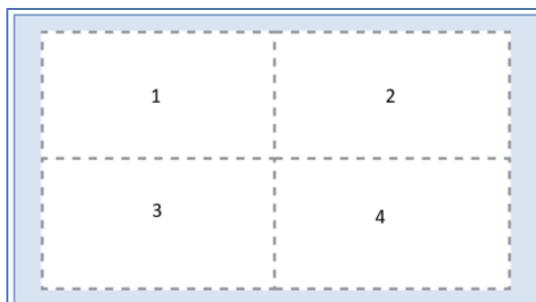
Dashboards provide a line of sight into your business allowing you to easily monitor KPIs and metrics at a glance. As a starting point, you would like to use the uploaded data file to analyze product performance. You’ll use a dashboard template to assist in the layout of the data.

The Template window will display allowing you to select the type of dashboard and the template style.

Select **Tabbed** - this will allow you to have multiple pages for your dashboards. Click to select the **four-panel template with 2x2 configuration** and then click the **Create** button.

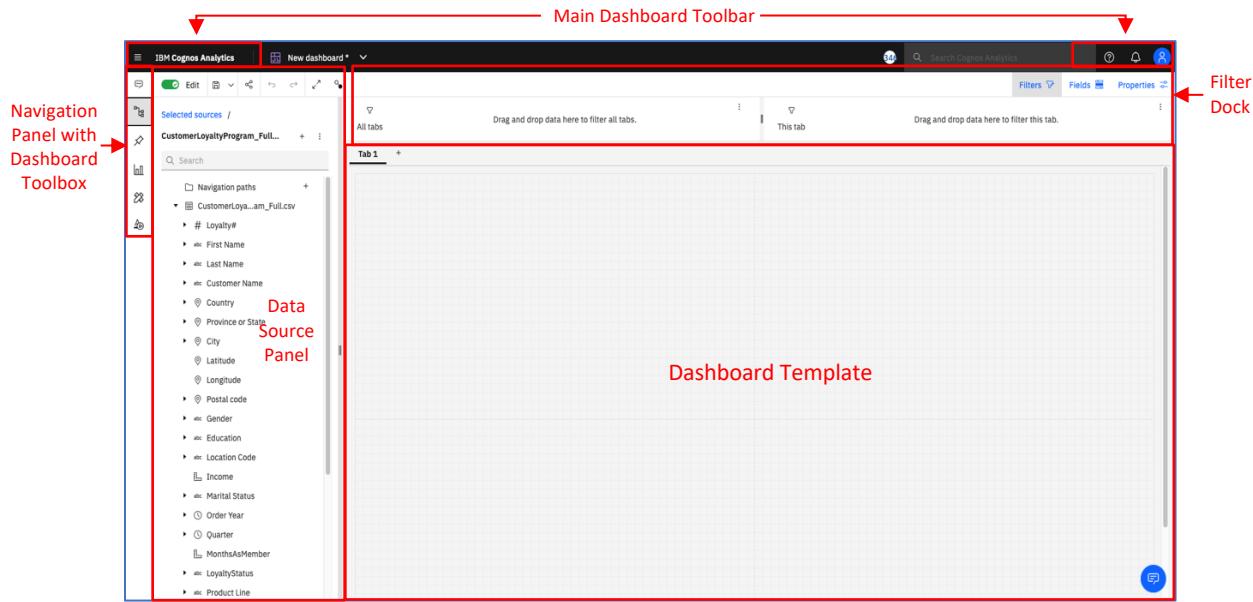


As you build the dashboard, the workshop will reference the location placement for **Widgets** in the dashboard template using the following **Panel** numbers



The dashboard template will open in the **Canvas** along with the data source opening in the left-hand navigation panel.

Notice that the **Navigation Panel** buttons on the upper-left have now updated to show the dashboard toolbox capabilities available for assembling a dashboard. The main toolbar has also updated exposing the dashboard editing functions available.



For ease of dashboard design, the default view presents a convenient grid to assist in dashboard layout. This grid, and other layout settings may be set by the User.

Click on the **dashboard template** to bring it into focus.

To open the dashboard template properties, click the **Properties** button located on the upper right-hand side of the **filter dock**.



The **Properties panel** opens. This is where you will define the **General** settings for your dashboard template.

Under **Canvas**, you can set many properties for working with the template including layout positioning, page sizing and using grids and snapping to assist with dashboard design and layout.

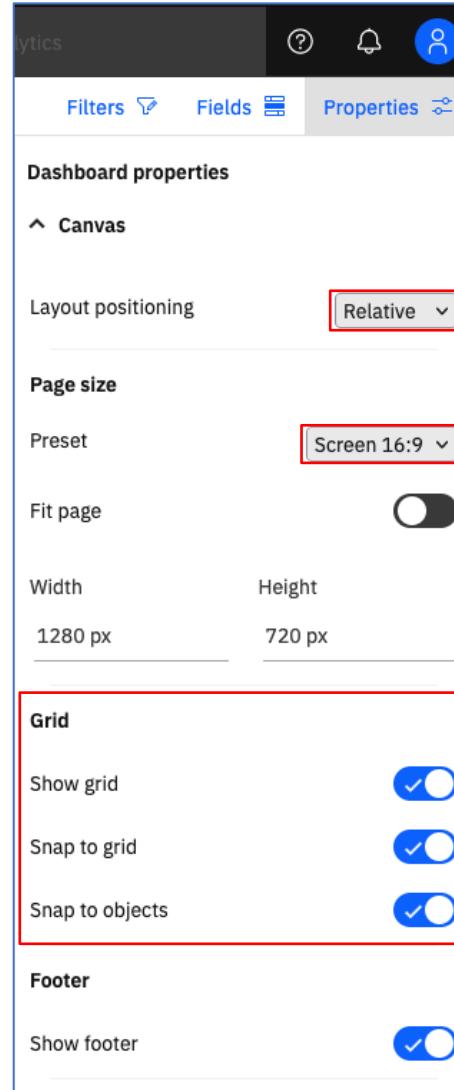
TECH TIP: The properties in the properties panel are grouped by categories such as **Canvas**, **Color and Theme**, **Tabs**, and **Advanced**. These groups are collapsible and expandable to improve organization and usability of the properties panel.

Canvas layout positioning - In the properties for a dashboard or story, you can set whether the layout positioning is relative or absolute. In a relative layout, the size and position of widgets adjust to fit into the screen. Widgets in an absolute layout appear exactly as you size and place them in the view, regardless of the screen size. For this exercise, the **layout positioning** should be set to **Relative**.

Page size - You can choose a pre-set page size for a dashboard such as letter or legal. You can also set the height and width of a dashboard. This feature gives you control of the display of your dashboard or story to accommodate the various devices with different screen sizes your users may use to consume this information. Leave the default **Preset** to **Screen 16:9**.

Show grid, snap to grid, and snap to objects
 - You can display a grid on the canvas that provides a guide for you to snap objects to as well as snap objects to other objects. You can enable and disable these features in the dashboard or story properties.

For this workshop, your template's **Properties settings** should appear as follows:



Click on the **Properties** icon to close the **Properties panel**.

Part 4. Working with Visualizations

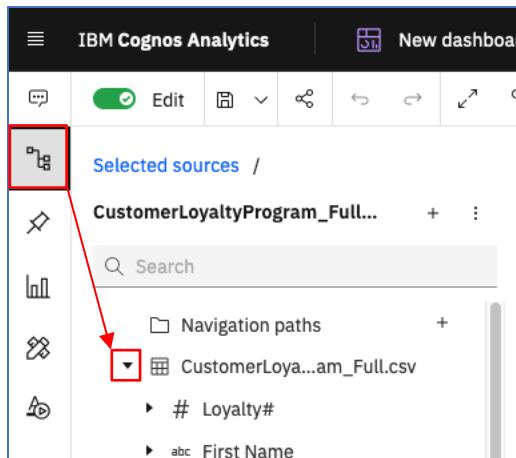
Dashboards provide users with a line of sight into their business that allows them to easily monitor KPIs and metrics.

With Cognos Analytics, users have flexibility to create and assemble very attractive and engaging dashboards with meaningful visualizations that are automatically generated with little authoring experience needed. Users can also easily create a customized look and feel, as well as, setup corporate color palette standards.

As a starting point, you would like to do some data discovery and assemble some key findings, so that you may easily monitor the pulse of performance from a dashboard. To do so, you will begin by creating items on the dashboard called **widgets**. Widgets may be a visualization, a list or crosstab, a single value, an image, a text box and so on.

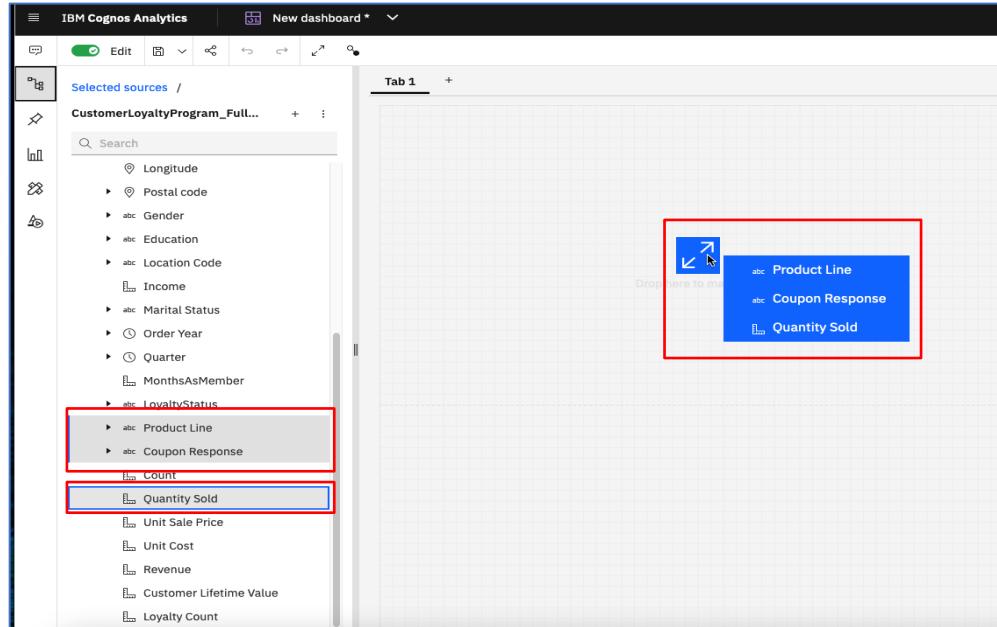
From the **Navigation panel**, select **Sources**  to open the data source panel, if it is not already open. The **Source** panel displays the “CustomerLoyaltyProgram_Full.csv”, the uploaded file, as the **Selected Source**.

Click on the **Expand arrow >**, if needed, to view the data items in the file. Scrolling through the data items, you will see all the columns from the uploaded file.



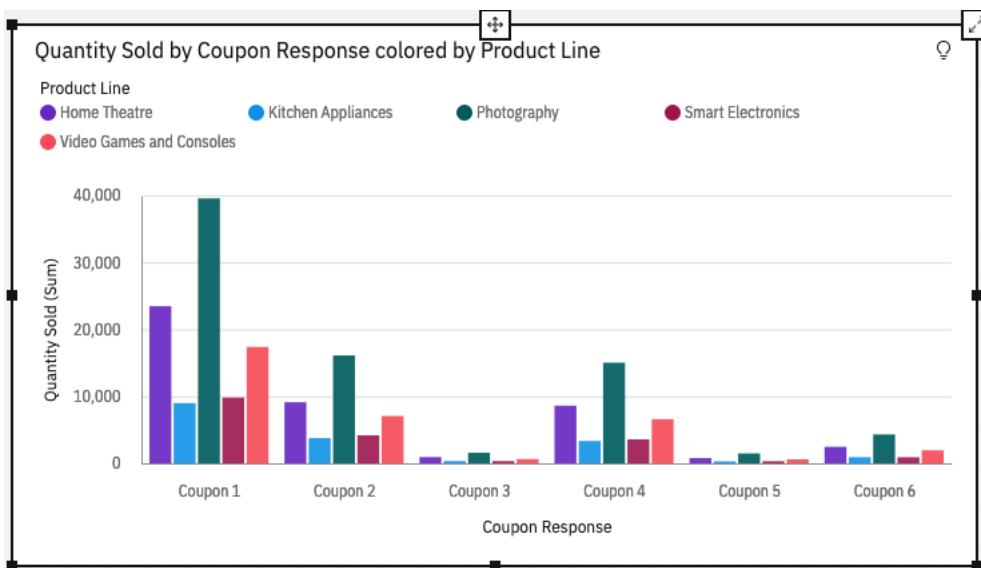
To begin, you would like to understand the performance of Coupon programs in place from Marketing for each of the Product Lines. You can begin by simply multi-selecting the data items and dropping them into a panel on the template. The smarts in Cognos Analytics identifies the data items and presents a recommended starting visualization to represent the data.

From the **Sources** panel, control-select the **Product Line**, **Coupon Response**, and **Quantity sold** and drag it to the center of **Panel 1**, releasing them once you see the **drop zone turn blue**.



TECH TIP: By dropping the data items on to the drop zone, the widget will automatically size to fill the entire panel. Users can modify the sizing, placement and layout at any time.

A visualization, similar to the following, will render.



From this visualization, you can immediately see that the highest level of quantity sold is under Coupon 1, and that Photography has the highest quantities sold across all Product Lines.

Before continuing, notice that an on-demand **widget toolbar** is displayed across the top of the dashboard by default when a visualization is selected.

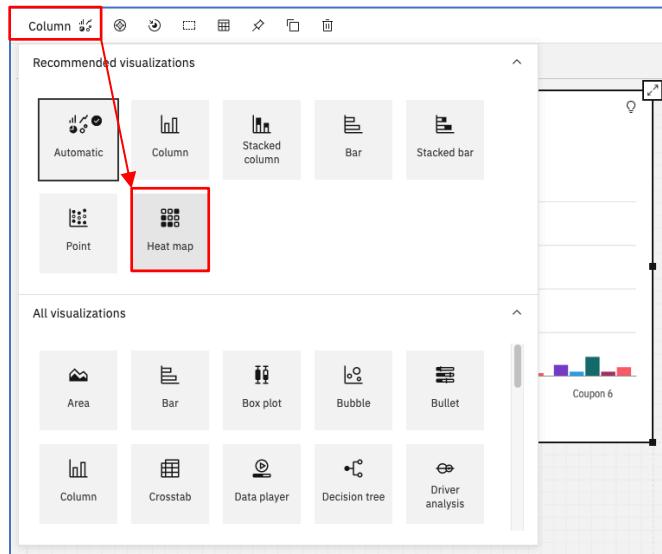


Users can easily select other visualization options from the Visualization library.

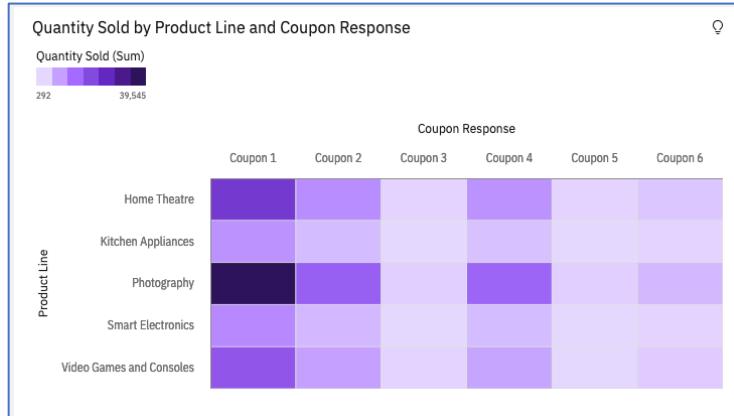
Click the **Change Visualization** icon on the on-demand toolbar to bring up the Visualization library.

You will be presented with the **Recommended visualizations** window that provides you suggested alternate styles to use. For our purposes, select **Heat map**.

If you wish to view additional visualization options, scroll through the “**All visualizations**” list to review the additional styles available.

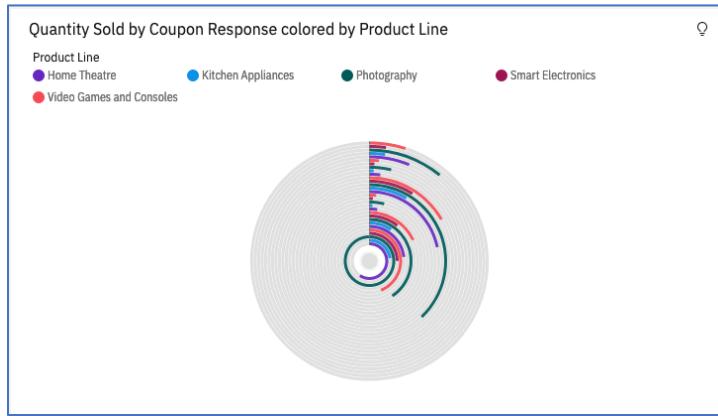


The visualization updates to a heatmap. Heatmaps use color intensity in a matrix which provides the viewer with an immediate visual summary of information.



Use the on-demand toolbar to **Change Visualization**. Expand “> All Visualizations” and scroll down to and select **Radial**.

The visualization updates to a Radial chart.



The new radial chart shows all data rendered in a single radial.

For your analysis, you would like to have each product line have its own radial visualization, therefore, you will customize the visualization to suit your analysis.

To apply further design to the visualization, click the expand icon in the upper right-hand corner of the visualization widget to display it to the full **Dashboard** canvas.

Then, initiate **Design Mode** by clicking the **Fields** button located on the upper right-hand side of the **filter dock**.



Once the Design Mode window opens, the data slots are displayed. The Data slots are used to set the definitions for how you wish the data items to be defined for visualization rendering.

You would like to see the **Coupon Promotions** on individual radial charts repeated for each of the **Product Lines**. To do so, you'll move the data items around into the data slots to define and render your desired visualization.

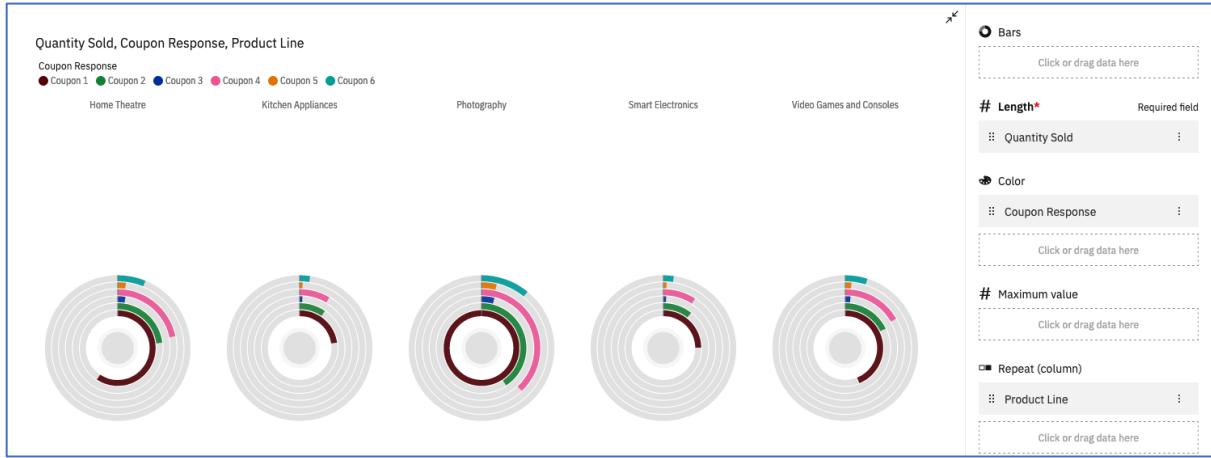
Drag and drop **Product Line** to the **Repeat (column)** area (look for the interactive blue highlighted zone during this action).

The screenshot shows the 'Fields' tab selected in the top navigation bar. The main area displays data slots for a 'Bars' visualization:

- Bars** section:
 - Coupon Response**: Click or drag data here.
 - Length***: Required field. Contains **Quantity Sold**.
 - Color** section:
 - Product Line**: Click or drag data here.
 - Maximum value**: Click or drag data here.
- Repeat (column)** section:
 - Product Line**: A blue box highlights this slot, indicating it is being dragged.
- Repeat (row)**: Click or drag data here.
- Local filters**: Click or drag data here.

Next, move the **Coupon Response** to the **Color** field.

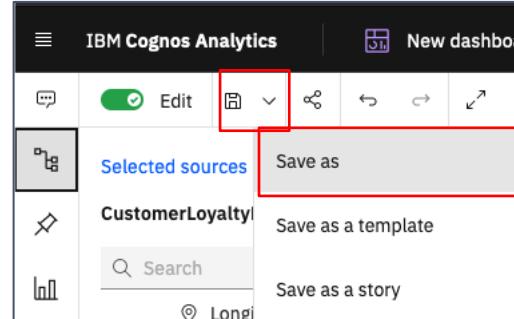
The visualization updates to show radial charts for each **Product Line**. Verify that your data slot definitions are populated with the same data items as shown in the image below.



*The individual radial charts make it easy to see the **Coupon Response** by **Product Line** departments. Of the five product lines, **Kitchen Appliances** and **Smart Electronics** appear to have the lowest coupon redemptions overall. Also, both have a significantly lower number of redemptions for Coupon programs 1 and 4.*

Collapse the visualization using the **Collapse** icon in the upper right-hand corner of the visualization widget. Also, click on the **Fields** button located on the upper right-hand side of the **filter dock** to close the properties.

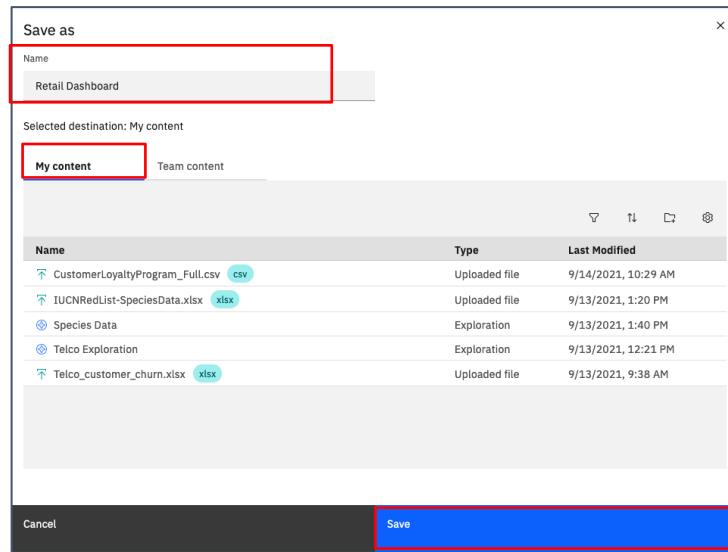
Click on the arrow next to the **Save** icon on the dashboard toolbar.
Click “**Save As**”.





Navigate to My Content. Save the dashboard as “**Retail Dashboard**”.

TECH TIP: As you make additional changes to the dashboard, an asterisk (*) will appear to the right of the dashboard name. This indicates there are unsaved changes in your dashboard.



Part 5. Assembling a Dashboard

Next, you'll continue to assemble content into the other three panels. You will assemble the dashboard by building visualizations that answer more of your questions regarding product line performance.

Continuing with your analysis, next, you would like to measure the performance of Product Line Pricing, Revenues and Quantities Sold.

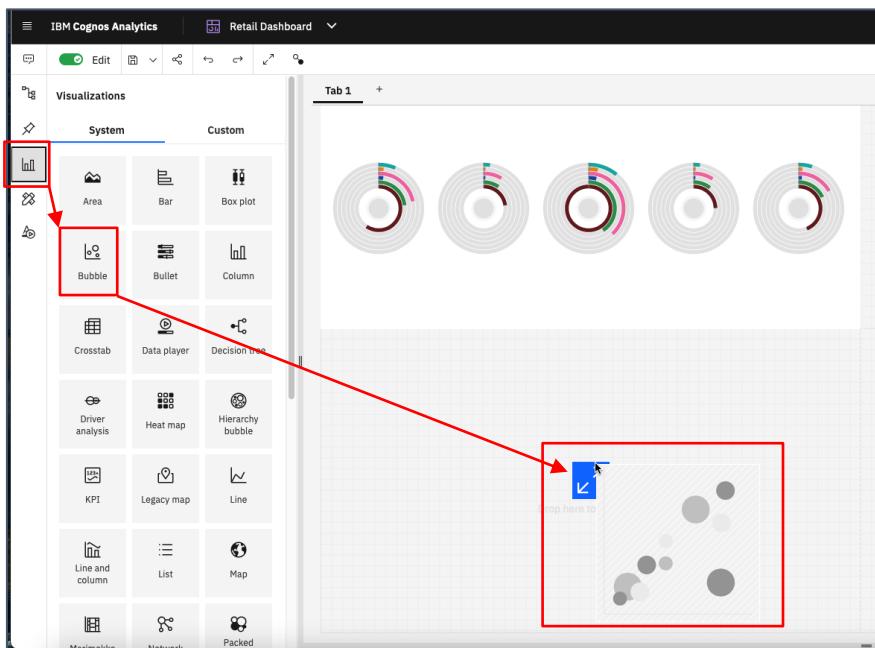
From the Navigation

Panel, select

Visualizations to open the Visualizations library.

Select the **Bubble** chart

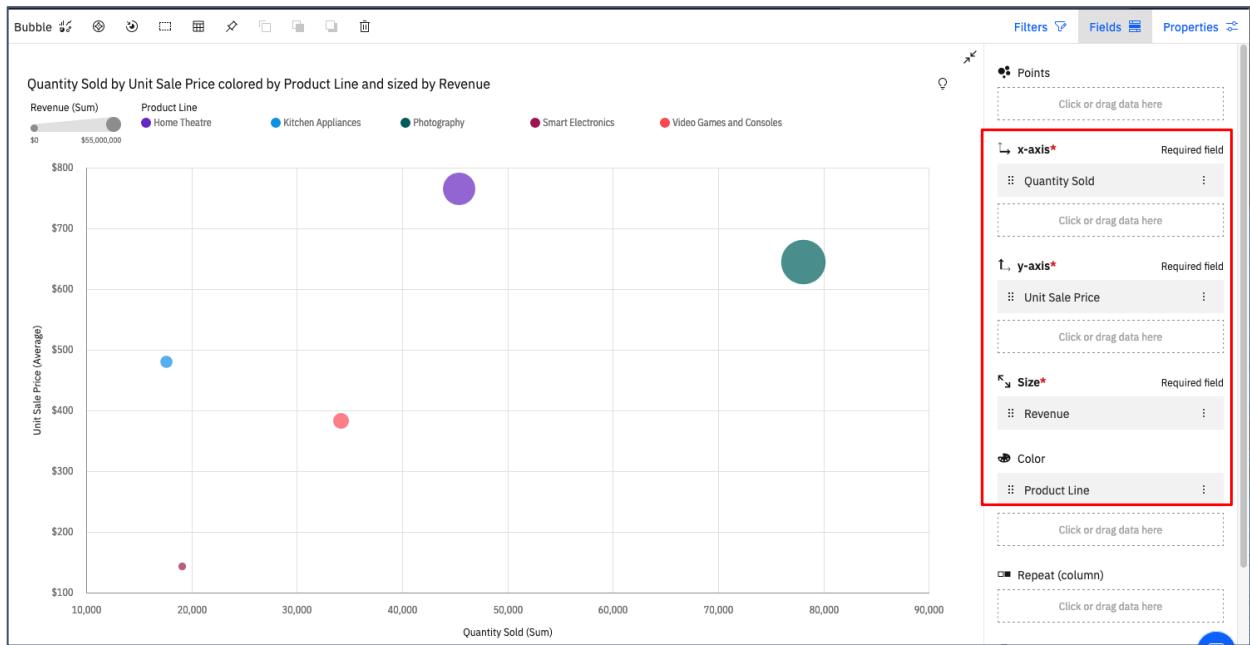
and drag it to **panel 3** (lower left panel) of the dashboard template, dropping it in the drop zone (similar to when we dropped our query items in Panel 1) so it will auto-fill to the size of the panel.



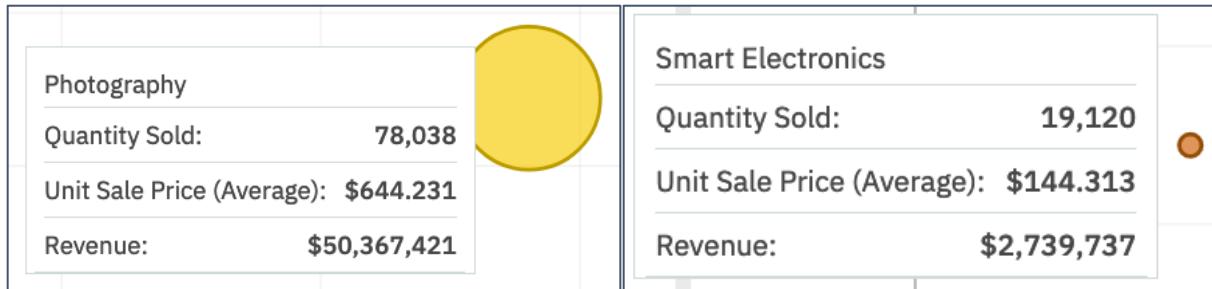
Since you started by selecting a visualization this time, rather than by selecting data, the bubble chart visualization will open in **Design Mode** for you to setup the data definitions for your visualization. From the **Data Source** panel on the right, and drag-and-drop data items into the **data slots** as follows:

- X-axis: **Quantity Sold**
- Y-axis: **Unit Sales Price**
- Size: **Revenue**
- Color: **Product Line**

Click the expand icon to get a better look at the bubble chart visualization. You can easily see how the product lines are performing in comparison to one another.



To get additional detail for each **Product Line**, you can **hover** your pointer over each respective **bubble**. Details of the underlying data measures for **Quantity Sold**, **Unit Sales Price (Average)** and **Revenue** will render. Hover over the **largest bubble** and **smallest bubble** to render the additional information.



Click on the **Collapse** icon to return the visualization widget to panel 3 on the dashboard template. To close the details window, click any space outside of the **visualization widget**.

This visualization clearly indicates that Smart Electronics is the lowest performer of all product lines. Also, even though Smart Electronics and Kitchen Appliances have a similar amount of Quantity sold, Smart Electronics average sales price is significantly lower, generating less revenue contribution to the company.

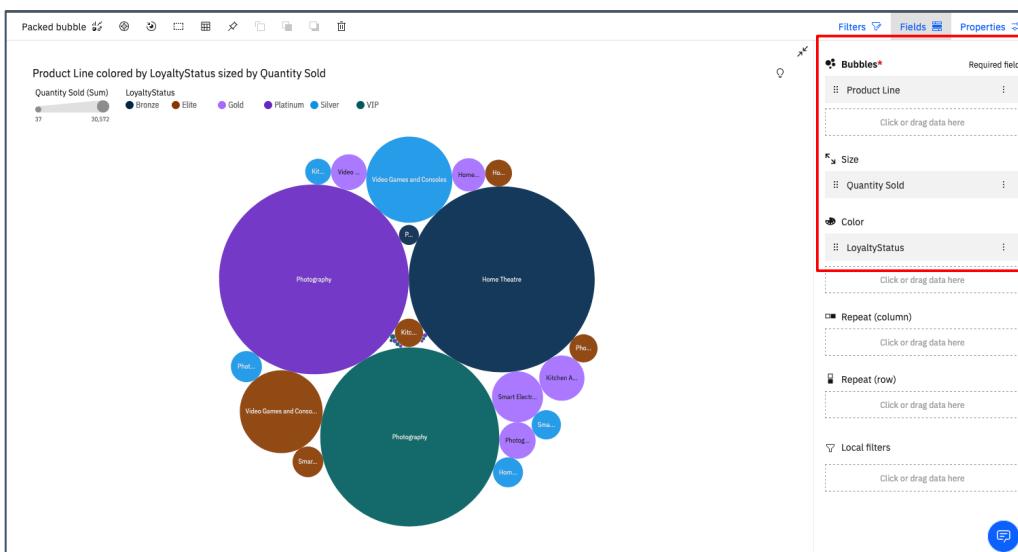
Next, set up a visualization to monitor **Product Line** sales by **Loyalty Status**.

From the **Navigation Panel**, select **Visualizations** and then drag the **Packed Bubble** chart icon into the drop zone for **panel 2** (upper right panel) of the dashboard template. It will auto-fill to the size of the panel.

The **Packed Bubble** chart visualization will open in **Design Mode** for you to setup the data definitions for your visualization. From the **Data Source** panel and drag-and-drop data items into the **data slots** as follows:

- **Bubbles: Product Line**
- **Size: Quantity Sold**
- **Color: Loyalty Status**

Click the expand icon to get a better look at the **Packed Bubble** chart visualization.



You can easily see how the **Product Lines** are performing within each of the customer loyalty tiers as the size of the bubble indicates the **Quantity Sold**, whereas color represents the **Loyalty Status** tier.

Click on the **largest bubble** you see for the **Smart Electronics Product Line**. The visualization focuses only on this product line and displays the **Quantity Sold**. Click the **bubble** again to remove the filter.



Click on the **Collapse** icon to collapse the visualization widget to panel 2.

From this visualization, you see that the highest Customer Loyalty tier overwhelmingly is purchasing Photography products. Whereas for Smart Electronics, most customers are part of the Gold Loyalty tier. This information will help you to target customers in the Loyalty program who have historically purchased Smart Electronics. You may also consider targeting customers from your VIP and Platinum tiers with Smart Electronics products and Photography “bundled” promotions.

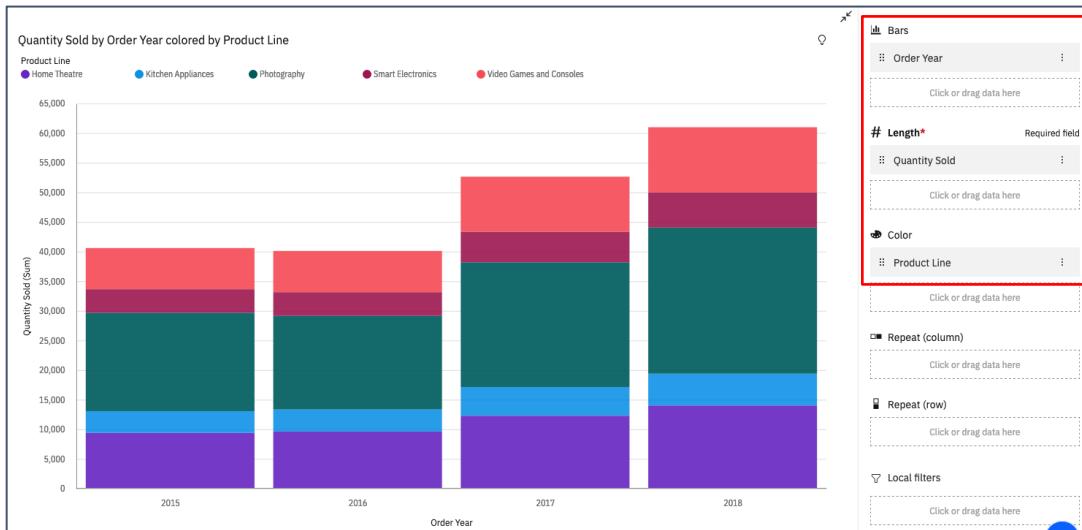
Save the Dashboard.

The last visualization will be used to monitor how **Product Line** performance is trending over time.

From the **Navigation Panel**, select **Visualizations** and then drag the **Stacked Column** to **panel 4** (lower right panel) of the dashboard template, dropping it in the drop zone. Again, this will auto-fill to the size of the panel and **Design Mode** will be automatically opened.

From the **Data Source** panel and drag-and-drop the following data items into the **data slots** as follows.

- Bars: **Order Year**
- Length: **Quantity Sold**
- Color: **Product Line**



Save the Dashboard.

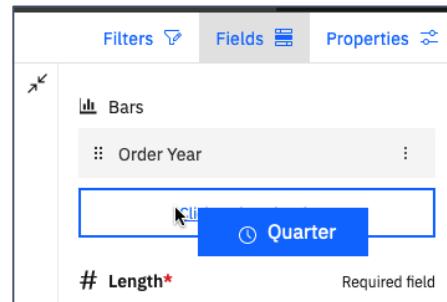
Part 6. Nesting Multiple Columns

Cognos Analytics allows you to use multiple data items per data slot. With the **Order Year** already charted out, you can add in quarters and nest to create a more detailed visualization in the same amount of space.

In order to see a more detailed view of how product sales have trended over time, add in quarterly data.

From the **Data Source** panel, drag **Quarter** over to the **Bars** data slot and drop it just below **Order Year**.

Alternatively, click the drop zone and select the **Quarter** from the drop-down list that is displayed.

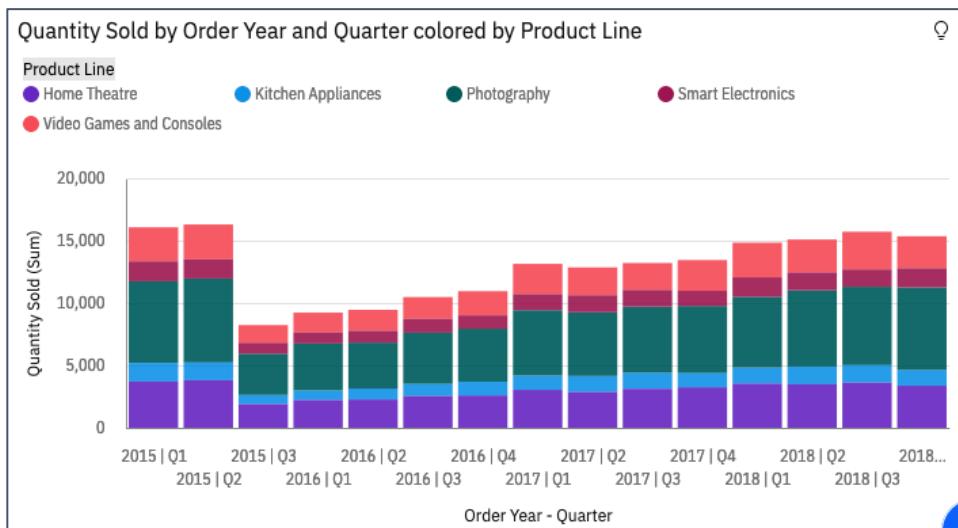


Quarter is now nested under **Order Year** providing a much more detailed view of the historical sales trend.

Collapse the widget.

The widget is returned to panel 4 on the dashboard template where you can easily see how each **Product Line**'s contribution of **Quantity Sold** to the total has trended over the last three years.

Your widget will now appear as follows:





This visualization shows that after a dip in sales starting in Q3 2015, sales have been steadily recovering, having regular growth overall over the last two years, yet sales have not returned to the same level of Q2 2015.

The dashboard has provided some valuable insight into the performance of Smart Electronics. You've analyzed Coupon redemption rates, Average Sales price and Quantity sold trends, Loyalty Status Purchasing behavior and yearly sales trends. You've even uncovered potential opportunities on marketing to your Customer Loyalty Program base.

Save the dashboard.

Part 7. Custom Sorting

Sorting allows for users to easily set the order of how data items will render in a widget.

Ascending and **descending** are common sort orders desired to have data render in alphabetical or numeric order. However, often times, there are data items that have a desired sort order that is neither alphabetical or numeric, such as, membership levels that have named designators for the varying tiers.

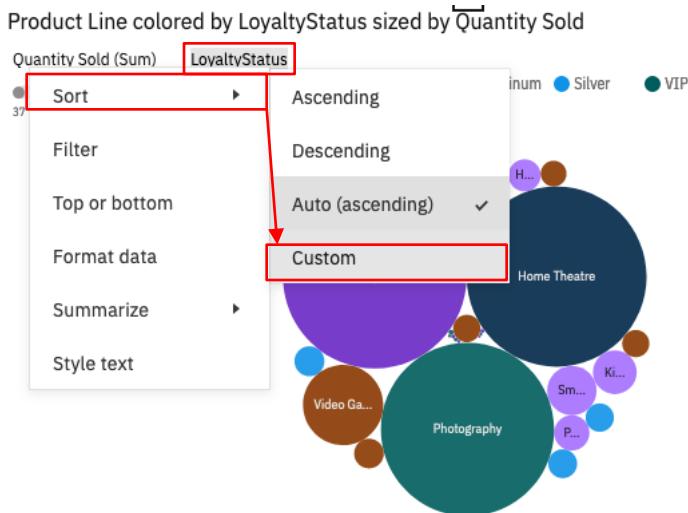
In such cases, a custom sort order needs to be defined in order for data to report in the desired order. Cognos Analytics allows you to set your own custom sort order for data directly on your dashboard widgets.

LoyaltyStatus tiers have names which designate the tier level. You will customize the sort order of these tiers, so they render from the lowest tier to the highest tier.

Click on the **Packed bubble** chart in **panel 2** to bring it into focus.

You can set the visualization to sort the data so it renders in your desired order, in one of ascending, descending or in a custom sort order.

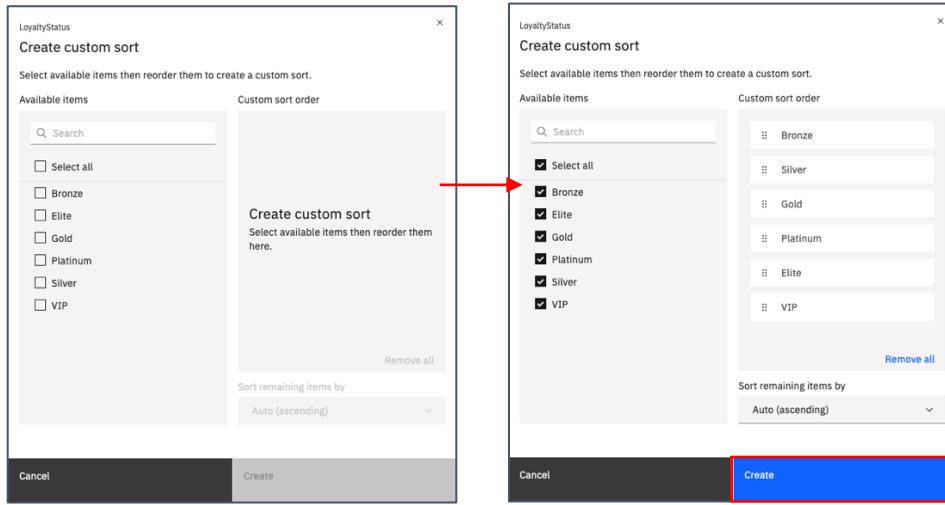
Right-Click on the **LoyaltyStatus** legend title to bring up the on-demand toolbar. Select **Sort**, then select **Custom**.



The **Create custom sort** dialog box will be displayed.



From the **Available items** in the left panel, click the **checkbox** next to each in the following order: **Bronze, Silver, Gold, Platinum, Elite, VIP**. Click **Create**.



The screenshot shows a 'Create custom sort' dialog box with two panels: 'Available items' on the left and 'Custom sort order' on the right.

Before: The 'Available items' panel lists categories: Select all, Bronze, Elite, Gold, Platinum, Silver, and VIP. The 'Custom sort order' panel is empty and contains the placeholder text 'Select available items then reorder them here.' A red arrow points from the 'Available items' panel to the 'Custom sort order' panel.

LoyaltyStatus	Custom sort order
Select all	
Bronze	
Elite	
Gold	
Platinum	
Silver	
VIP	

After: The 'Available items' panel now has checked checkboxes next to Bronze, Silver, Gold, Platinum, Elite, and VIP. The 'Custom sort order' panel shows the same six items listed vertically. The 'Create' button at the bottom right is highlighted with a red box.

LoyaltyStatus	Custom sort order
Select all	Bronze
<input checked="" type="checkbox"/> Bronze	Silver
<input checked="" type="checkbox"/> Elite	Gold
<input checked="" type="checkbox"/> Gold	Platinum
<input checked="" type="checkbox"/> Platinum	Elite
<input checked="" type="checkbox"/> Silver	VIP
<input checked="" type="checkbox"/> VIP	

Before

After

The legend on the Packed Bubble chart is now ordered by lowest to highest tier status.

Save the Dashboard.



Part 8. Customizing Widget Properties

A good dashboard is well organized with relevant, interactive information that provides users the information they need.

A **GREAT** dashboard takes this to the next level by being highly visually appealing, made easy to consume at a glance, put in context with titles, and customized to align to your organizations branding and color schemes.

Cognos Analytics has robust properties that make creating a compelling dashboard quick and easy. To make it even more intuitive, the properties in the properties pane are grouped by categories such as **Canvas**, **Color** and **Themes**, and **Tabs**. These groups are also expandable and collapsible to improve organization and usability of the properties pane.

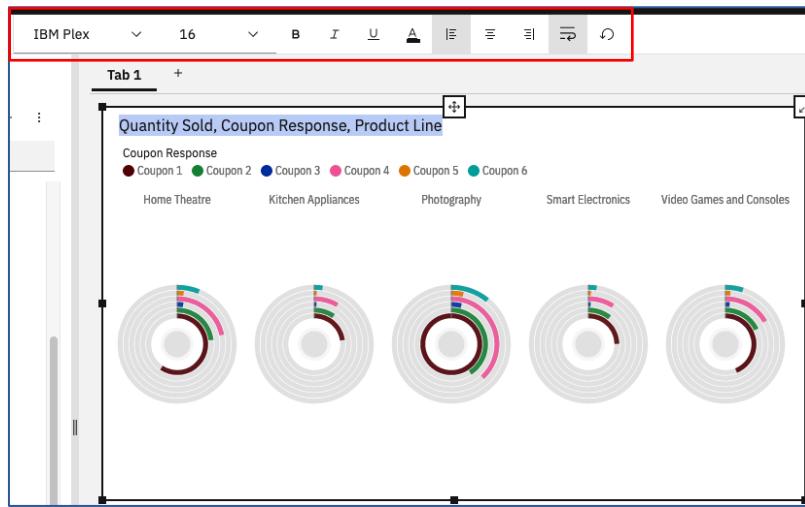
Next, we will make the dashboard more visually appealing and easy to consume by further customizing the layout, moving legends to optimize visualization styles, setting up borders, and adding titles to put the data into context for users.

A. Widget Titles

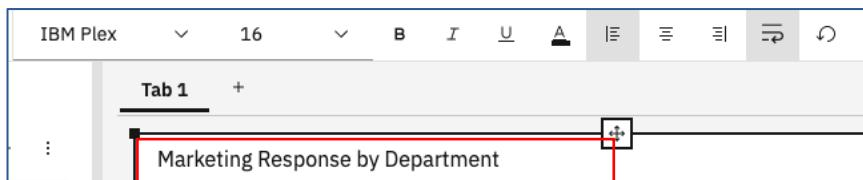
Titles help put the visualization and its data into context, so that the user knows exactly what the visualization is representing. With a click of a button, titles can be added to a widget, and customized for font style, font size, justification and so on.

For a widget title, you can modify the font family, font size, text color, alignment, and styles. This feature is available from the **Text** details tab in the visualization properties and from the on-demand toolbar when you select the title text in a visualization.

Click on the title for the **Radial chart** in panel 1 to bring it into focus. Notice that the **on-demand toolbar** is enabled, this time, with text formatting options.



Replace the title with “**Marketing Response by Department**” to the visualization.



There are many options for Widget title formatting. For a widget title, you can modify the font family, font size, text color, alignment, and styles. This feature is available from the Text details tab in the visualization properties and from the on-demand tool bar when you select the title text in a visualization.

Highlight the **Title** to open the **Title on-demand toolbar** if it is not already open. From here, you can change the various properties on the title.



Ensure **the entire text is highlighted** in the title. Change the **title settings** as follows:

- Font Family: **Cherry Cream Soda**
- Font Color Picker: **Dark Red**
- Font Size: **24**
- Bold: click to activate
- Align Center: click to activate

Click **outside the widget** to close the on-demand toolbar. Your widget title will now appear as follows:



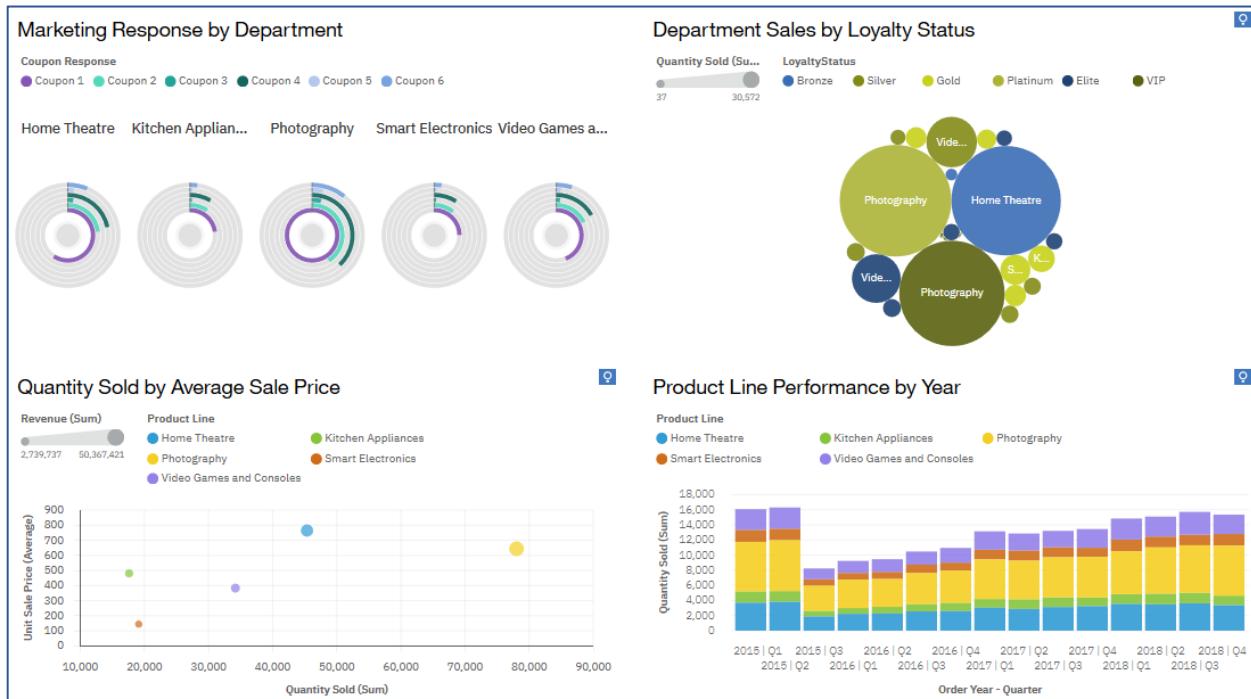
The examples shown in this workshop are using the default properties. If you make changes and wish to return to the default settings, you may highlight the title to bring up the on-demand toolbar, and then click on **Restore defaults** icon on the far-right of the widget title's on-demand toolbar.

Click on the **Packed Bubble chart** widget in **Panel 2** and change the title to “**Department Sales by Loyalty Status**”.

Click on the **Bubble chart** widget in **Panel 3** and change the title to “**Quantity Sold by Average Sale Price**”.

Click on the **Stacked Column chart** widget in **Panel 4** and change the title to “**Product Line Performance by Year**”.

Your dashboard may look similar to the following:



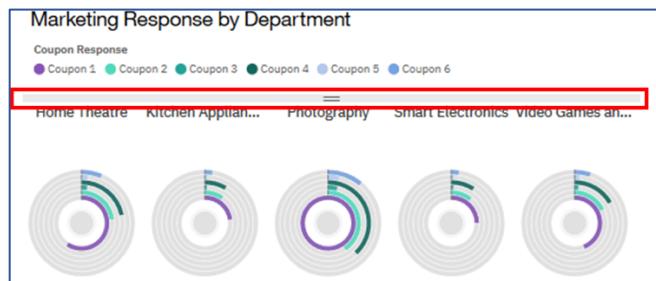
Save the dashboard.

B. Legends

Legend placement helps to optimize the space available for visualization rendering. Cognos Analytics provides adjustable legends so you may control the amount of space used. You may also set the location of the legend within the widget or remove it entirely.

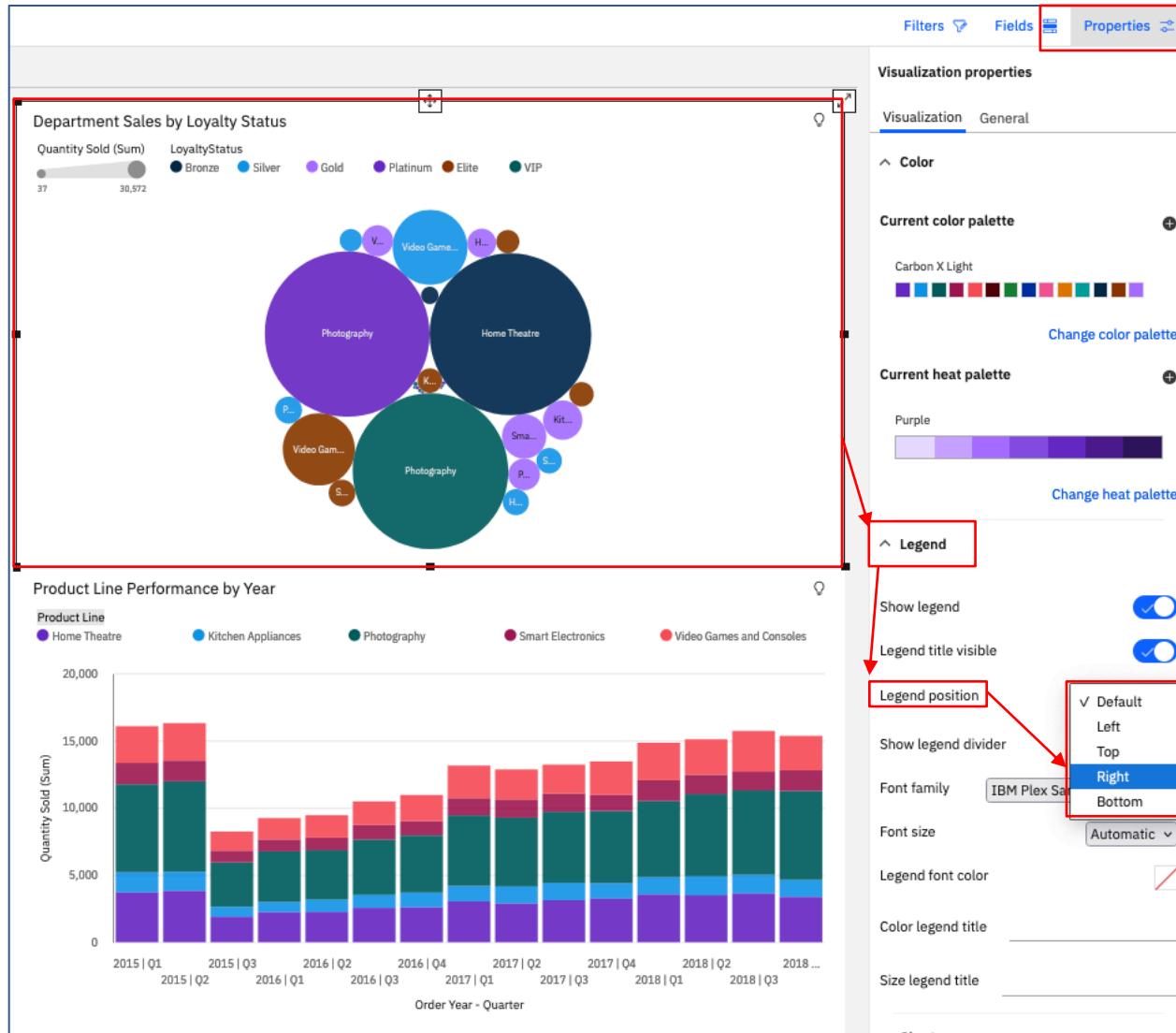
Click on the **Radial chart** in **panel 1** to bring it into focus.

Hover over the area between the legend and the visualization to bring up the adjustable legend bar. Click on the **Legend bar** to drag it up or down to resize the area used by the legend. Notice that the visualization is responsive and resizes accordingly.



Click on the **Packed Bubble chart** in Panel 2 (upper right) to bring it into focus.

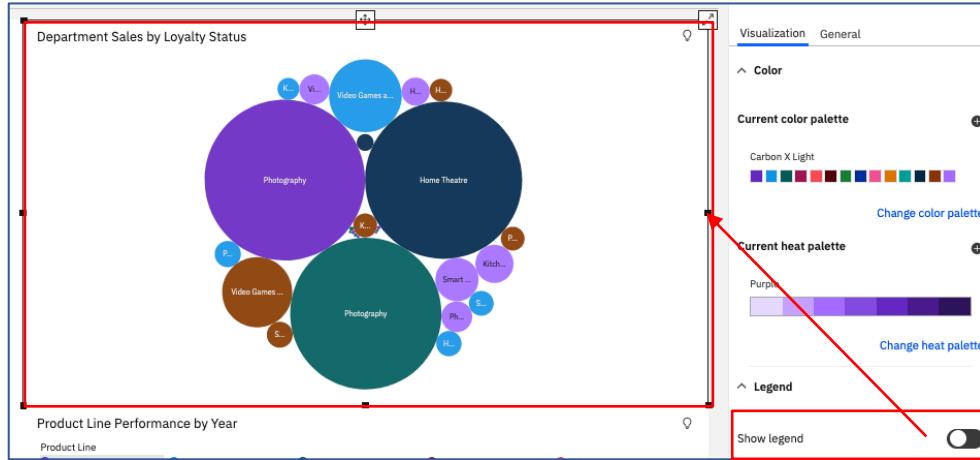
Open the **Properties Panel** to the Visualization tab. Expand **Legend**, and, for the **Legend position** property, use the picklist to select **Right**.



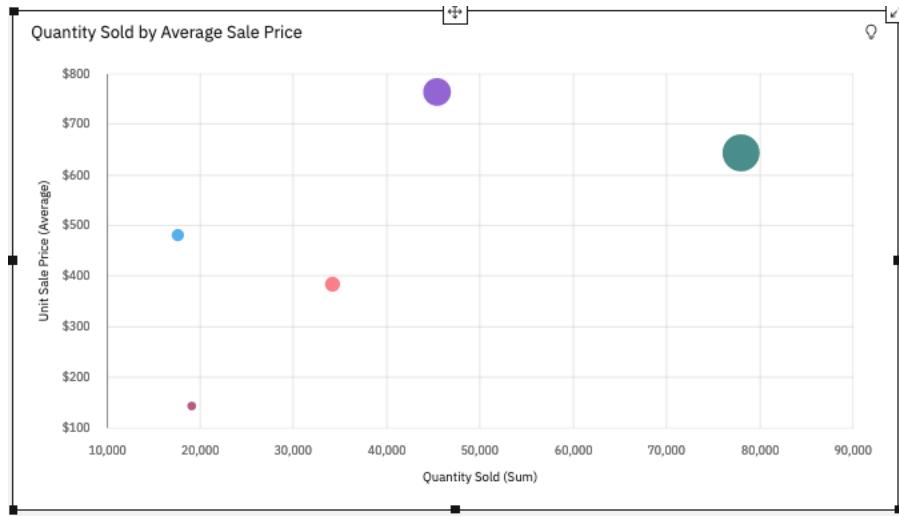
The legend position changes and the visualization resizes to maximize the use of the remaining space.

Since the visualization is interactive and value labels are shown, the legend may not be needed. If so, the legend may be easily removed.

Click on the **Show Legend** toggle switch to remove the legend.



For the **Bubble chart** in panel 3, also remove the **Legend**. Removing the legend allows the bubble chart to maximize and fill the entire widget panel.



Recall, that earlier we showed how users may hover over the data points to get additional detail. Hover over the **largest bubble** to see the detail render for that data point. You see that it is for Photography.

Close the Properties panel.

Save the dashboard.

C. Sizing and Layouts

Dashboard templates are great guides to help users get started in laying out their content.

However, users can modify the layout of the widgets at any time. Using the sizing guides, users can change the size and shape of their widgets. Users may also select multiple widgets, then set their alignment so they align together as desired. Cognos Analytics provides design assistance directly on the dashboard with the use of the dashboard grid and sizing guidelines

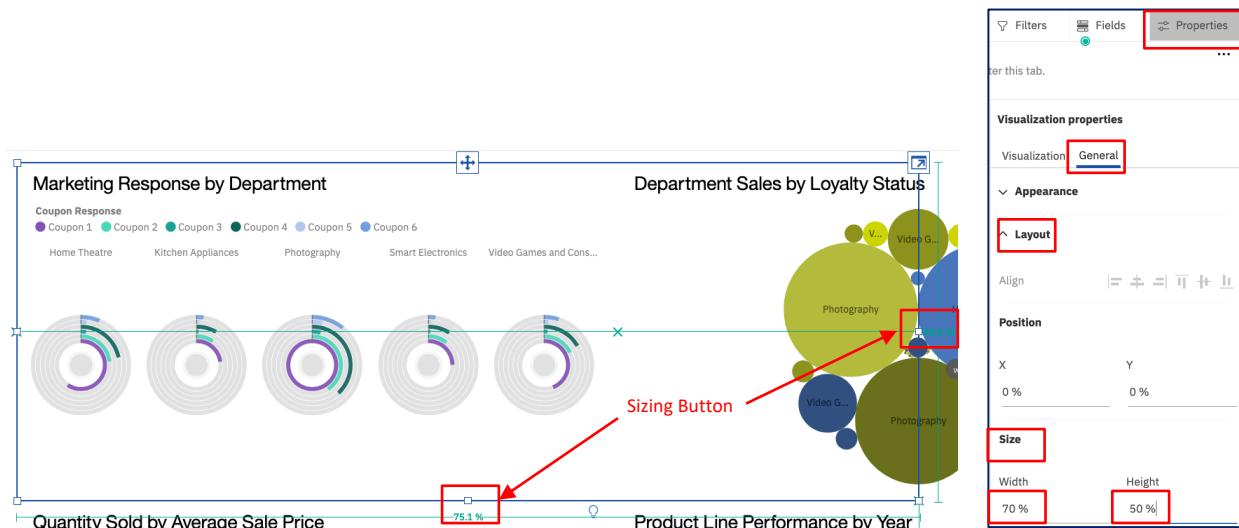
If you are looking for exact, more “pixel perfect” sizing, you may set the exact sizing definitions in the widget properties. From the visualization properties, you can align widgets relative to one another, precisely position, and adjust the height and width of widgets on your dashboard.

The dashboard templates are a great starting point to quickly and easily layout your content. As you assemble your dashboard, you may find that you wish to resize a visualization to optimize its presentation. You can easily use the sizing buttons on the edges of the widgets to resize, using the Grid to assist you with alignment. As you resize your widget, size guidelines will render to show you relative size of the widget to the overall template.

Click on the **Radial chart** in **panel 1** to bring it into focus.

Resize the widget on the dashboard to take up approximately **75%** of the width and **50%** of the height, using the gridlines and size guidelines to assist you.

Then, open the **Properties** panel for the widget and select the **General** tab. Use the **down arrow** to expand the **Layout** options. Under **Size**, set the **Width** to **70%** and set the **Height** to **50%**.



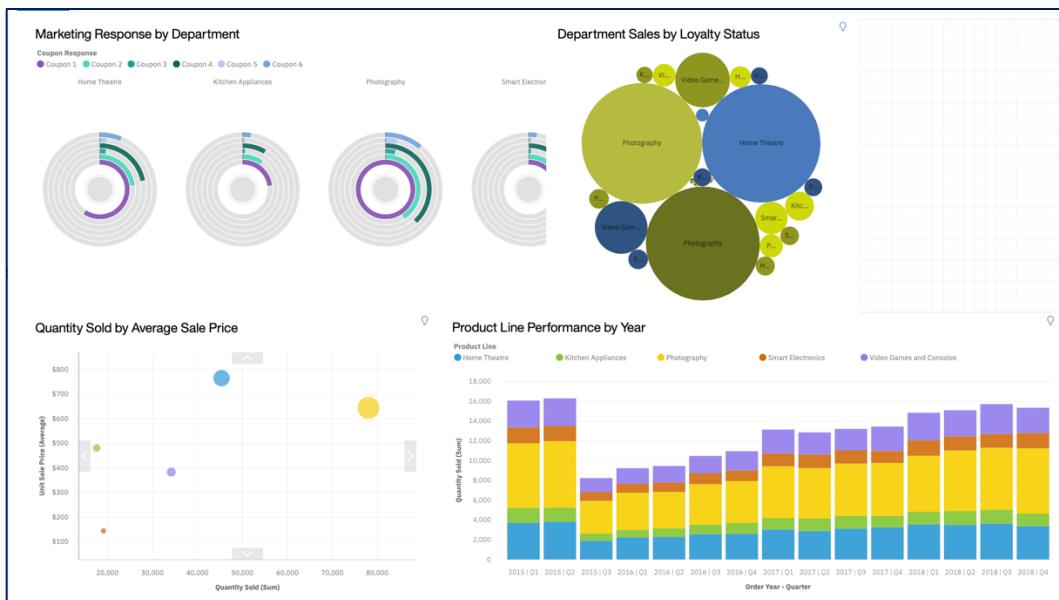
Click on the **Packed Bubble** chart widget in **Panel 2**. You can use the **sizing buttons** to resize it to fit the remaining space to the right of **Panel 1**. Alternatively, from the **Properties Panel**, go to **Layout**, and under **Size**, change the **Width** to **30%** and **Height** to **50%**.

As you change the sizing Properties, you'll notice the widget shifted placement as a result. In this case, the packed bubble chart maintained its left position and resized on the right. You don't need to worry about manually trying to get the widgets perfectly aligned, Cognos Analytics has a button to do that for you automatically! You will do this in an upcoming exercise.

Click on the **Bubble Chart** in **Panel 3** to bring it into focus. From the Properties Panel, set the **Width** to **40%** and set the **Height** to **50%**.

Use the **sizing buttons** to resize the **Stacked Column** widget in **Panel 4** to fit the remaining space to the right of **Panel 3**.

Close the **Properties panel**.



Save the dashboard.

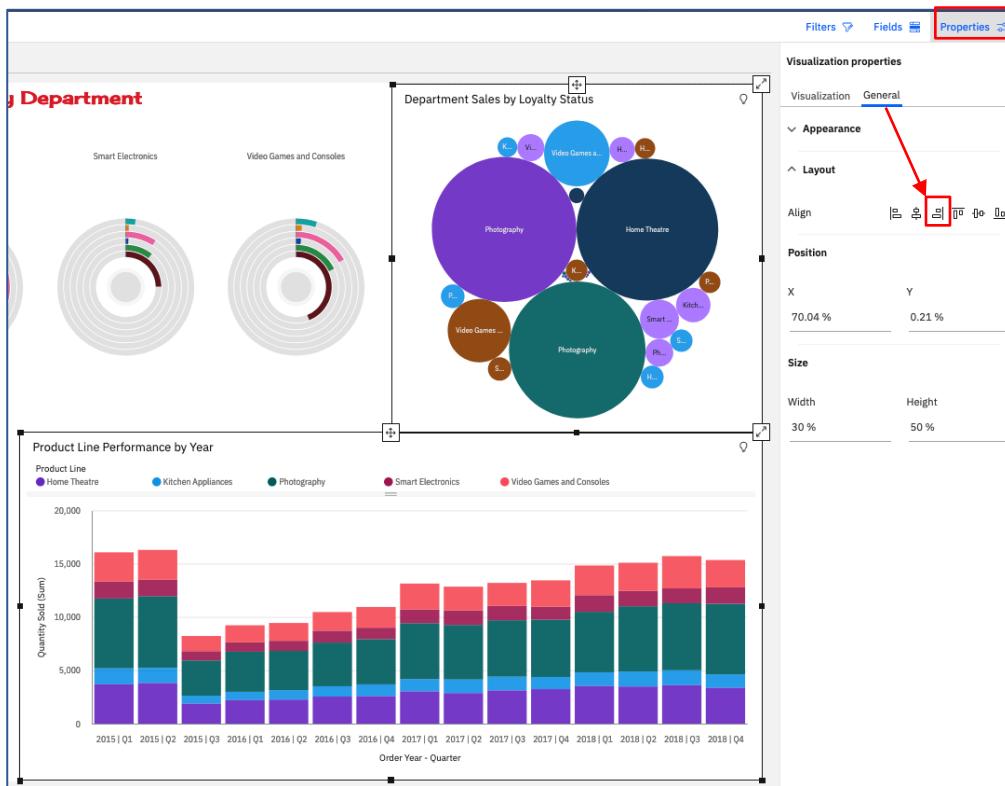
D. Alignments

When you drag an object on the canvas, guidelines appear to assist with alignment with other objects on the canvas. These guidelines help you place objects exactly where you want them.

When moving widgets around the dashboard, it may be difficult to get them to perfectly line up with one another. Cognos Analytics provides users with easy alignment options to work with multiple widgets and set them to align as needed.

Use **Control + Click** to **Multi-Select** the two the widgets in **Panel 2 and 4**. Open the **Properties**.

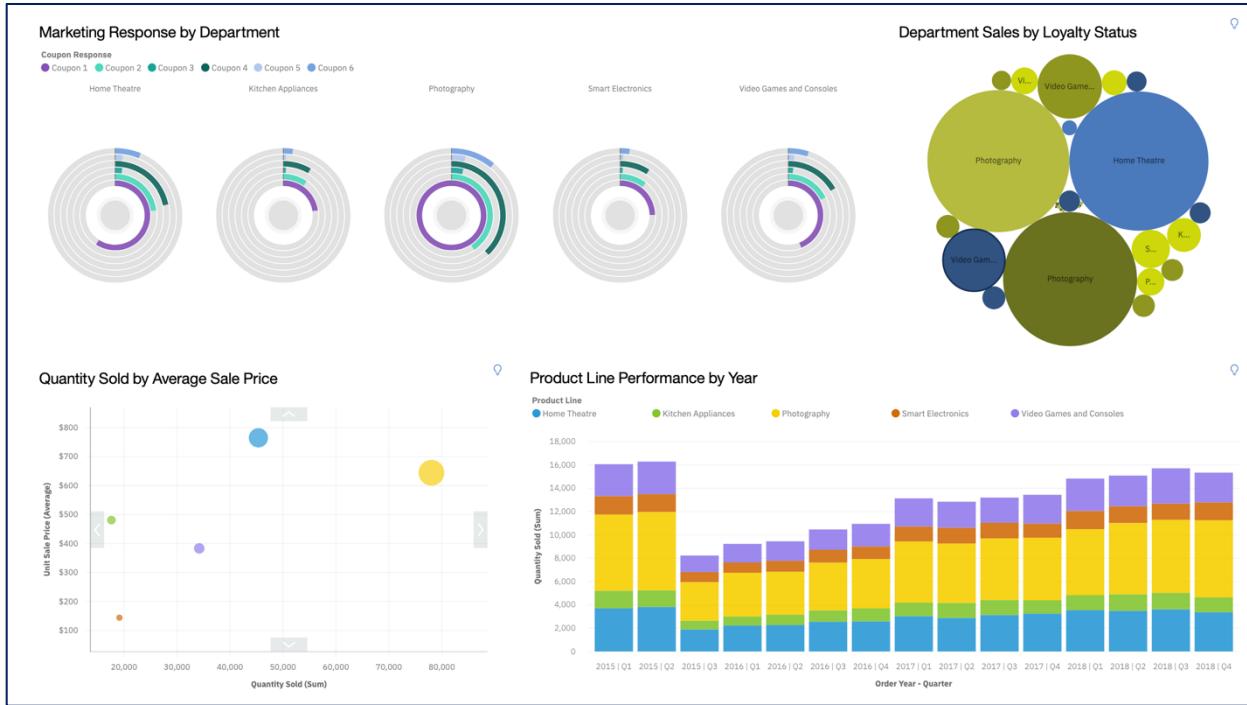
Select the **Align icon** to **Align** the visualizations to the **Right**.



The widgets are now perfectly aligned on the right.

Repeat the same exercise by using **Control + Click** to Multi-Select the two the widgets in **Panel 1** and **3**.

Under **General** in **Properties**, select the **Align** icon to **Align** the visualizations **Left**.



Now that you have customized your layout, you would like to add borders for the widgets to clearly define each, so they stand out on the dashboard.

E. Borders

Click on the **Radial Chart** widget in **Panel 1** to bring it into focus.

From the **Properties panel**, click on the **General** tab. Expand the **down arrow** next to **Appearance**. Click on **Border Color** to open the color options for borders.

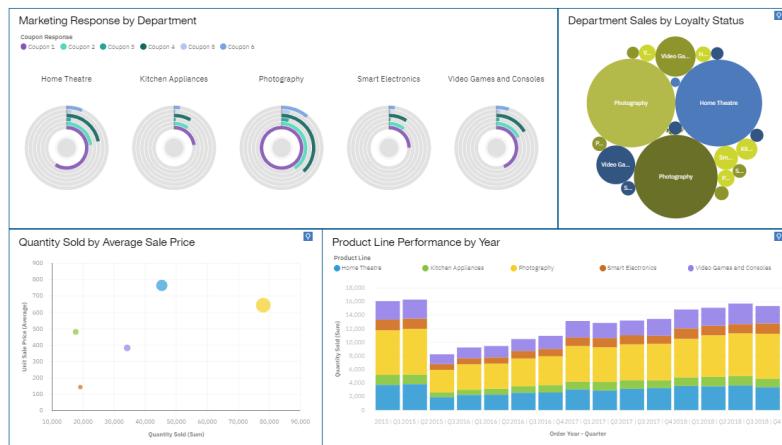
Apply a “**Blue**” border.

The screenshot shows a dashboard titled "Marketing Response by Department". It contains five Radial Chart widgets representing different product categories: Home Theatre, Kitchen Appliances, Photography, Smart Electronics, and Video Games and Consoles. Below the charts is a legend for "Coupon Response" with six items: Coupon 1 (purple), Coupon 2 (teal), Coupon 3 (dark green), Coupon 4 (black), Coupon 5 (light blue), and Coupon 6 (blue). To the right of the dashboard is the "Properties" panel. Under the "General" tab, the "Appearance" section is expanded. The "Border color" dropdown is open, displaying a color palette with various shades. The "Dark blue" option is highlighted with a red border, indicating it has been selected.

TECH TIP: Cognos Analytics allows you to select your own color palettes and even define specific RBG, CMYK, HSB and HEX colors so that users may align their color palettes to the standard custom color schemes that their organization use for branding.

You can set the borders for multiple widgets at once. **Control + Click** to select each of the widgets in **Panels 2, 3 and 4**.

To add in the same border color as the other widgets, go to the **General tab** and apply a “**Dark Blue**” border. Your dashboard should now look similar to the following:



Save the dashboard.

F. Display Chart Values

Users can hover over any data item in a visualization and the details will render in a popup window.

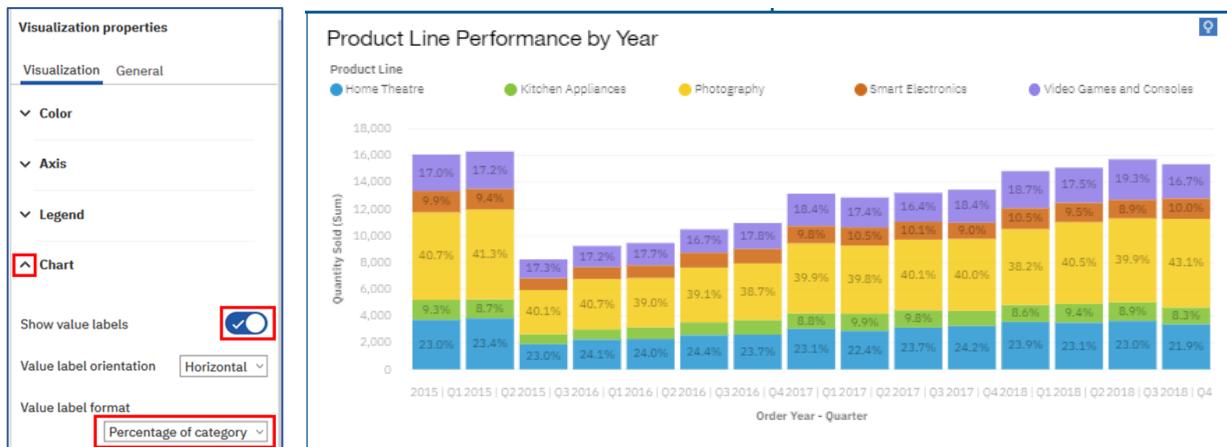
Values can also be set to render directly on the visualization from the Properties panel for the widget. Values can be set to show the actual value or set to show the value as a percentage of the category or color.

Click on the **Stacked Bar Chart** in **Panel 4** to bring it into focus.

To show the Values on the chart, go to the **Properties** and then select the **Visualization** tab. Expand the **Chart** section and turn on the “**Show value labels**” checkbox.

Use the **pull-down** menu for **Value label format** to view the various formats available. Set the format to **Percentage of Category**.

Values have now been added on to the Visualization.



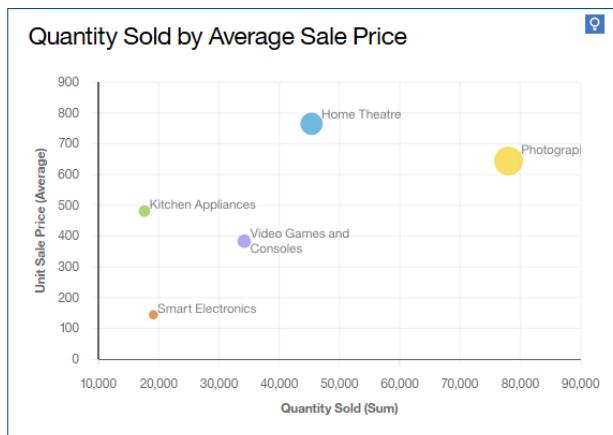
Expand the Axis section.

Here, you can set the axis properties to show/hide labels, change the axis labels, and set the axis label orientation.

Change the **Item axis title** to **Quarter** and the **Value axis title** to **Quantity Sold**. Use the pull-down menu for **Item axis label orientation** to view the various formats available. Select **Stagger**. Your Stacked Column chart should now appear as follows:



Click on the **Bubble Chart** in Panel 3 to bring it into focus. From the **Properties** panel, expand the **Chart** section on the **Visualization** tab. Turn on “**Show item labels**”. Notice that for this visualization, labels represent the Product Lines indicated by the bubbles as the values are already represented on the axes.

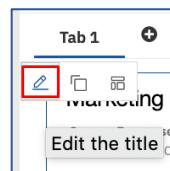


10. Save the dashboard.

Part 9. Working with Tabs

Now that the dashboard is complete, rename the dashboard tab to be more descriptive.

Click on the tab name **Tab 1** to bring up the Tab's on-demand toolbar. Select the **Edit** icon.



Rename the tab to “**Product Performance**”.

You are also able to modify colors for tab titles and tab selection indicators (the line under a tab title indicating the tab that is open). Go to the **Properties Panel, General tab** for the dashboard. Use the down arrow to expand the **Tabs** section. Set the **Title Color** to **Dark blue**. Set the **Selection bar color** to **Light blue**.

The default dashboard style is a tabbed dashboard. When you have a dashboard with only one tab, you can hide the tab and the Create tab button to save screen space. The Hide tab feature is not available when there are multiple tabs as hiding would remove the ability for user to navigate between the tabs.

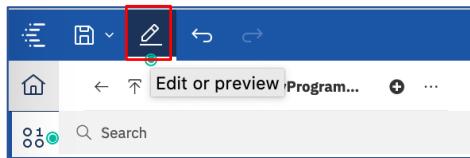
Go to the **Dashboard Properties** panel to the **Tab** section. **Uncheck** the **Show tabs** property.

The Tab section is collapsed, and the dashboard expands to fill the additional screen area. Turn the **Show tabs** back on so the Tab title is visible again. **Save** the dashboard.

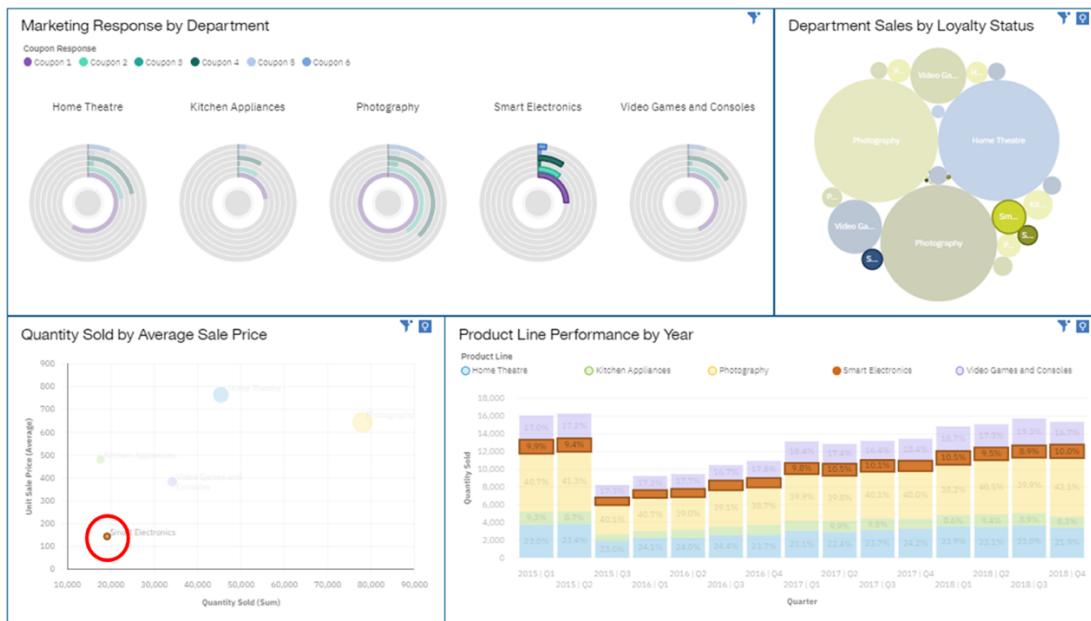
Part 10. Interactive Filtering

At this point you'll now take the role as the product manager consuming a Cognos dashboard to check out department sales. Since you are now in the role of a Consumer, you will be working in Preview mode. You'll use the capabilities available to Consumers to interact with the dashboard to gain a deeper understanding of performance.

Click on the **Edit**  button on the top left of the application toolbar. This will take you out of Edit mode into **Preview mode**; the mode that the users of your dashboard will use.



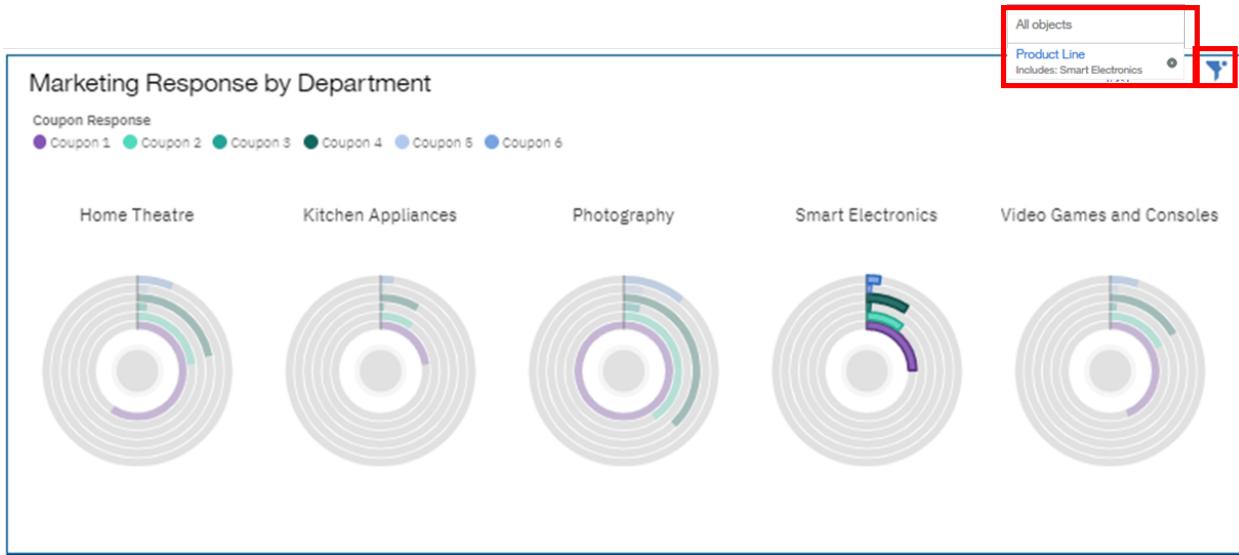
You can analyze the performance of your Product Lines by Coupon responses and Customer Loyalty status at the same time. Click on the smallest point in the “**Quantity Sold by Average Sales Price**”, which will filter the entire dashboard for **Smart Electronics**.



*Filtering the data down to highlight just the **Smart Electronics** product line makes it easier to see the trend over time in the **Product Line Performance by Year** chart. Sales for **Smart Electronics** is quite flat, yet both smart electronics and home automation is a very popular*

emerging market. Your company wants to be leaders in this space going forward. So, you'll continue to investigate this product line further.

Notice all visualizations update to reflect the **Product line** filter applied without any extra coding. Click on the **filter Icon** for any chart at the top of the dashboard, this will show the "Smart Electronics" filter is applied.



*In looking at the **Department Sales by Loyalty Status**, you note that **Smart Electronics** sales is much lower than those of other product lines like **Photography, Home Theater and Video Games**. This may be an opportunity to create a Customer Loyalty Marketing campaign that bundles **Smart Electronics** with those product lines.*

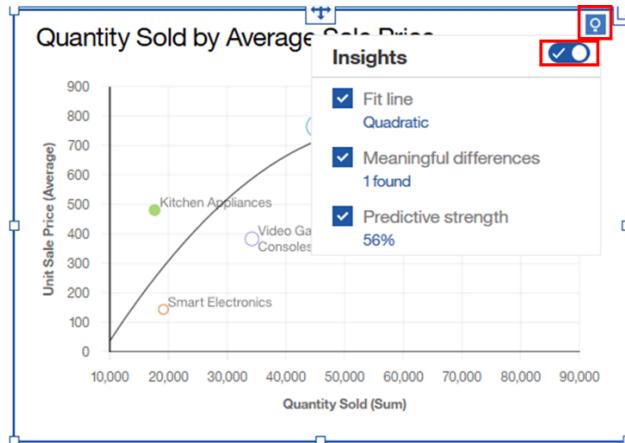
To remove the Smart Electronics filter, click the 'X' icon next to the filter. All Visualizations now have the filter removed.

Save the dashboard.

Part 11. Insights

The **Quantity Sold by Average Sale Price** includes some insights from Cognos Analytics' Smarts.

Click on the **Insights Icon** on the **Quantity Sold by Average Sale Price** chart. Click on the toggle **Insight** to switch on insights for this visualization.



Clicking on the Insights will render explanations of the findings. Hover over the **Predictive Strength** value to view the findings.

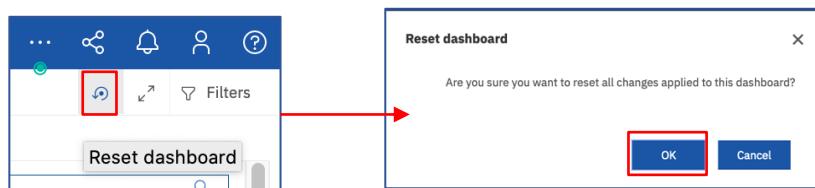


In this case, the best fit line for the data happens to be a quadratic equation (non-linear). The Smarts in Cognos Analytics allows it to run multiple algorithms to determine the “best fit equation”.

Part 12. Resetting the Dashboard

Once you have interacted with a dashboard and made changes, it is helpful to be able to go back to the original settings. Users can “undo” all their changes, but they can only go back one change at a time. Cognos Analytics makes resetting the dashboard to the last time it was saved easy with the click of a single button.

At the top-left, click the reset dashboard  icon. A warning message will appear to confirm the reset. Click **OK**.



The dashboard is restored to the last time it was saved.

Part 13. Leveraging Existing Content

Within Cognos Analytics, you can leverage and reuse existing content in your dashboards. You can copy and paste visualizations from a dashboard, exploration, or report to a dashboard.

To copy and paste, select a visualization, then use keyboard shortcuts such as **Ctrl+C** and **Ctrl+V**.

We will create another dashboard for further investigation with visualizations from this existing dashboard.

Control + Click both “Quantity Sold by Average Sale Price” and “Product Line Performance by Year” visualizations.

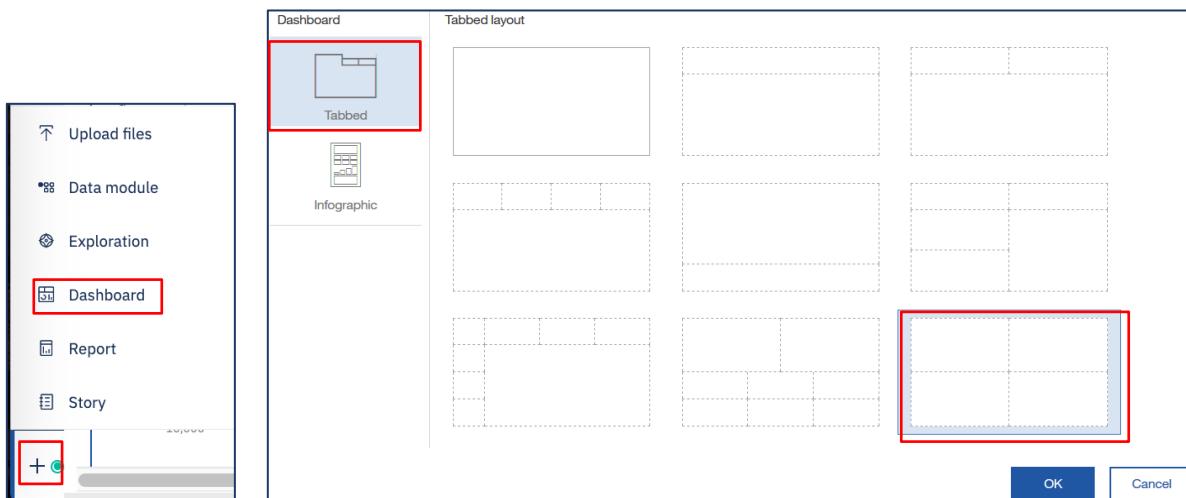
Copy the visualizations with ‘**Control-C**’. An asset copy confirmation message will appear under the **Switcher Menu**.



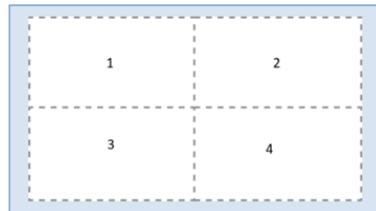
From the Navigation panel on the left, at the bottom-left, click on the **New** button and then select **Dashboard**.

The Template window appears allowing you to select the type of dashboard and the template style.

Select the **tabbed dashboard style**. This will allow you to have multiple pages for your dashboards. Select the **four-panel template with 2x2 configuration**. Click **OK**.



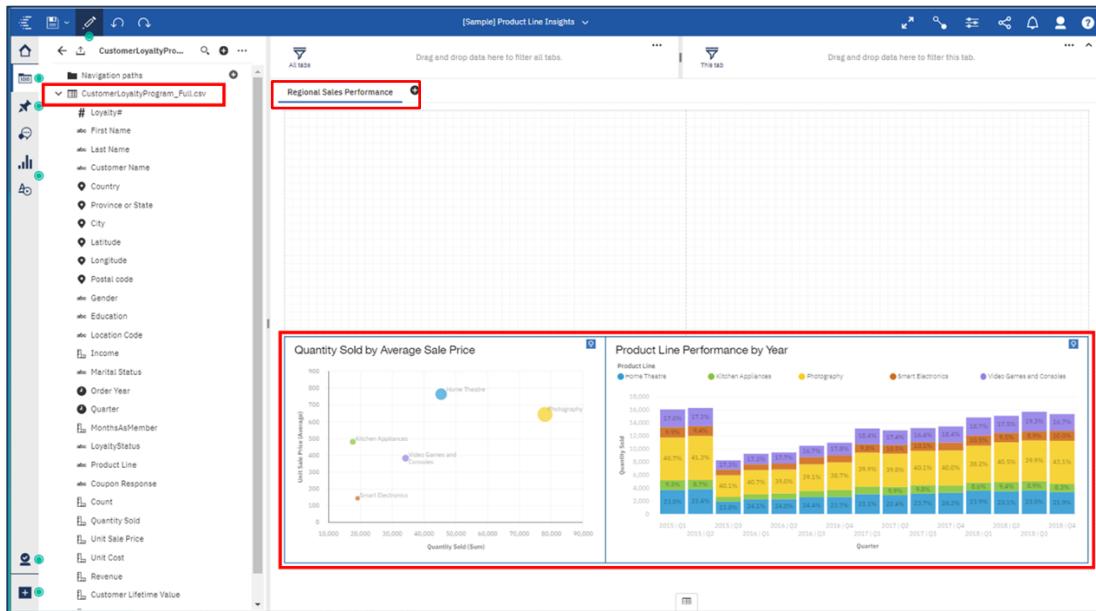
As you build the dashboard, the workshop will reference the location placement for **Widgets** in the dashboard template using the following **Panel** numbers



Once the new dashboard appears, use ‘Control-V’ to paste the **visualizations** into new dashboard.

Notice the visualizations are copied to the new dashboard, maintaining their exact placement from the original dashboard. Their associated data source is also now available in the dashboard’s data source panel.

Click on **Tab 1** to open the on-demand toolbar. Select **Edit** and rename **Tab 1** to “**Regional Sales Performance**”.



Click on the arrow next to the **Save icon** on the dashboard toolbar. Click “**Save As**” and navigate to **My Content**, save the dashboard as **CASTLE 2020 - Product Line Insights**.

Part 14. Custom Color Palettes

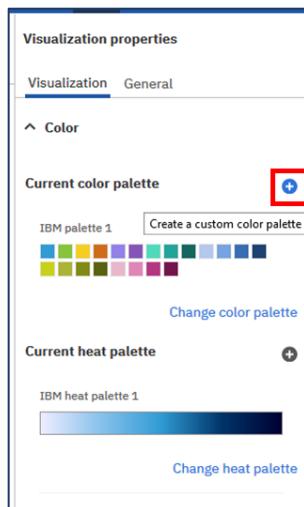
You can view the default color palette, change the palette, and create your own palettes in the dashboard properties. You may choose the predefined colors from the Grid Tab OR you can create custom colors from the Wheel Tab. The color Wheel allows custom color settings for RGB, CMYK, HSB and HEX codes.

Your company has a set of standard corporate colors they use for the purposes of branding. Cognos Analytics makes it simple to align the color palette in the dashboard with those your company frequently uses. You just give the palette a name, so you can use it again, then pick which colors to apply.

Click the “**Product Line Performance by Year**” visualization.

If not opened, click the **Properties** icon on the upper-right of the application toolbar to open the **Properties** panel. Select the **Visualization** tab.

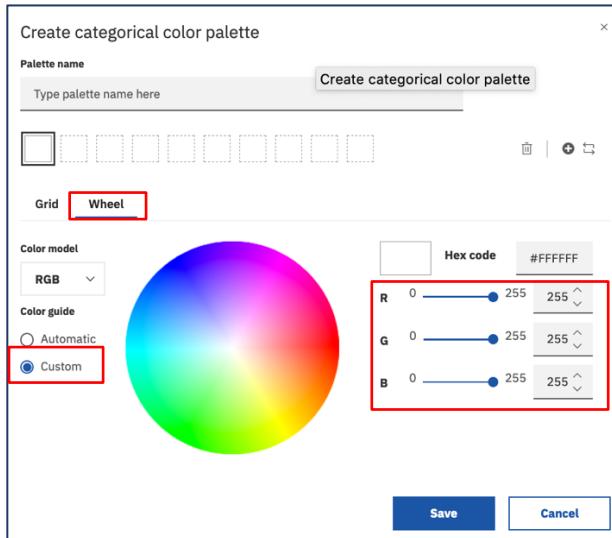
Under the **Visualization** tab and the **Color** properties, click the **Create a custom palette**  icon next to **Current color palette**.



The **Create Categorical color palette** dialog window opens to the **Grid** tab. The **Grid** tab allows users to select colors from standard color scale.

Under **Color guide**, select **Custom**. Click on the **Wheel** tab.

The color wheel tab allows users to define specific colors based on **RGB**, **CMYK**, **HSB** or **HEX** colors, OR users may simply click within the color wheel to select a color.

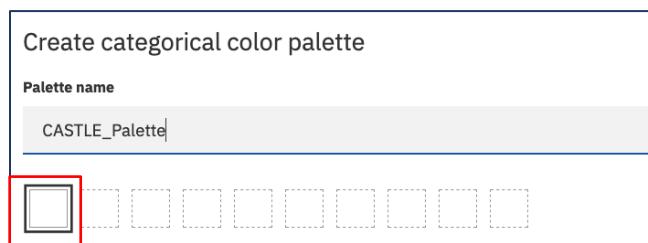


Click back to the **Grid** tab.

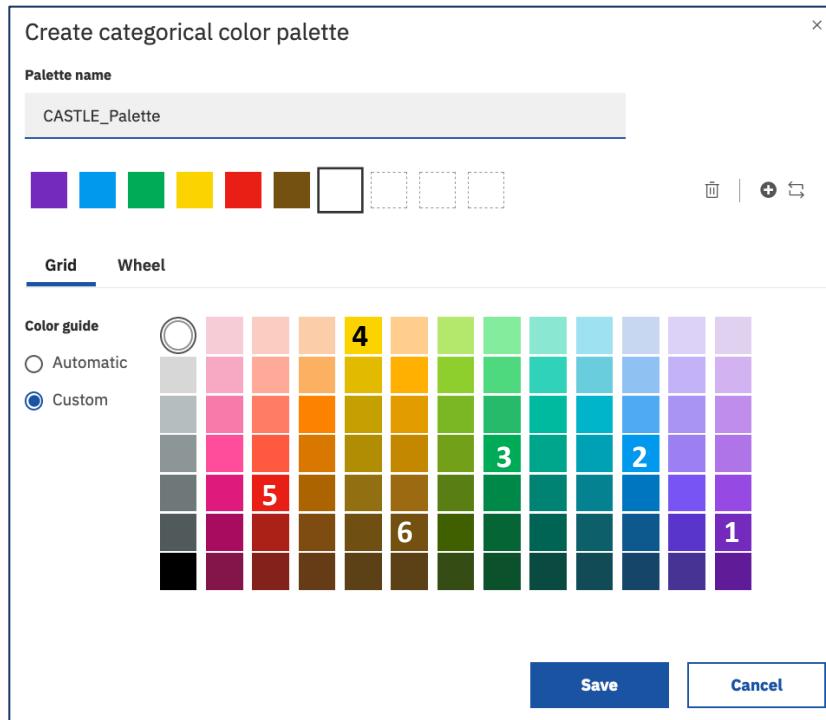
Name the new Palette “**CASTLE_Palette**” in the “**Palette Name**” area.



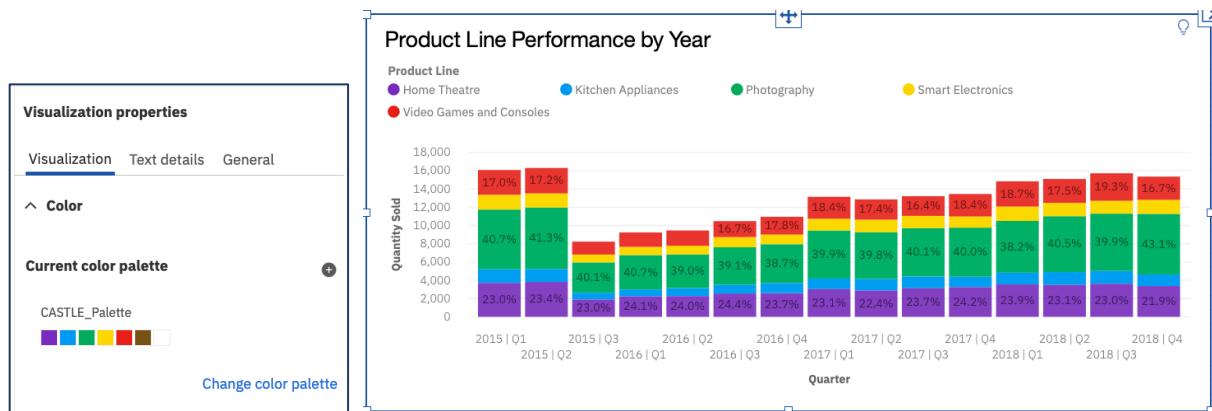
For each Palette color, **select the box** to highlight it (when solid blue outline appears). Then, **select your desired color**. If you selected colors in the previous step, they will show in the first box. Simply click on that box again to select a new color from the grid in the next step.



Repeat this process for **6 colors**. You may choose any 6 colors (or you may return to the color wheel and enter your custom colors). The example below shows the colors used for samples shown in this workshop.



When complete, click **Save**. Your new palette is added and applied to the visualization.



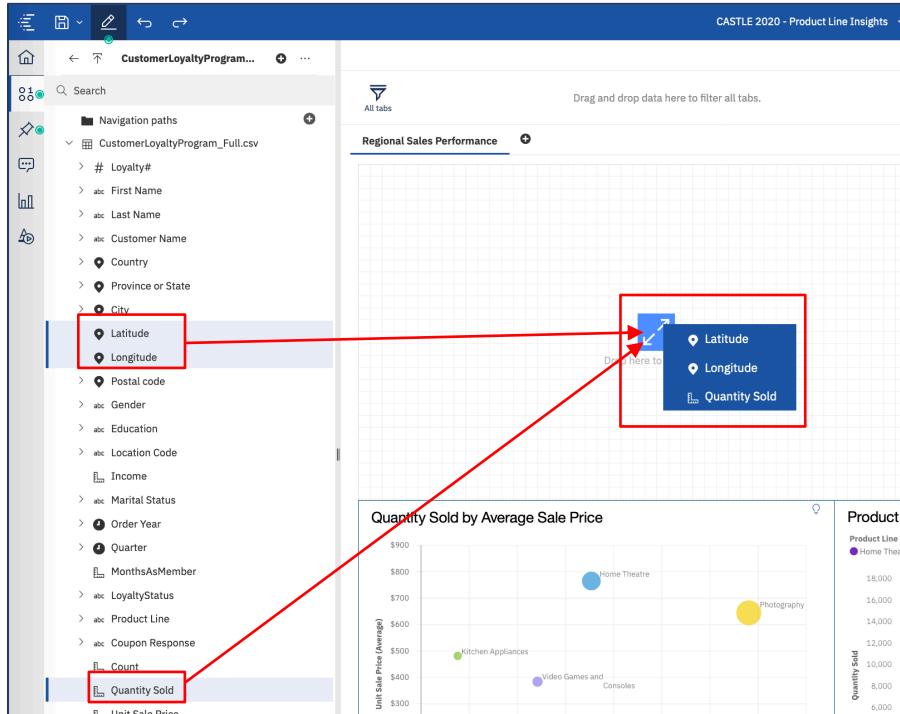
Close the **Properties** panel and **save** the dashboard.

Part 15. Map Visualizations

Your corporate data has locations stored by latitude and longitude, so you can select those fields and drop them onto the canvas to map out the store locations.

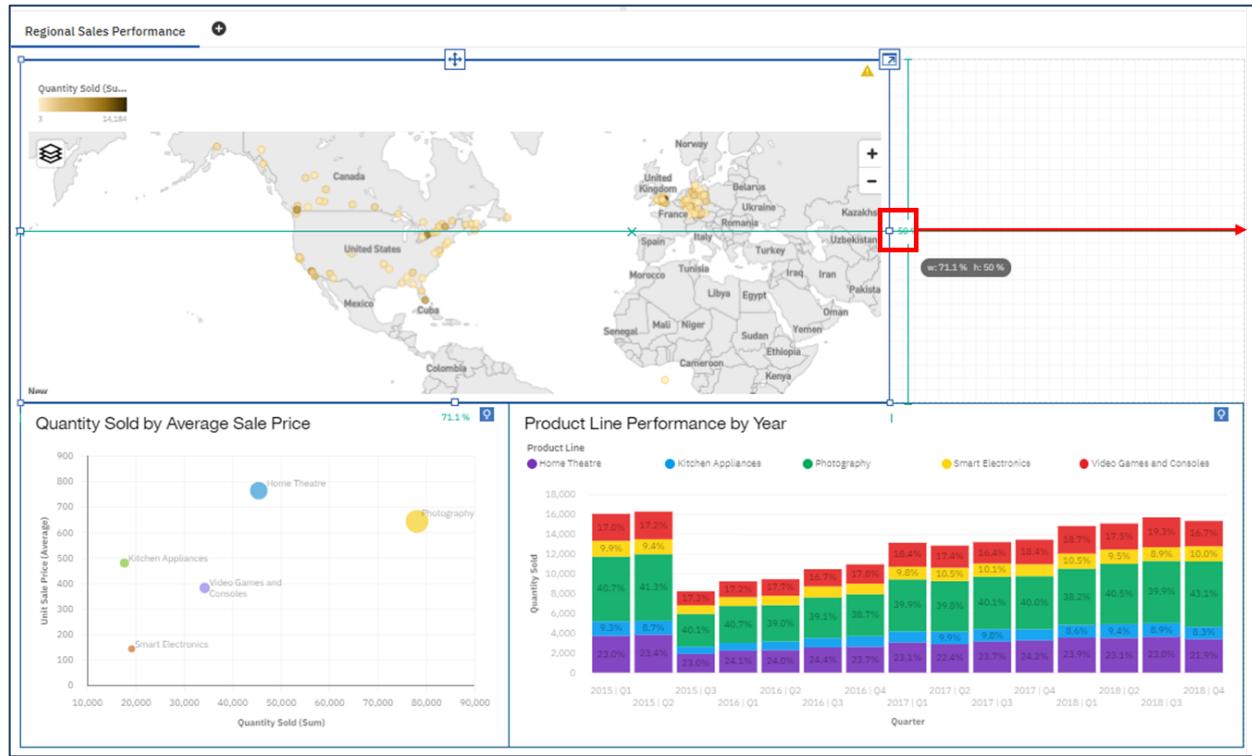
From the **Data Source** panel, expand **CustomerLoyaltyProgram_Full.csv**, if needed.

Multi-select the **Latitude**, **Longitude** and **Quantity sold** items and drag them to the dashboard canvas to the **drop zone** of Panel 1.



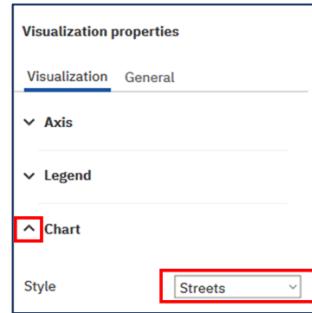
Cognos Analytics' built-in smarts has recognized that because you are working with geo-location data, the most appropriate way to visualize it is with a map.

Resize the **Map** using the sizing button on the right center, drag the right edge of the widget to the right to cover both **panels 1** and **2**.



IBM Cognos Analytics' partnership with Mapbox® allows the user to select from a variety of different map styles such as street maps, satellite, varying color schemes, etc.

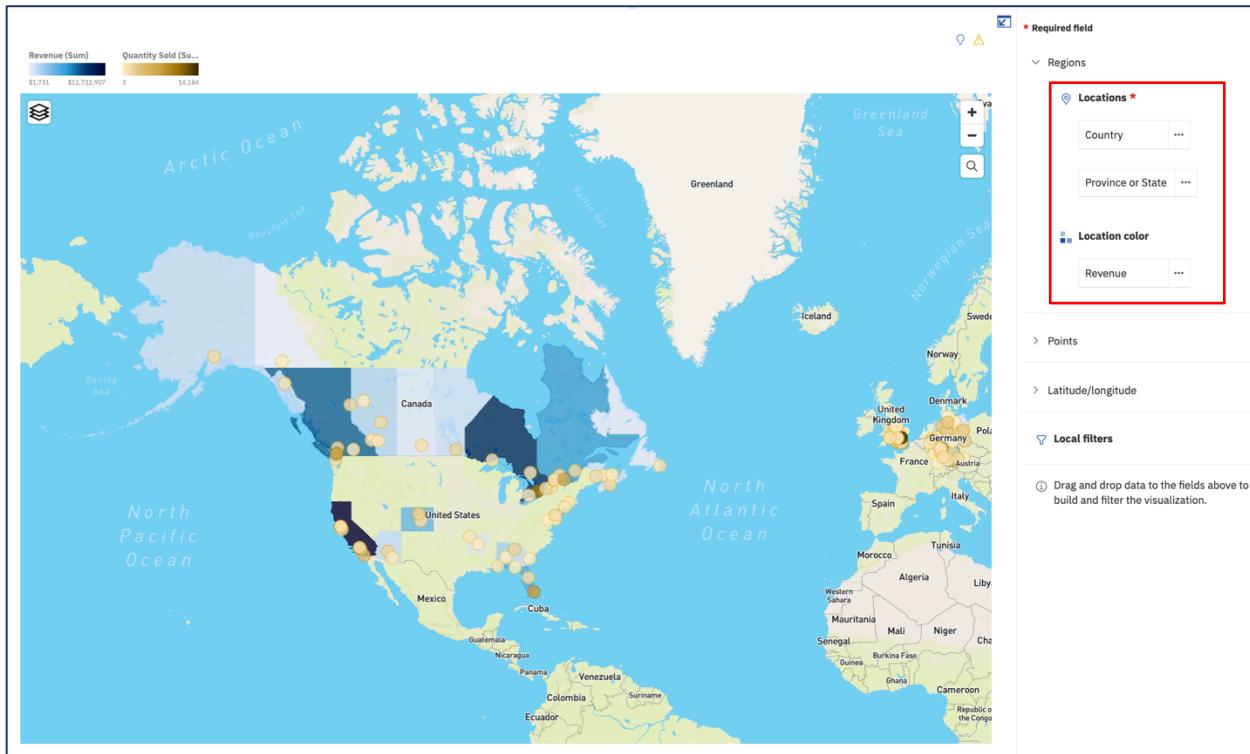
To change the map style, open the **Properties** panel and click the **down arrow** next to **Chart** to see the various options of maps available. From the **Style** drop-down list, select **Streets**.



Click the **Fields** button in the upper right corner of the widget to open the Map in **Design Mode**. From here, we can add in an additional region layer to render on the map.

From the Data Source Panel, drag and drop **Country**, **Province or State** and **Revenue** into the **Regions** data slots as follows:

- Locations: **Country**
- Locations: **Province or state** (drop under country when the horizontal blue line appears indicating the drop zone)
- Location color: **Revenue**



Adding in the additional regions provides location context, removing location ambiguity for data points. For instance, both the UK and Canada have a city named "London"; and in the US, 36 of the 50 states have a city named "Springfield". By adding in the additional regional context, data will be mapped to the proper Country/State.

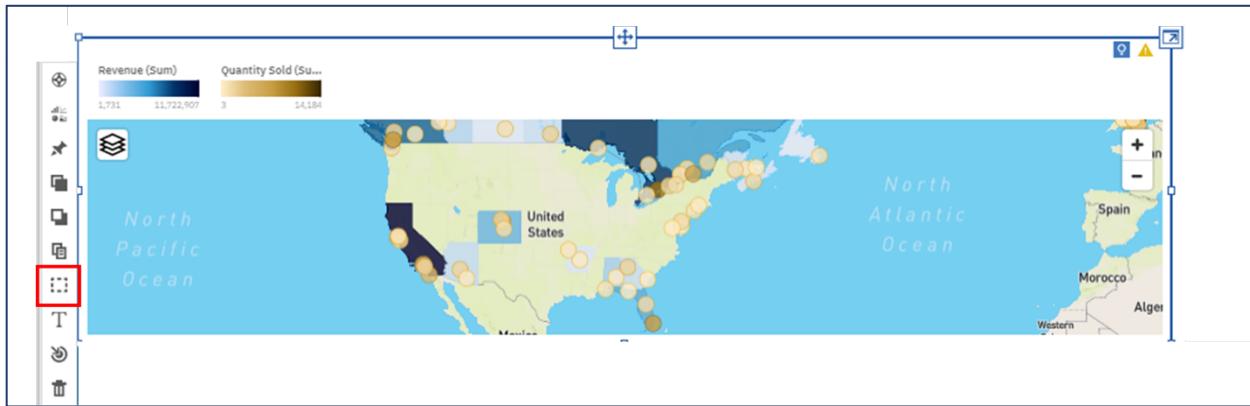
Collapse the map and save the dashboard.

Part 16. Select/Lasso on Maps

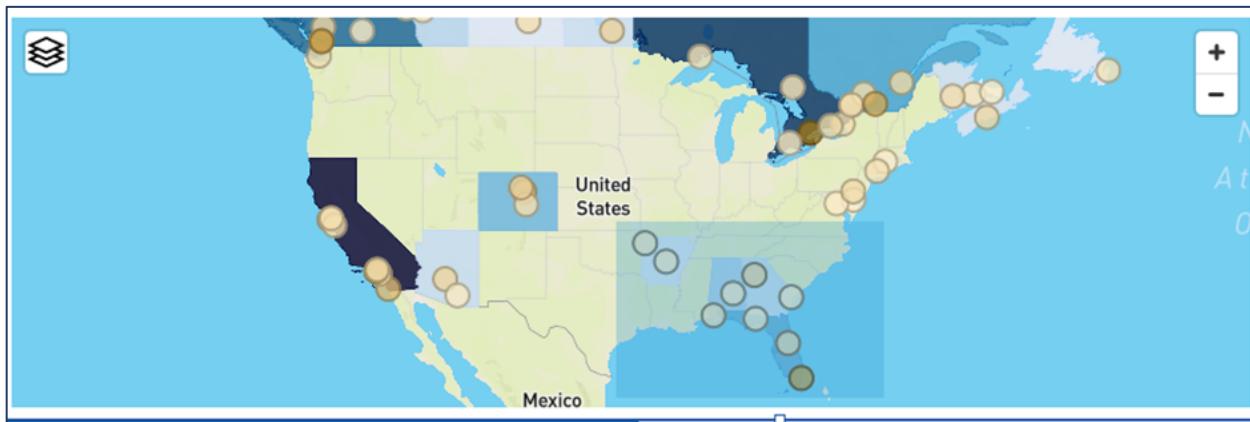
The **Select** feature in Cognos Analytics allows users to select an area of the map, called *lassoing*, to focus in on a particular area. The lasso will filter the map and all connected widgets to update the dashboard based on the data points in the lasso.

Use the **Zoom** buttons  or mouse wheel to **Zoom** in over the **United States**.

Click on the **Map** widget to open the **on-demand toolbar**. Click on the **Select** button to turn on the lasso tool.

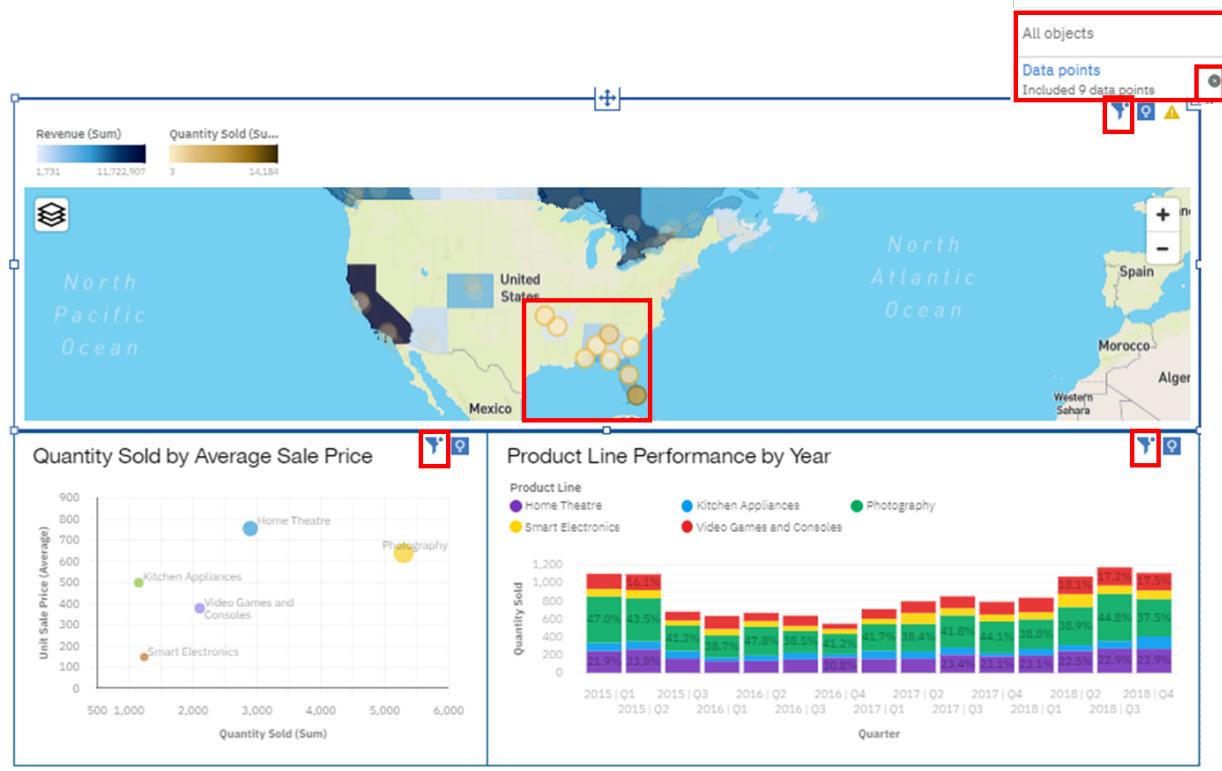


Use to lasso the southeastern United States.

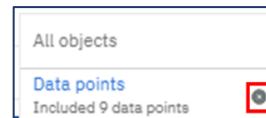


TECH TIP: Zooming is not available while the select tool is active. The select tool will remain active until you dismiss it by clicking elsewhere on the screen.

The dashboard now updates based on the selected area. Notice that the Map is highlighted for the all **Province or States** (the highest geo-location level based on our map definitions earlier) that were in the selection containing data points. Open the **Filter** button on any of the widgets to see the filter details of the selected/lassoed area.



Click the **Delete Filter** button on the Filter detail window to remove the filters.



Zoom out to restore global view of map and save the dashboard.

Part 17. Map Clusters

Many times, there are so many Geo-locations that rendering individual locations indicators for each makes the map difficult to read when zoomed out to show larger areas.

To optimize the map presentation at all zoom levels, Cognos Analytics provides **Map Clustering** to aggregate individual locations into **Clusters** so that when zoomed out, the map will render a single location indicator with an aggregate sum of locations represented.

When the user zooms in on the map, the **Clusters** will update to show more discrete clusters, until fully zoomed in, where it will show the individual locations.

Click on the **Map** widget to bring it into focus.

Open the **Properties** panel to the **Visualization** tab. Under **Legend**, turn off **Show legend**. Under **Latitude/longitude layer**, change **Type** to **Cluster**.

Close the **Properties** panel.

Begin to **zoom in** over the map to view the Clusters update as they split apart to smaller clusters. As you zoom in, notice also that you begin to see the street level detail on the map.



Zoom out of the map to see the Clusters reaggregate.

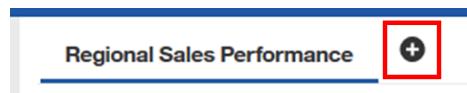
Save the Dashboard.

Part 18. Pattern and Relationship Detection

Cognos Analytics 11.1 has a wide variety of new visualizations available such as the spiral analysis which provides users with statistical pattern and relationship detection.

*Continuing with your analysis of **Smart Electronics**, you can use your customer loyalty program data to understand what drives customer lifetime value in the hopes that information may be used to increase sales. You can do this by adding a spiral visualization to the dashboard to surface data relationships. You'll select your target, in this case your Customer Lifetime Value field, to uncover insights regarding potential drivers for Customer Lifetime Value.*

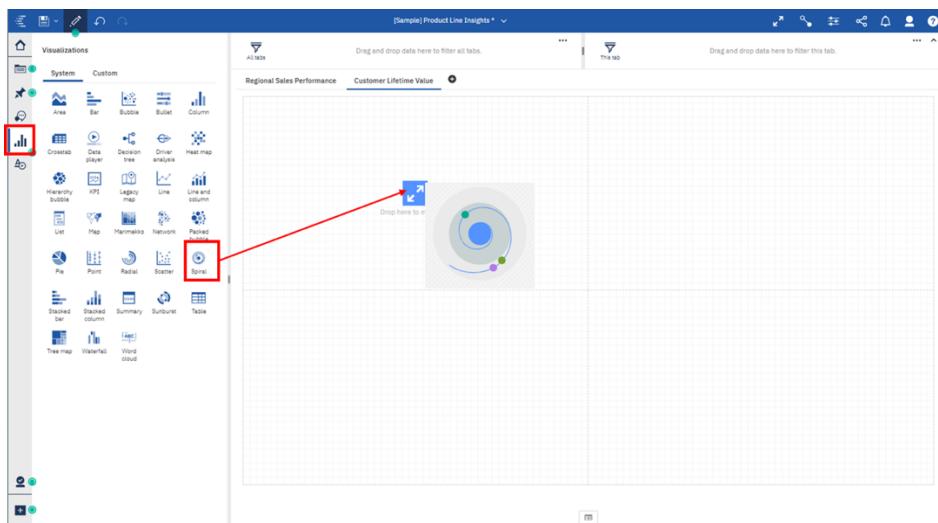
Click on the **Add a new tab**  to the right of the current **Tab**.



The **Select a template** window opens. Select the **2x2-panel template** and click **OK**.

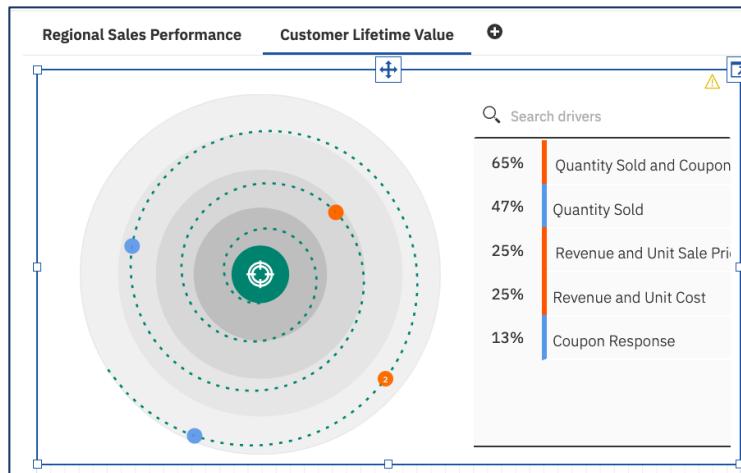
Click on the **Tab** to open the on-demand toolbar. Click on **Edit the title**  icon and rename the tab to “Customer Lifetime Value”.

From the Navigation bar, select **Visualizations** . Drag the **Spiral Chart** to the drop zone of **Panel 1**.



Drag and Drop “Customer Lifetime Value” to the **Target** data slot.

The screenshot shows the 'Target' configuration dialog. On the left, there is a list of items: Unit Sale Price, Unit Cost, Revenue, Customer Lifetime Value (which is highlighted with a red box), and Loyalty Count. On the right, the 'Target' field is selected, also highlighted with a red box. The dialog includes a 'Required field' indicator, a 'Target' icon, and a 'Customer Lifetime Value' input field. Below the input field is a 'Edit scope' button and a note: 'This is where you can access and modify the driver selection for your target.' There is also a 'Turn off hints' link.



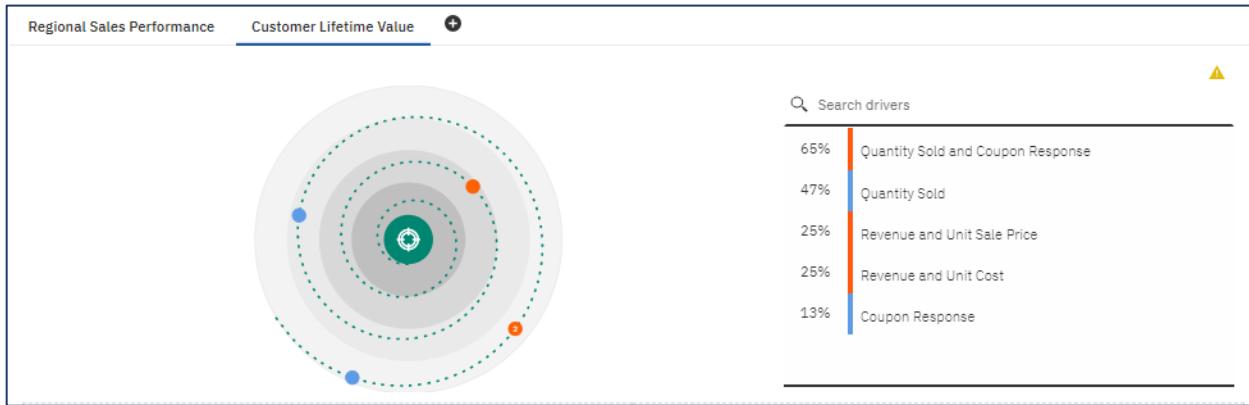
Cognos Analytics runs a number of algorithms to determine the drivers of **Customer Lifetime Value**. Once complete, the visualization will render.

*The target, in this case **Customer Lifetime Value**, is at the center of the spiral. The points that surround the spiral chart represent those data items found to have statistically significant relationships to Customer Lifetime Value.*

*The **Quantity Sold** is intuitive, but it's interesting to see that there's a significant relationship with your coupon campaign. It's encouraging to know the campaign had an impact, and that's something you can now explore further.*

Collapse the Spiral Chart.

Resize the **Spiral chart** using the sizing button on the right center, drag the right edge of the widget to the right to cover both **panels 1** and **2**.



Next, you would like to understand the underlying drivers related to product line. You are interested in finding patterns in the buyer's attributes so that you can better target buyers with a high propensity to buy.

From the Navigation bar, select **Visualizations**. Drag the **Sunburst** to the **drop zone of Panel 3**.

Drag and drop “**Product Line**” as the **Target**. Click on three **ellipses (...)** and select **Edit scope**.



The **Edit scope** window open.

Here, you can see all the data items from your data source and you can select which drivers to use for the analysis.

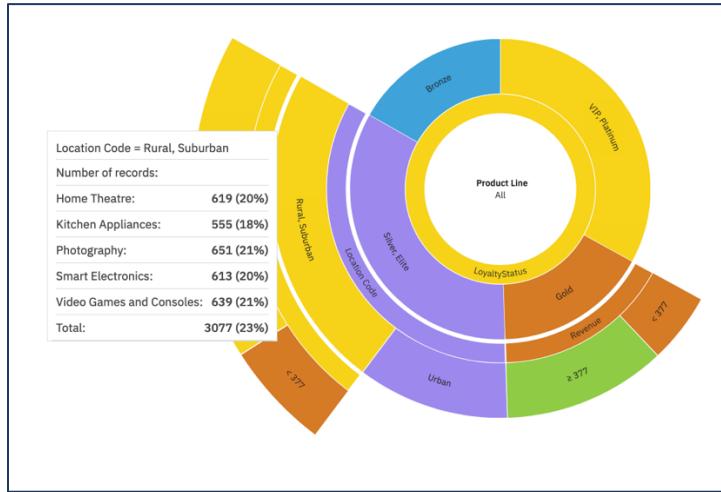
Since you are now interested in patterns and drivers based on buyer attributes, you will remove some measures from the analysis.

In the **Drivers** list, scroll down and use the **Remove** button for **Unit Cost** and **Unit Sale Price** and then click **OK**.

The screenshot shows the 'Edit scope' dialog box. The 'Available' list contains various driver options like Loyalty#, First Name, Last Name, etc. The 'Selected' list contains Latitude, Location Code, LoyaltyStatus, Customer Lifetime Value, Quantity Sold, Unit Cost, Unit Sale Price, and Order Year. The 'Unit Cost' and 'Unit Sale Price' items are highlighted with red boxes and have a small remove icon next to them. At the bottom, there are 'OK' and 'Cancel' buttons.

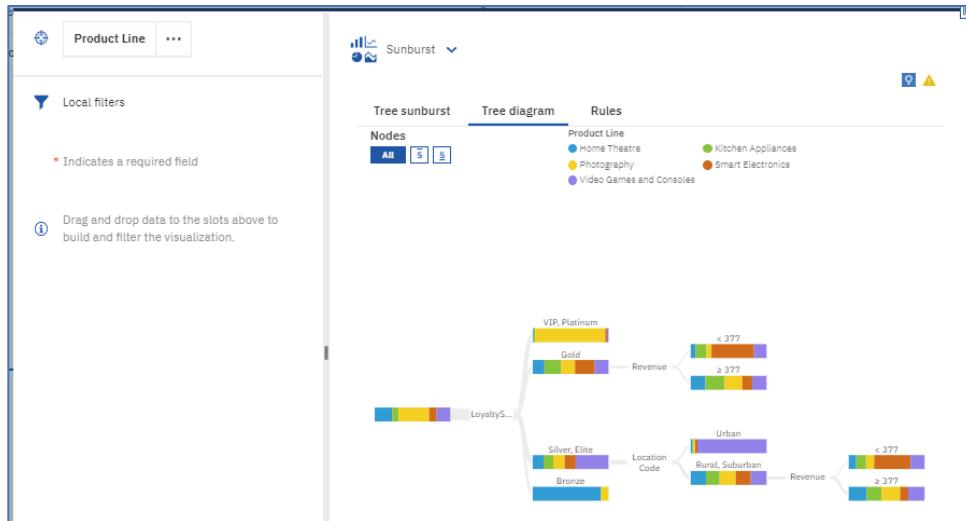
The Sunburst updates showing the various patterns found in the data. Each set of rings of the sunburst represents an attribute (data column), with each section representing the attributes with a statistically significant driver/set of drivers. Hovering over a section will show the percentage breakdown by product line (your target) for that section.

Hover over the section showing “**Rural, Suburban**”. The details show the percentage breakdown by **Product line** for buyers in rural and suburban areas.



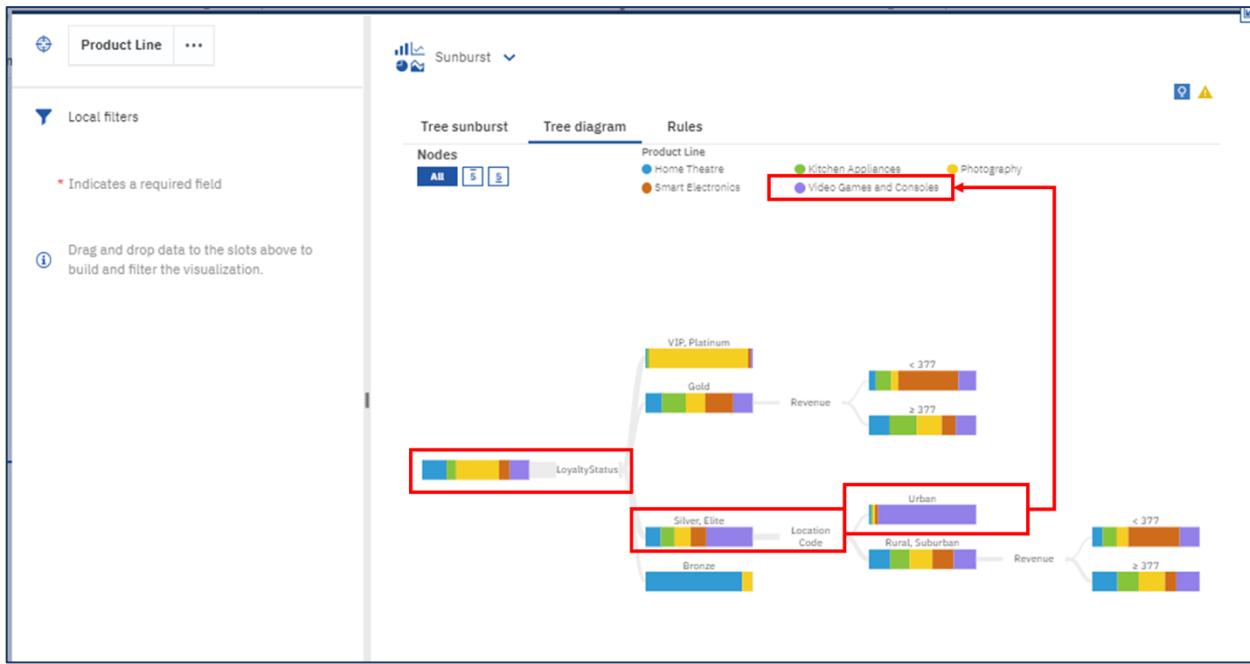
Click on the **Tree Diagram tab**.

The Tree diagram provides a Decision Tree view of the results. In reading left to right, you can see the relationships patterns between **Loyalty Status** and **Location codes**.



In following the flow of the diagram from left to right, you see the vast majority of customers in Loyalty tiers of Silver and Elite are from Urban areas, purchasing Video Games and Consoles.

This information would provide support for Marketing campaigns for this product line, targeting urban areas, such as billboards, signage at bus/train terminals, etc.



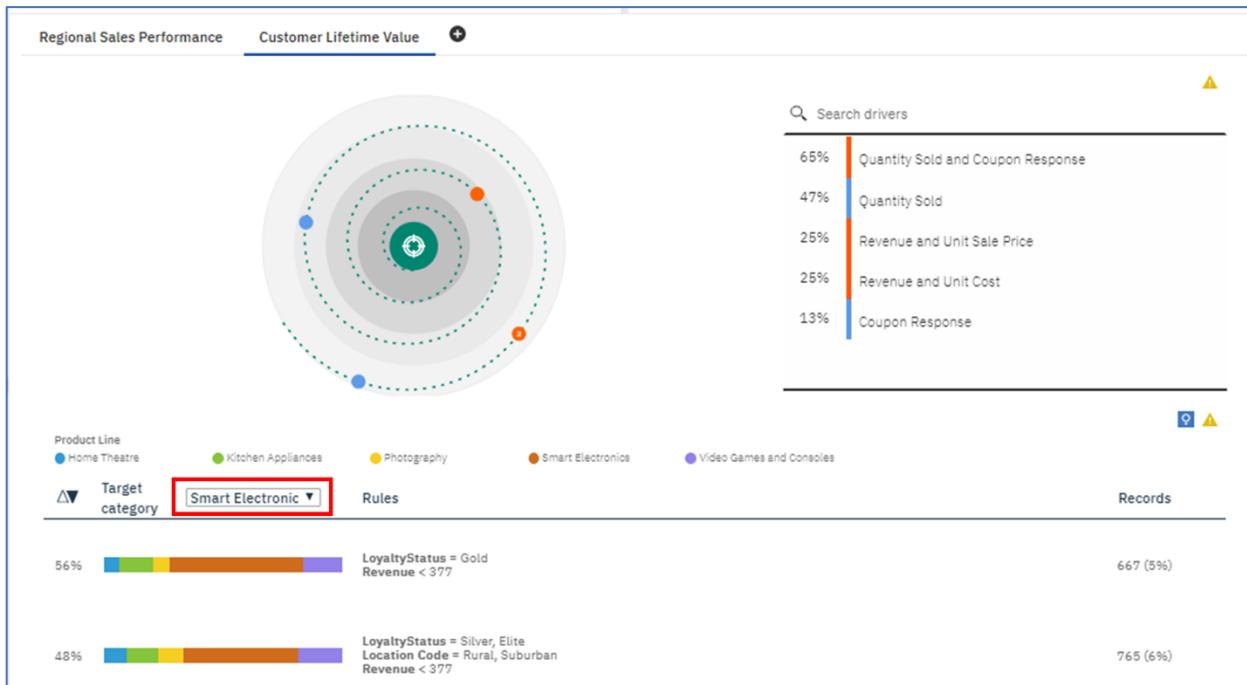
Click on the **Rules tab**. Decision rules provide plain language explanations of the individuals who are buying your product lines.

Collapse the **chart**.

Resize the **Sunburst chart Rules tab** using the sizing button on the right center, drag the right edge of the widget to the right to cover both **panels 3 and 4**.

Next, you want to see the decision rules that drive the product line sales, specifically those for Smart Electronics.

For **Target category**, use the **down arrow** and select **Smart Electronics**.



Here is the targeted insight that you've been looking for: Buyers in your loyalty program who have a gold, silver or elite status, and those who live in the suburbs are more likely to purchase from Smart Electronics product line.

Save the dashboard.



Summary

Congratulations, you've completed your first set of dashboards, including a quick dive into Data Exploration and using the Assistant to uncover new insights!

To continue your Analytics journey, please check out our other tutorials in this Cognos Analytics 11.1 series.

Visit us at: <https://www.ibm.com/demos/collection/IBM-Cognos-Analytics/>