Developing Key Performance Indicators (KPIs) in Tableau

The following tutorial will show you how to create KPIs in Tableau 8.2. To get started, you will need the following:

- ✓ Tableau version 8.2
- ✓ Data: Sample Superstore English (Extract)

Part 1: What is a KPI?

Before we begin the tutorial, let's understand what a KPI really is. According to Wikipedia, a key
performance indicator (KPI) is a type of performance measurement that evaluates the success of an organization or of a particular activity in which it engages. For example, an organization may have KPIs for different aspects of their organization such as sustainability, efficiency, safety, and profitability, among others.

Now that we have a high-level overview of KPIs, let's start the first part of the tutorial. Read the following scenario and complete a short report for your boss.

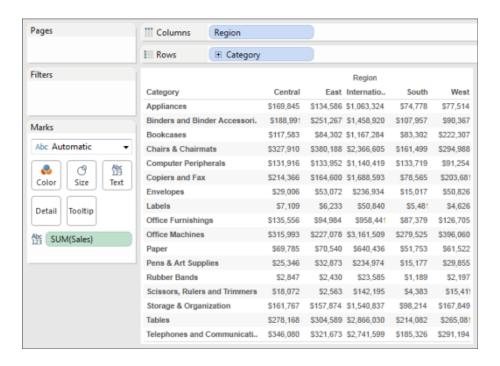
Imagine that you are a new data analyst hired by a medium-sized company that specializes in marketing and sales. The company is new to data analytics. Your boss has heard that KPIs are the greatest thing since sliced bread. However, your boss is way too busy to think about researching KPIs. So, he assigns you the task of typing up a short report (no more than a page, double-spaced) on KPIs. In the report, he wants you to define KPIs, as well as give him some examples of KPIs that could be useful for marketing and sales. Moreover, your boss wants you to do a little benchmarking and provide him with some examples of what other companies in your domain are doing with KPIs. And remember, your boss likes visuals, so some visual examples would also be helpful.

Part 2: Creating a Basic KPI Scorecard in Tableau

Now, since we are well-versed in KPIs, let's make a simple example of a KPI in Tableau. Using the *Sample – Superstore – English (Extract)* dataset, let's make a KPI that shows a sales by category and region. For the KPI, we will set this at a green check mark (meaning good sales) for any sales figure over \$125,000, and a red X (meaning bad sales) for any sales figure under \$125,000. Note the following was taken from: http://kb.tableausoftware.com/articles/knowledgebase/kpis

I. Create the base view with the data you want to measure

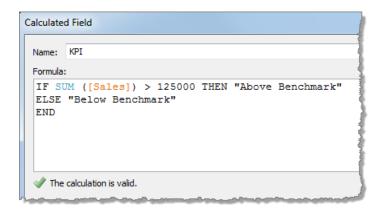
- 1. Open a new workbook and connect to the Sample Superstore English (Extract) data source.
- 2. From the Dimensions pane, drag Category to the Rows shelf and Region to the Columns shelf.
- 3. From the Measures pane, drag **Sales** to **Text** on the Marks card.



II. Create a calculated field using the Sales figure

- 1. Select Analysis > Create Calculated Field.
- 2. In the Calculated Field dialog box, complete the following steps.
 - ✓ For Name, type KPI.
 - ✓ In the **Formula** box, build the following formula:

IF SUM ([Sales]) > 125000 THEN "Above Benchmark" ELSE "Below Benchmark" END



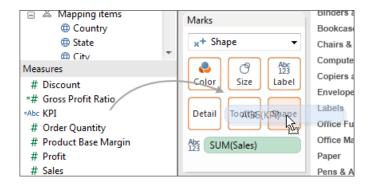
3. Confirm that the status message indicates that the formula is valid, and then click OK.

Note: You can also write the formula the following, slightly more succinct format:

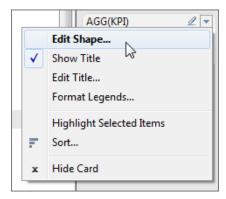
IF SUM([Sales]) > 125000 THEN "Above Benchmark", "Below Benchmark")

III. Create the KPI view from the base view

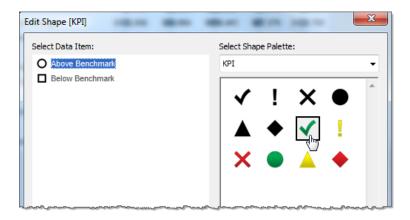
- 1. On the Marks card, from the drop-down list of views, select **Shape**.
- 2. From the Measures pane, drag KPI to Shape.



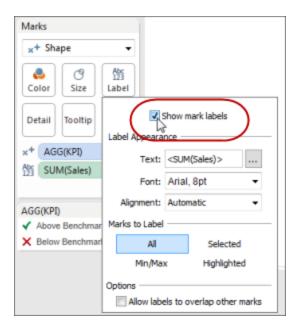
3. On the shape legend drop-down menu, select **Edit Shape**.



- 4. In the Edit Shape dialog box, make the following selections:
 - ✓ Under Select Shape Palette, select KPI.
 - ✓ Under **Select Data Item**, select **Above Benchmark**, and then in the KPI palette, select the green check mark.
 - ✓ Select **Below Benchmark**, and then select the red X.
 - ✓ Click **OK**.



- 5. The shapes in the view show your selections. Now you just need to hide the text labels.
- 6. On the Marks card, click **Label**, and in the drop-down control, clear the **Show mark labels** check box.



- 7. You can fine-tune how Tableau displays the mark labels by doing the following on the Label drop-down control:
 - ✓ To show the label for just one mark, under **Marks to Label** click **Highlighted**, and then click the mark in the view.
 - ✓ To show the labels for one or more marks, under **Marks to Label** click **Selected**, and then select the marks in the view.
- 8. Save your worksheet as Sales KPI

Part 3: Creating a Profitability KPI Dashboard

Now that you have seen how to create a simple KPI, let's move to a more complex set of graphs based on one KPI that works together in a dashboard. This set of graphs based on the KPI will show

Profitability. The dashboard will be comprised of three graphs, and will use the Sample – Superstore – English (Extract) data source:

- I. Profitability by Item
- II. Profitability Details
- III. Profitability by Category
- I. Profitability by item (Scatterplot)

Create Calculated Fields

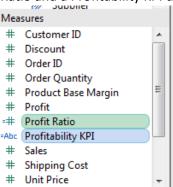
First, let's create a KPI calculated field called "Profitability KPI" which is based on a Profit Ratio.

- 1. First, create a calculated field with the name "Profit Ratio".
 - √ The formula for this is: SUM(Profit)/SUM(Sales)
 - ✓ For Profit Ratio, change the Default Properties and Number Format for Profit Ratio to Percentage, with 2 decimal places.
- 2. Next, create a calculated field with the name "Profitability KPI"
 - ✓ The formula for this is:

 IF [Profit Ratio]> 0.5 then "AWESOME" elseif

 [Profit Ratio]> 0.3 then "SO-SO" else

 "BAD" END
 - ✓ IMPORTANT NOTE: the above code will assign values for AWESOME, SO-SO, and BAD based on the code. In essence, the KPI is if the Profit Ratio above 0.5 then it is awesome; if the Profit Ratio is above 0.3 but not 0.5, then it is simply so-so; and everything else below 0.3 is not good, or bad. Basically, this KPI scheme represents the KPI that will govern our analysis, and the assumptions on which our dashboard and conclusions are based.
- 3. You should now have a Profit Ratio and a Profitability KPI under Measures.



Create the Scatterplot Using the Profit Ratio and Profitability KPI

1. Drag the Profit Measure into Columns, and the Profit Ratio into Rows

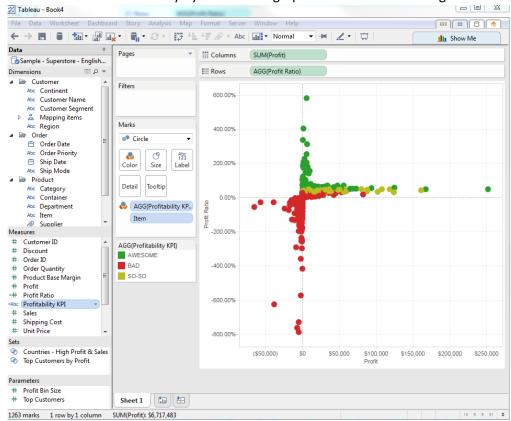


2. Drag Item into the Detail box on the Marks Card.

- 3. Click the Color button in the Marks Card and click Edit Colors
- 4. Select AWESOME and choose the color you think representes awesome. I chose Green. Next, select BAD and choose the color you think represents bad. I chose Red. Do the same for SO-SO, which I chose as Yellow.
- 5. Click Apply and OK.
- 6. Now in the drop-down menu of the Marks Card, select the Circle Option.
- 7. Also change the size of the circles.
- Edit Colors [Profitability KPI] Select Data Item: Select Color Palette: AWESOME Tableau 10 BAD SO-SO Assign Palette Cancel Apply Reset

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8. Save this Sheet as "Profitability by Item". Your graph should look something like this:

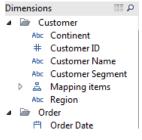


Profitability Details II.

On a new Sheet, let's create a more detailed look at your profitability and items using the Profitability KPI.

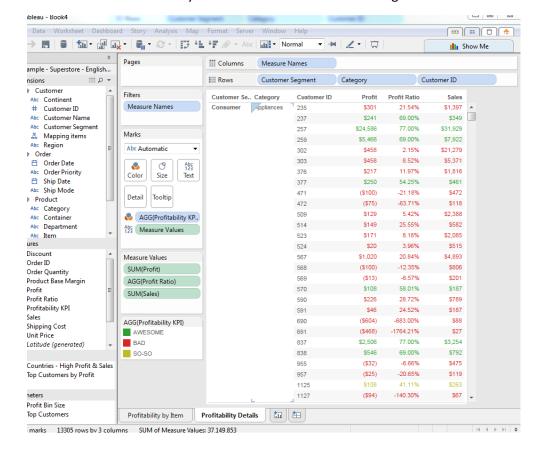
1. Drag Customer Segment and Category into Rows

- 2. Notice that Customer ID is under Measures. This really should not be the case. So drag Customer ID up into Dimensions, and place it under the Customer folder.
- 3. Drag Customer ID into Rows next to Category. Click Add all Members.





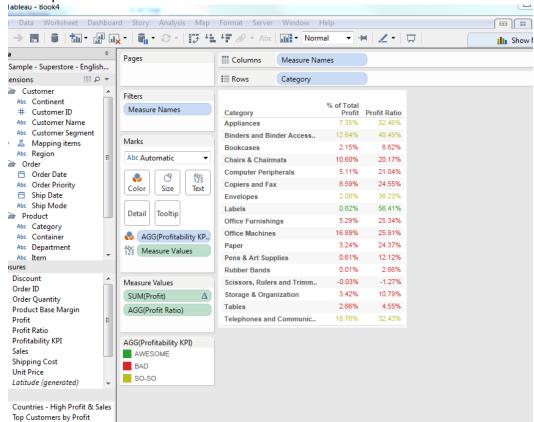
- 4. Now we need some measures. To populate the report:
 - ✓ Double-Click Sales
 - ✓ Double-Click Profit
 - ✓ Double-Click Profit Ratio
- Drag Profitability KPI into the Color button on the Marks Card (Notice that this makes the Profit, Profit Ratio, and Sales Green, Yellow, or Red based on the threshold we created in the Calculated Field.
- 6. Save this sheet as "Profitability Details". It should look something like this:



III. Profitability Details

The last sheet we will make will be a Profitability by Category report that will give us a view of the Total Profit and Profit Ratio by Category.

- 1. In a new Sheet, drag Category into Rows.
- 2. Double-Click Profit; Double-click Profit Ratio.
- 3. We want to make a quick table calculation for Profit. Remember those? Tableau has different options for common calculations, which they call "quick table calculations" so that we don't have to create a lot of calculated fields.
- 4. We want to see the Percent of Profit alongside our Profit Ratio.
- 5. So, in the Measure Values pane, hover over SUM(Profit), click the down arrow, select Quick table calculation, and select Percent of Total. BOOM! This will 'quickly' calculate the % of Total Profit for each Category.
- 6. Notice the new name of the Column is "% of Total Profit along Table (Down)." This is WAY too long for us. Let's rename it to just "% of Total Profit".
 - ✓ Right-click the title, select Edit Alias, rename this to "% of Total Profit" and click OK. There you have it.
- 7. Now don't forget about the fact that we are trying to show KPIs. Drag the Profitability KPI Measure to Color. Now we have a visual representation of whether the % of Total Profit is good or bad, based on the Profit Ratio.
- 8. Save this Sheet as "Profitability by Category"
- Your report should look like this:



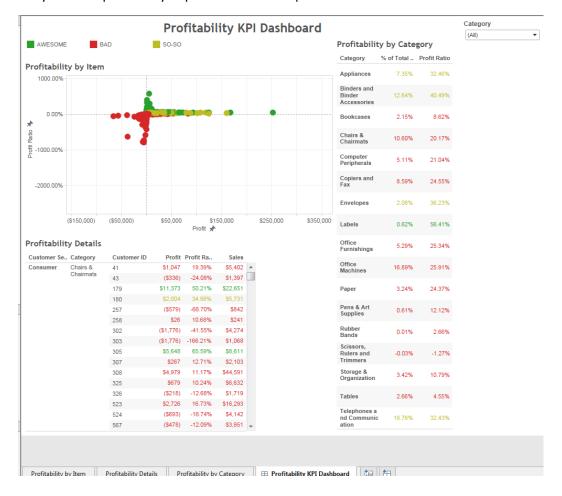
IV. Creating the Profitability KPI Dashboard

Now, it's that wonderful time to put everything together! Since you are the dashboard expect, I am going to let you how to decide to assemble the dashboard, and how you want to make it interactive. I made the following Dashboard below. I expect your Dashboard to have:

- ✓ At least two Actions
- ✓ At least one Quick Filter

You will impress me if:

- ✓ You build another dashboard that links from one to the other.
- ✓ You utilize multiple filters.
- ✓ Your dashboard layout and interactivity tells a simple, but meaningful story about profitability.
- ✓ You go back to the worksheets and add labels (e.g., Customer Name, Customer ID), which you could potentially implement a search quick filter based on these items.



Part 4: Write-Up

Once your dashboard is finished, please write a short analysis about your dashboard. In your analysis, include the following points. Please save your write-up as KPI_Analysis.docx

- ✓ What the KPI is
- ✓ Why the KPI makes sense or does not make sense (do not just say because I told you to do it.)
 Am I right in choosing these thresholds?
- ✓ What story the dashboard tells
- ✓ What is another KPI that could be made based on this data?