How to Create A Clear Stacked Bar Chart in Microsoft Excel 2003

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These instructions show you how to take survey data comprising negative, neutral and positive response values, and present them in a sensible chart. An important first step is to understand your initial data. As an example, a Frequency Scale of five responses is shown here (Figure 1). However due to its odd number of responses, it may not produce a clean, cognitive Stacked Bar Chart. Likewise, the data values may represent positive numbers from one through five with no negative values at all (as in Figure 1). Therefore, for such questionnaire responses, you may need to start by recoding the values assigned to achieve the best chart output. For example, it is more intuitive, and can be more cognitive in data charts, if responses such as "Never" or "Rarely" are represented by negative values, with "0" assigned to a neutral response such as "Sometimes," and positive values assigned to responses such as "Mostly" or "Always."

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Figure 1: Sample Start Data

Question	Never	Rarely	Sometimes	Mostly	Always
I receive clear expectations	5	3	2	15	25
I trust the people in the partnership	3	3	4	20	20
I gain satisfaction from attending meetings	0	0	30	20	0
We discuss our KPI's in our meetings	3	3	20	20	4
My manager has sufficient time to coach direct reports	3	10	20	10	7
I receive feedback on work performance	10	10	10	10	10
I receive recognition from my manager	20	3	4	3	20
I recognise the efforts of my direct reports	3	20	4	20	3
I have sufficient time to coach my direct reports	7	10	20	10	3
I am treated with trust & respect	10	15	20	5	0
My work performance is measured accurately	25	15	2	3	5

If your data has an odd number of response categories (as in Figure 1), you could evenly split the center, neutral category to balance the data on either side of "0". That is, if you have a single neutral category response such as "Sometimes," you can split the values into two halves. Then affix negatives to one of the two equal sets (as in Figure 2). Consider these issues when planning your data presentation goals and coding scheme. Then transform your values and/or split your categories like the aforementioned examples before following the next steps to create a Stacked Bar Chart.

Figure 2: Neutral data split from the previous sample

	Never	Rarely	Sometimes	othertimes	Mostly	Always
I receive clear expectations	-5	-3	-1	1	15	25
I trust the people in the partnership	-3	-3	-2	2	20	20
I gain satisfaction from attending meetings	0	0	-15	15	20	0
We discuss our KPI's in our meetings	-3	-3	-10	10	20	4
My manager has sufficient time to coach direct reports	-3	-10	-10	10	10	7
I receive feedback on work performance	-10	-10	-5	5	10	10
I receive recognition from my manager	-20	-3	-2	2	3	20
I recognise the efforts of my direct reports	-3	-20	-2	2	20	3
I have sufficient time to coach my direct reports	-7	-10	-10	10	10	3
I am treated with trust & respect	-10	-15	-10	10	5	0
My work performance is measured accurately	-25	-15	-1	1	3	5

Steps to Create the Stacked Bar Chart:

NOTE:

The default chart output from these first steps is not at all what we want. We will have to go through additional steps to clean it up both in terms of graphics and data presentation.

1. In Excel, select the data cells for your chart, including the question and answer labels.

2. Then go to: Insert >> Chart

3. From "Standard Types," select "Bar" and the sub-type "Stacked Bar" (middle top), and click "Next."

4. Beside "Series in," the choice "Columns" should be clicked on, and click "Next."

5. Under the "Axes" tab, "Category (X) axis" should be clicked on, and the "Automatic" selection can be clicked on. "Value (Y) axis" should also be clicked on, and click "Next."

6. Select if you want the chart on your current sheet or a new one, and click "Finish."

Steps for Cleaning up Colors

A NOTE ON COLORS:
Colors can be very distracting, hard to compare or understand, or for the color blind, impossible to see. Therefore, carefully plan in advance your scheme, and choose clear colors that will enhance, rather than disrupt, the visual chart interpretation. A good recommendation for this type of stacked bar chart would be to start on the left with dark orange to light orange (warm colors for negative responses/values), to gray (for neutral responses), and then to light blue, and then dark blue (cool colors for positive responses/values).

7. Select the center "0" category axis line and double click. Since this is the center dividing line for our values, we want to see it. Therefore, select "Custom" for the Line, choose Color to be White, and you can increase the Weight for visualization. All "tick mark type" settings should be set to "None." In order to retain the category labels (survey questions), click "Low" below "Tick mark labels." *You can experiment more with these settings if you prefer a different presentation.*

8. Excel's default gray background for the chart is distracting, and is best to eliminate. Double click the chart area outside of the bars or gridlines for a "Formal Plot Area" dialogue box. Next set both the Border and Area to "None."

9. The black grid lines are also distracting. Double click on the vertical lines (value axis major gridlines). For "Line," click a light gray color. *You can also set the line style to a large dotted line if you like the more subtle effect.*

10. Now we want to present our bars better graphically. Select any individual bar on the chart so that the center "nodes" of that series are highlighted (instead of just one bar's outer border).

11. Go to the top menu "Format" >> "Selected Data Series."

12. Under the "Patterns" tab, select "None" for the "Border," and pick an appropriate color for "Area."

Final Touches to the Excel Chart

13. Your chart should now look clear and professional (as in Figure 3 below), however your legend should still be visible. Because you've made so many changes, the legend may be more confusing than helpful to the end viewer. For example, if you split two neutral response categories (as discussed in the introduction), you may want them presented together as one in the legend. Additionally, the order of legend labels may not match the sequence in your bar chart. For these scenarios, I would recommend creating your own legend manually in Excel then selecting this automatic legend and deleting it. Or, output the chart alone from Excel, and create your legend in final output software, such as Microsoft Powerpoint or Word (as in Figure 4, next slide).

Figure 3: Excel chart output
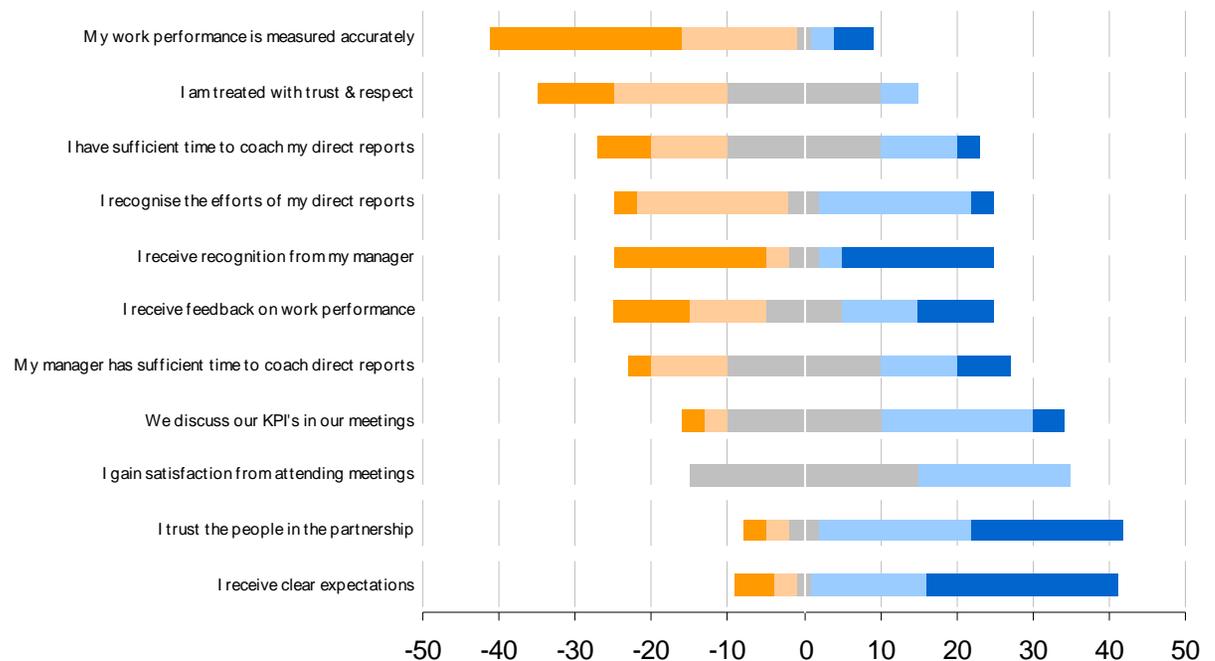
Enhancing Chart Description

FOR MORE CUSTOMIZATION:
You may want to show additional information with your category labels/survey questions. For example, you may want to clarify the data for the viewer by showing the total negative and positive values (without the neutral values) for each category label/question. In this case, just manually type in the information you want in Excel and place next to the chart. To delete the category labels/survey questions, double click on them, and in the "Patterns" tab, click "None" for "Tick mark labels." You can also further clarify the chart by manually typing in "Negative," "Neutral," and "Positive" in their general areas, in Excel cells above the chart. Or again, export only the chart from Excel and type your label entries in your final output software (as in Figure 4 shown here).

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Figure 4: Some customized descriptions added in Microsoft Powerpoint