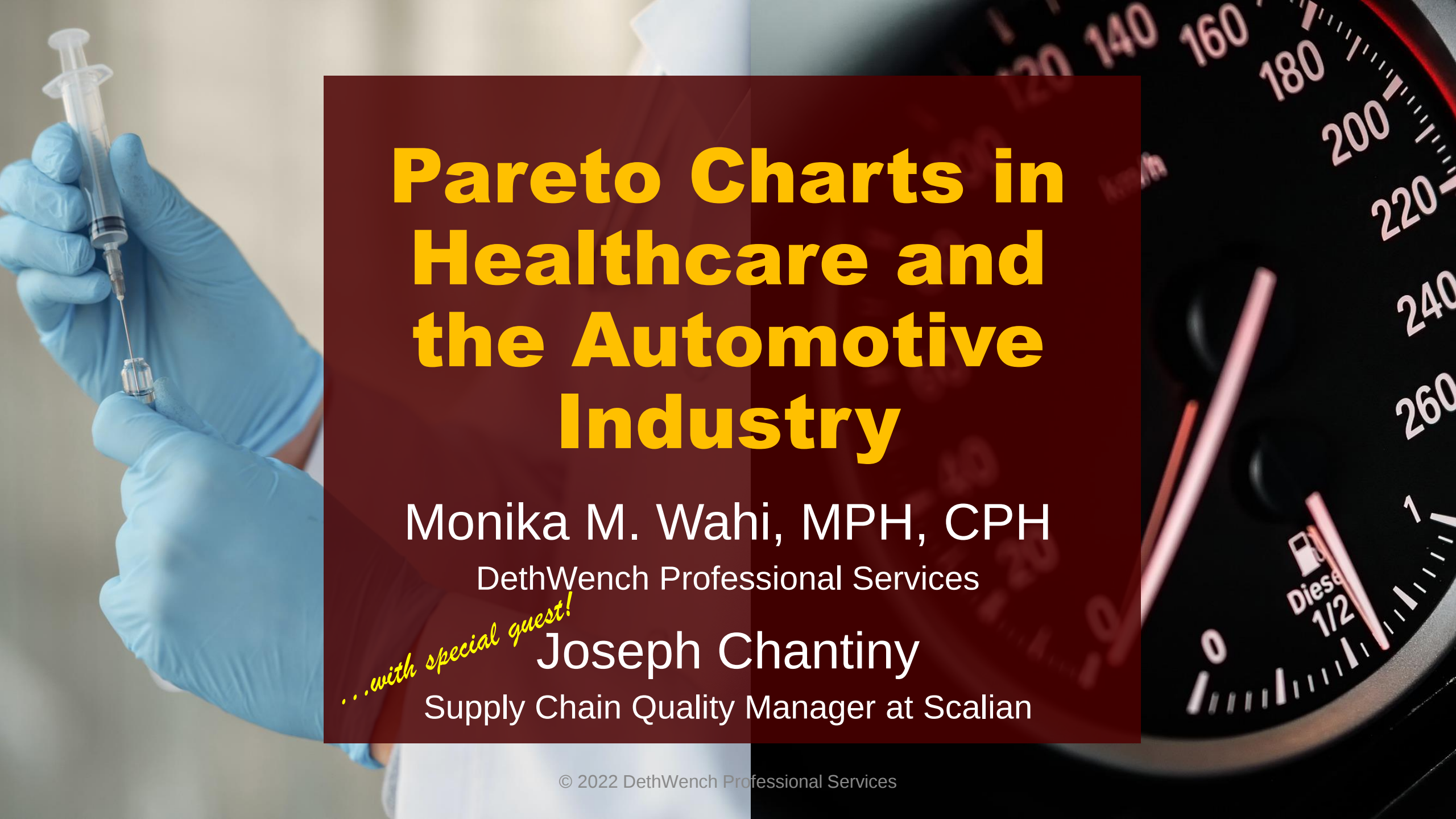




Pareto Charts in Healthcare and the Automotive Industry

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DethWench Professional Services

...with special guest!

Joseph Chantiny

Supply Chain Quality Manager at Scalian



Outline

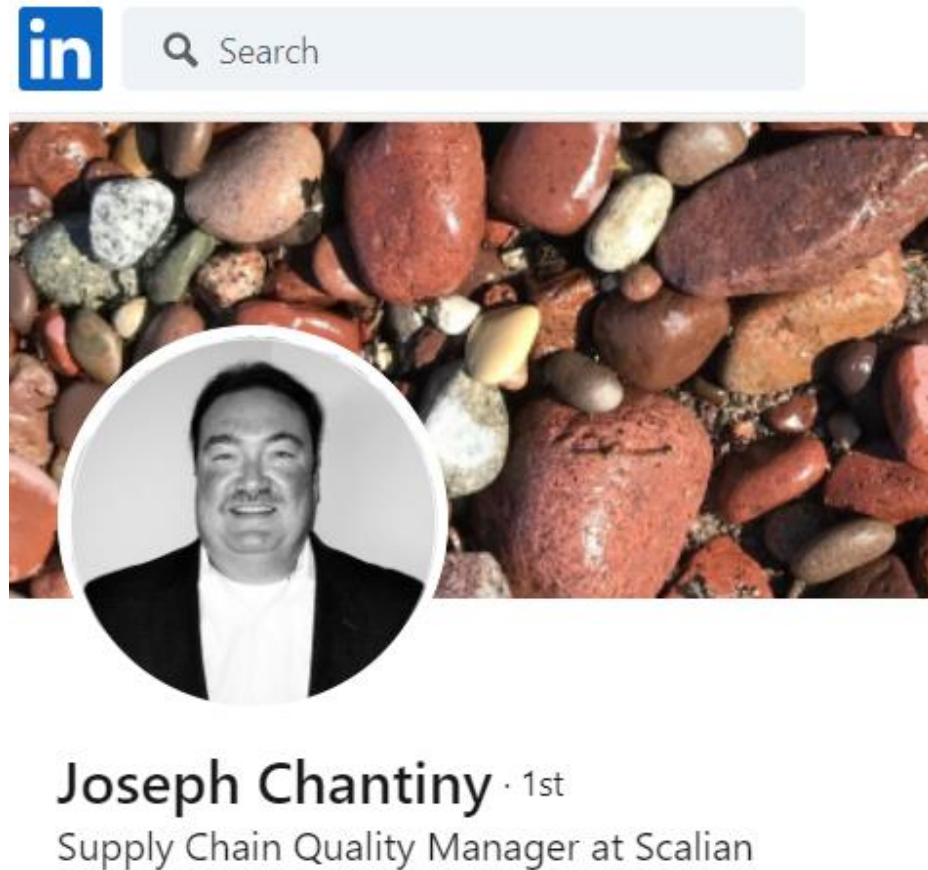
- What is a Pareto chart?
- Uses in healthcare
- Uses in the automotive industry





Welcome Special Guest, Joseph Chantiny!

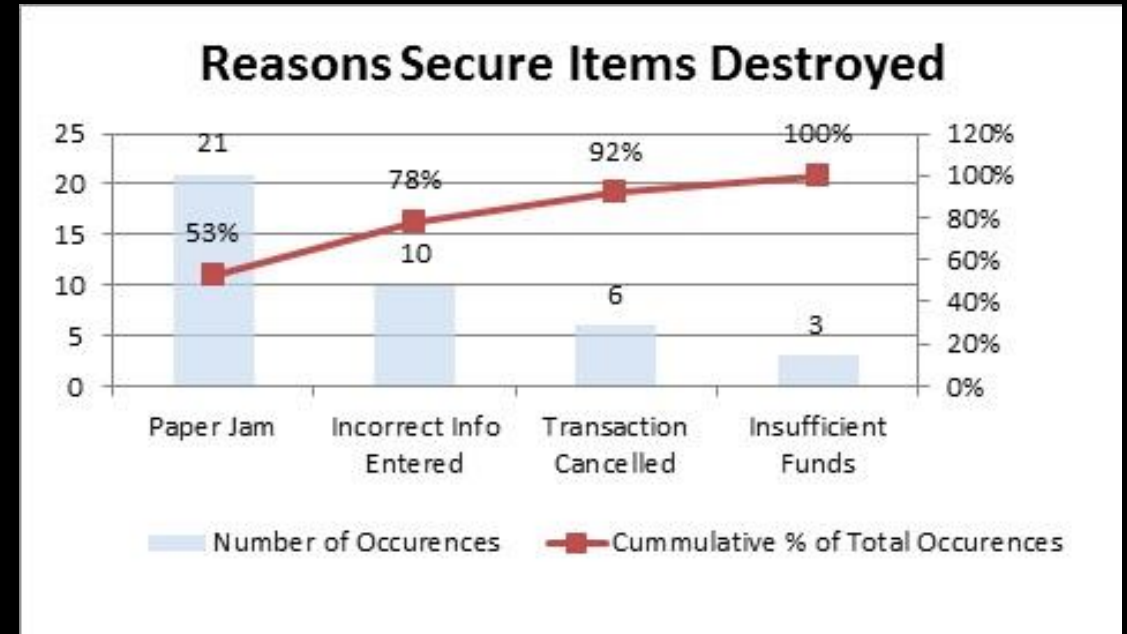
- Warranty engineer in automotive industry
- Quality control Analytics (SPC, DOE's)
- Failure mode and effects analysis (FMEA) and applications of the various types of FMEA including design, system, process, and use scenarios
- ASQ Professional





What is a Pareto Chart?

- Brase & Brase definition: “Bar graph in which the bars are arranged in order of decreasing *frequencies*”
- Frequencies mean that these are not rates or proportions
 - Not comparable between samples unless system remains stable
- Tend to be bad things



By Kelly Lawless, available here:
<https://commons.wikimedia.org/wiki/File:RootCauseParetoChart.jpg>



Pareto Charts in Healthcare

Issues

- Denominators are very important in health statistics
- **Epidemiology**: scale rates per 10,000 or 100,000
- **Potential use-case**: Incident database recording defined incidents (e.g., falls, needlesticks, others)

Application

- Plan-Do-Study-Act (PDSA) model – which is derived from.....



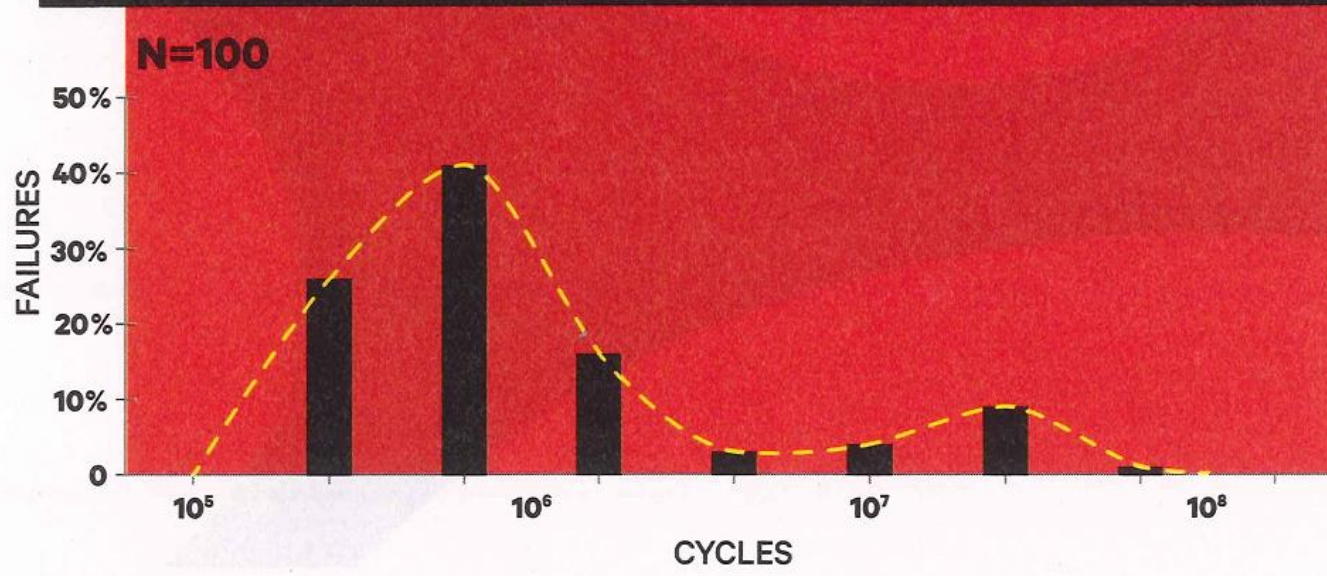
- Scientific Management Theory



Pareto Charts in Automotive

The Failure Curve

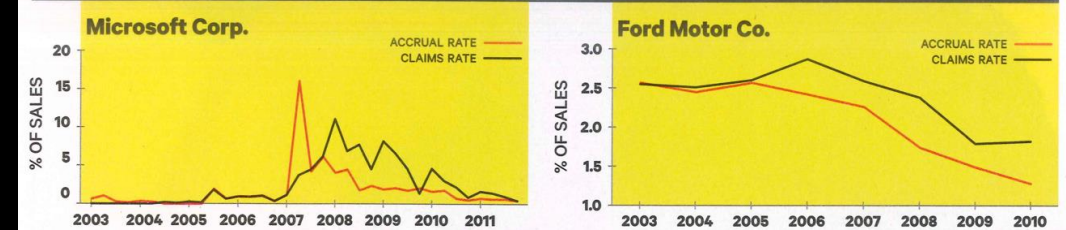
Product failure happens in what's called a Weibull distribution and often looks roughly like a bell curve. Ensuring reliability requires knowing where this curve begins and where it peaks. The chart below shows the logarithmic failure curve of steel bars placed in a fatigue machine. Most fail after 1 million cycles, but if you were to test only a few bars, those failures might occur after 10 million cycles. This might cause you to think the steel is much stronger than it actually is.



- From Wired Magazine: “Why Things Fail”
by Robert Capps
November 2012 Issue

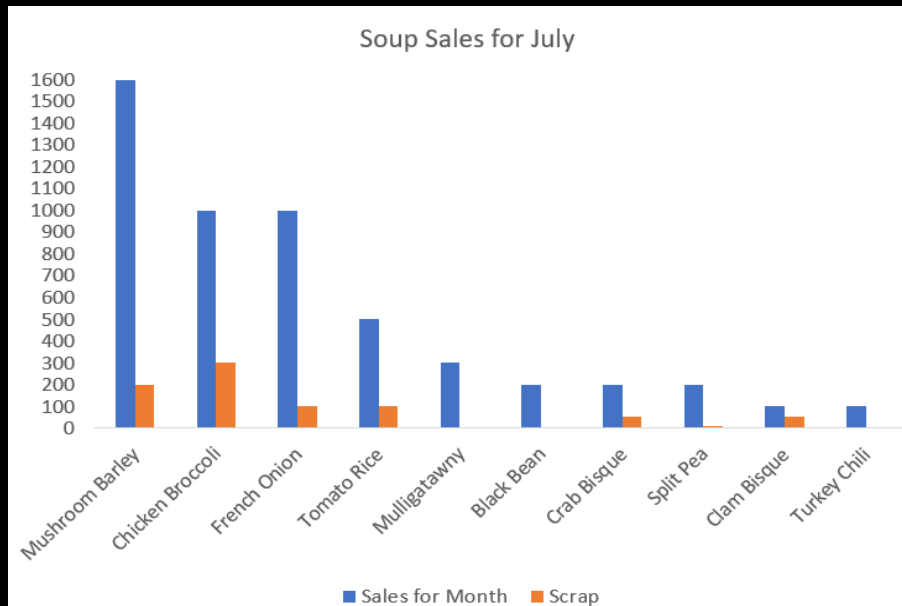
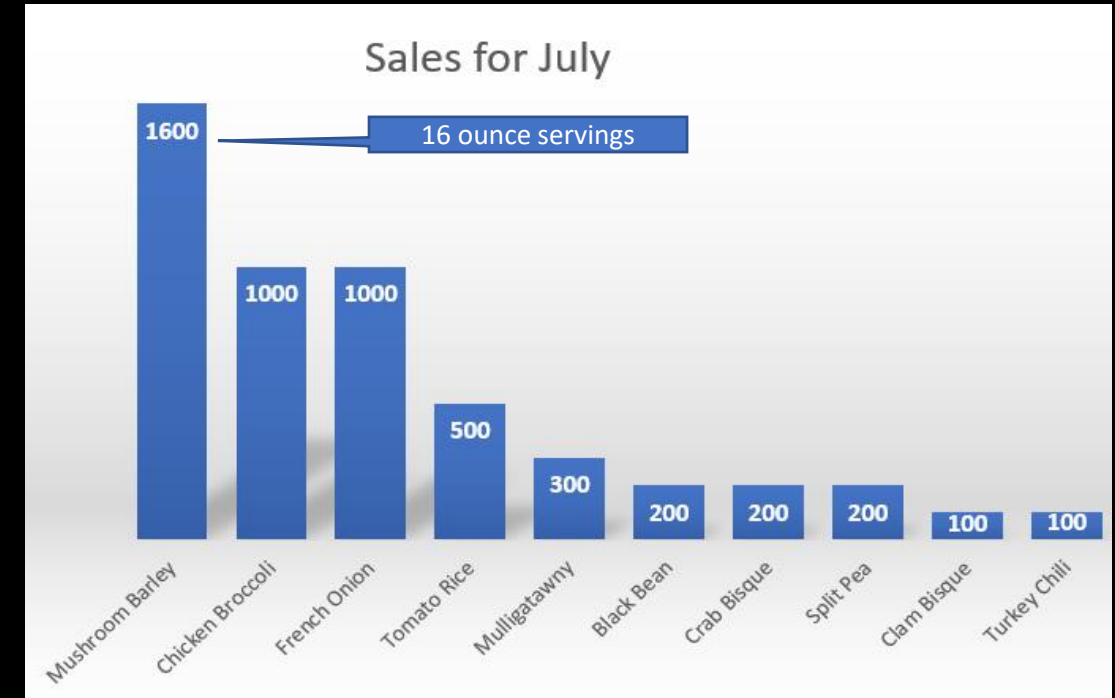
The Billion-Dollar Question

Successfully managing failure can have a huge impact on a company's bottom line, as this data from *Warranty Week*'s Eric Arnum shows. (Accruals are how much money a company puts away in anticipation of warranty payments; claims are what they actually pay.) Microsoft missed problems with the Xbox 360 and lost more than a billion dollars. Since 2004, Ford has upped reliability—and has saved a billion.





Simple Application: How to Sell the Right Soup



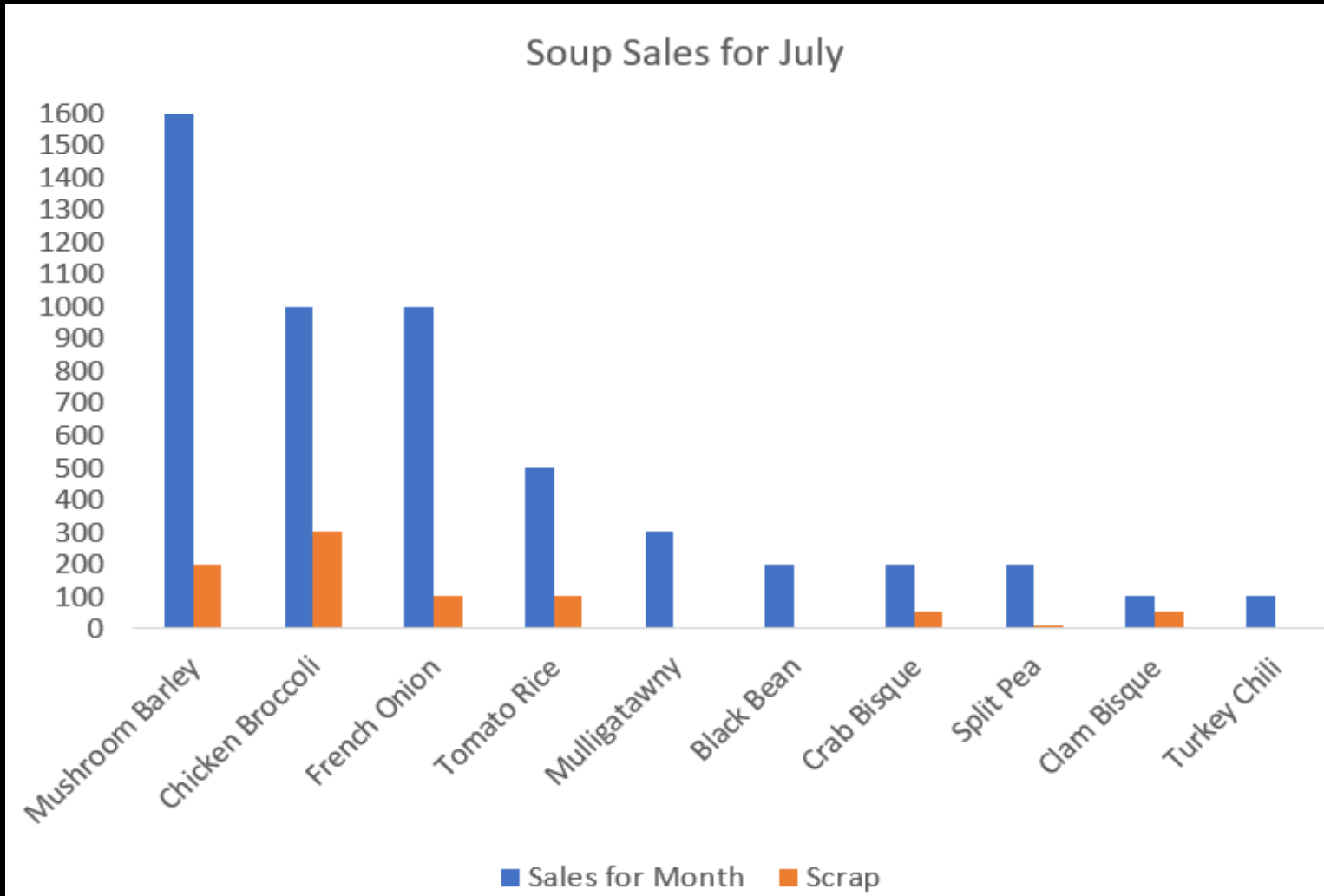
What is the process for utilizing Pareto?

- What kind of data are you given?
- Is it reliable?
- Is there too much data? Too little?

A Pareto is the simplest approach!



Data Knowledge: The Original Question...



Include additional information:

- Include all information that could be useful, note include scrap.
- It's going to hard for first engagements to discuss data. In the case of soup, there is probably a seasonal spike due availability of ingredients. One month isn't going to tell very much-so squeeze whatever information you can.
- **Break-even cost:** is it amortized and the profit is driven down by cost losers. For instance, Crap bisque is very time consuming to make but Chicken Broccoli easy and the ingredients inexpensive.

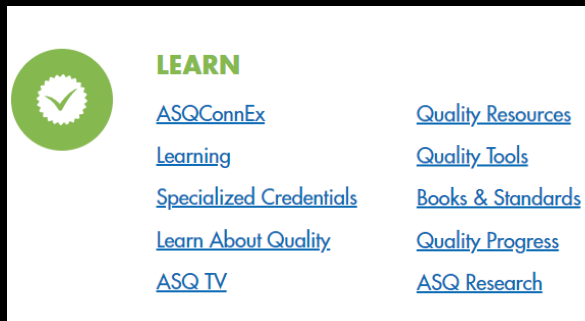


For More Information

Automotive



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[linkedin.com/in/joechantiny](https://www.linkedin.com/in/joechantiny)



ASQ web site:
<https://asq.org>
/

Healthcare

Blog posts

- Explanation of PDSA model:
<https://dethwench.com/what-stages-of-pdsa-model-mean/>
- Explanation of alternative SPRAB model:
<https://dethwench.com/alternative-to-pdsa-model-quality-healthcare-part-4-of-5/>

Video: <https://youtu.be/tV2QtB5nbvo>