

# Pareto Chart How-to Guide

Use this How-to Guide to complete a Pareto chart.

## Purpose

According to Brassard (2010), the purpose of the Pareto chart is to “focus efforts on the problems that offer the greatest potential for improvement by showing their relative frequency or size in a descending bar graph” (p. 122). The bars in a Pareto chart represent the values or counts observed for each discrete category rather than a continuous scale. The bars are typically arranged in descending order to facilitate analysis. A line graph appearing above the bars in the chart represents the cumulative percentage that each category contributes to the whole.

## When to Use a Pareto Chart

Pareto charts can be used when you are looking for a pattern to focus the scope of a project or improvement area to the area of greatest impact, or to determine the area of greatest significance.

## How to Use a Pareto Chart

You should start with data that is categorized. Categories can be cost, defect count, or other measurable categorical variable related to the problem at hand. Once the Pareto chart has been built in your software tool of choice, you will need to sort by frequency or by level of impact.

Microsoft Excel offers two Pareto chart templates: one focuses on a cost analysis, the other focuses on a problem analysis. You can access these two templates by performing the following steps:

Open Excel.

Select File from the toolbar and click on New.

In the search box for online templates, type in “Pareto.”

Click the magnifying glass or hit Enter. If you are not able to search, you might need to restart your computer to reset the internet settings.

Click on either of the templates that are presented, depending on if you are interested in a cost analysis or problem analysis

A pop-up window will appear with more information describing the template you chose

Click Create to access the template and to be able to make changes so that the numbers match your data

For the problem analysis chart, you may want to change “Problem Data” to a category that matches your particular problem.

You will see that Excel provides a sample table with sample data. In either the Occurrences column (for a category analysis) or Cost column (for a cost analysis), you should change the sample numbers to match your data collection results.

[Business Process Improvement Shared Service · go.uillinois.edu/bpi](http://go.uillinois.edu/bpi)

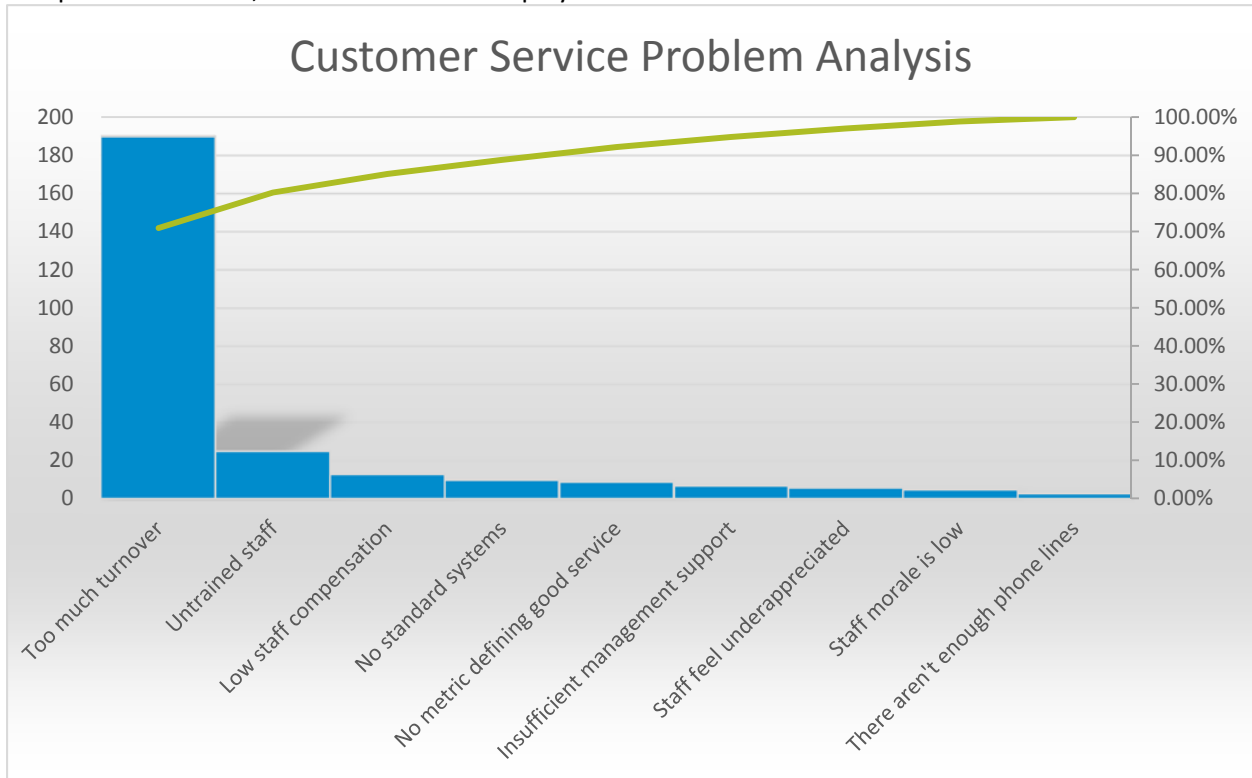
UNIVERSITY OF ILLINOIS  
URBANA • CHAMPAIGN • CHICAGO • SPRINGFIELD

Once you've changed the numbers, re-sort the table by highlighting the table, clicking on the Data tab on the ribbon, selecting Sort, sort on either Occurrences or Cost depending on your analysis, and select the order as "Largest to Smallest." Click OK. This will re-sort your bars in the Pareto chart to be presented from largest to smallest, and will facilitate a quick analysis.

Interpreting your Pareto chart results will show that there is either a Pareto effect (resulting in a clear area to focus on, where perhaps 80% of the problem can be attributed to one factor) or there is not a Pareto effect, in which case you will need to rethink your categories in order to help limit the scope and to find an area where there is a Pareto effect.

## Tips

Sample Pareto Chart, with Pareto effect displayed:



Data used to generate Sample Pareto Chart:

Customer Service Issues	Occurrence Count	Percent of Total	Cumulative Percent
Too much turnover	190	70.90%	70.90%
Untrained staff	25	9.33%	80.22%
Low staff compensation	13	4.85%	85.07%
No standard systems	10	3.73%	88.81%
No metric defining good service	9	3.36%	92.16%
Insufficient management support	7	2.61%	94.78%
Staff feel underappreciated	6	2.24%	97.01%
Staff morale is low	5	1.87%	98.88%
There aren't enough phone lines	3	1.12%	100.00%
<b>Total</b>	<b>268</b>	<b>100.00%</b>	

## References

Brassard, M., & Ritter, R. (2010). *The Memory Jogger 2: Tools for Continuous Improvement and Effective Planning*. Salem, NH: GOAL/QPC.

George, M. L., Rowlands, D., Price, M., & Maxey, J. (2005). *The Lean Six Sigma Pocket Toolbook*. New York, NY: McGraw-Hill.

Pande, P. S., Neuman, R. P., & Cavanagh, R. R. (2002). *The Six Sigma Way Team Fieldbook: An Implementation Guide for Process Improvement Teams*. New York, NY: McGraw-Hill.

Last update: 01/28/2016