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# Fundamentals of Pareto Analysis



# Observations







Analysis



# Expectations





How do you use  
Pareto Analysis?



# History and Meaning





# Origin Story

## History and Meaning

In 1896, Vilfredo Pareto observed:

80% of the land in Italy was  
owned by 20% of the people.

In 1941 Joseph M. Juran named  
the principle after Pareto





# Randomness

## History and Meaning

The 80/20 Rule is generalized as:

80% of the consequences of something

are attributable to 20% of the causes



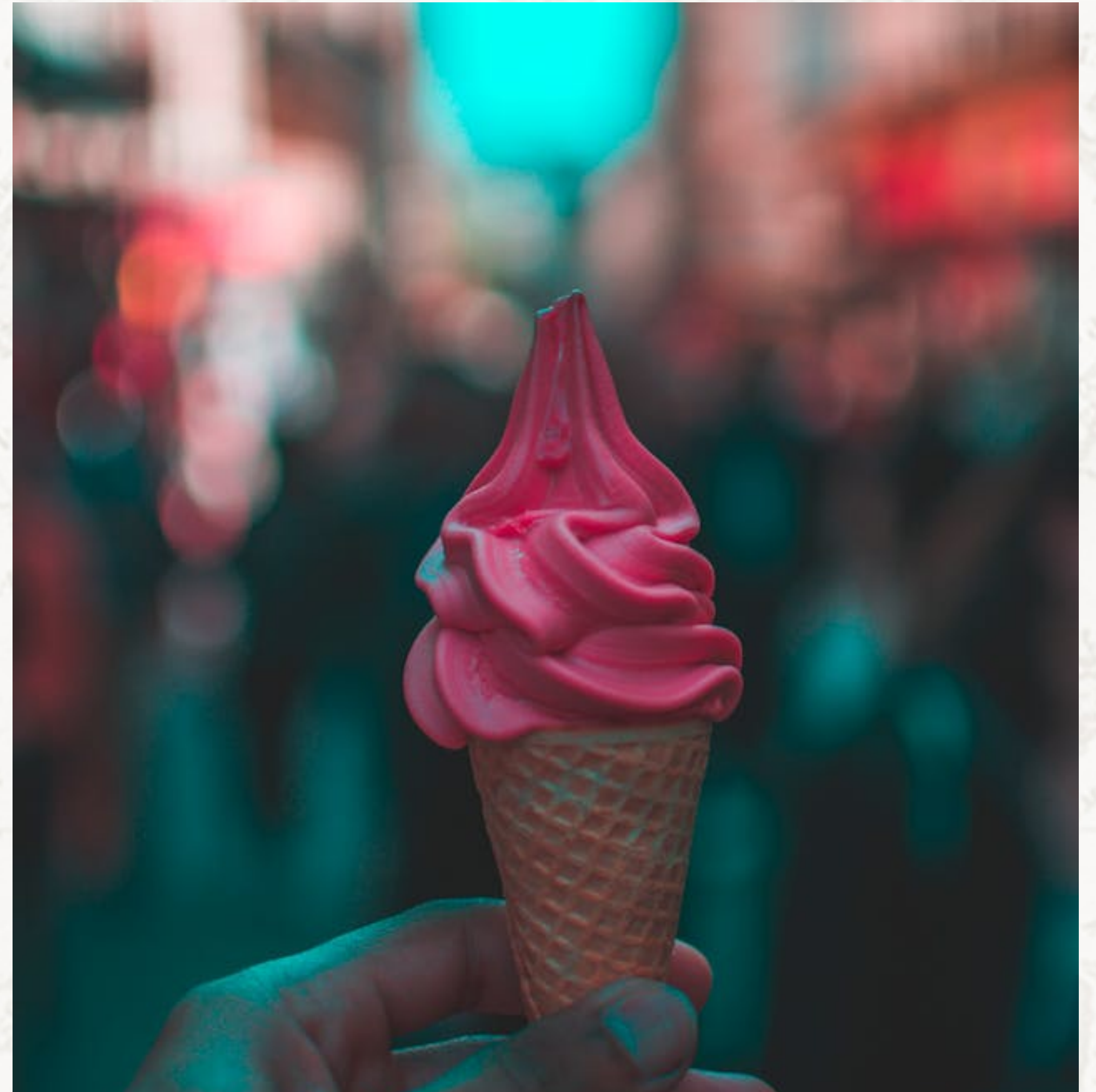


# Differences

**What is hypothesis testing?**

Sometimes called the  
**Law of the Vital Few**

Pareto Analysis is often a means to  
focus on the vital few.



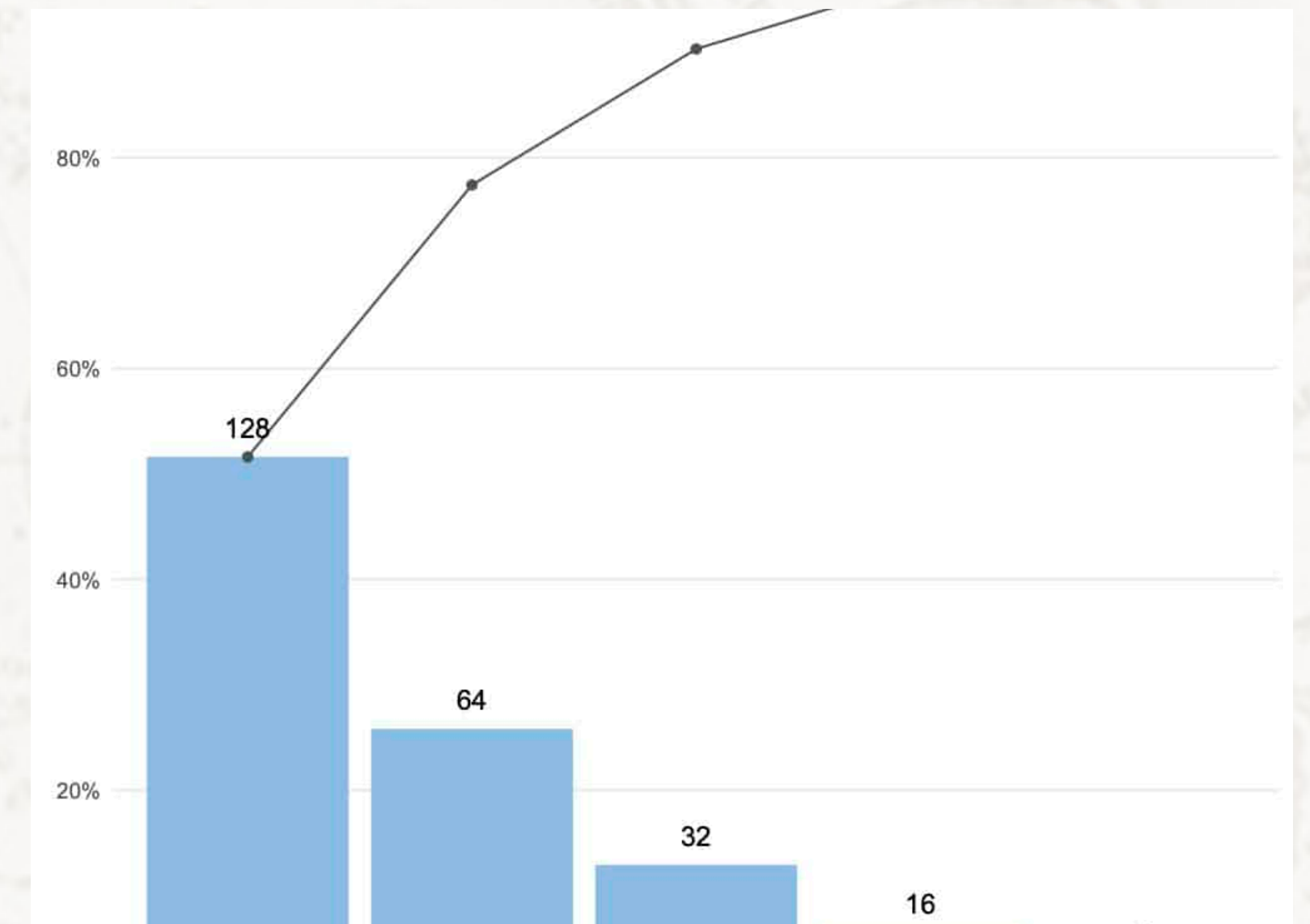
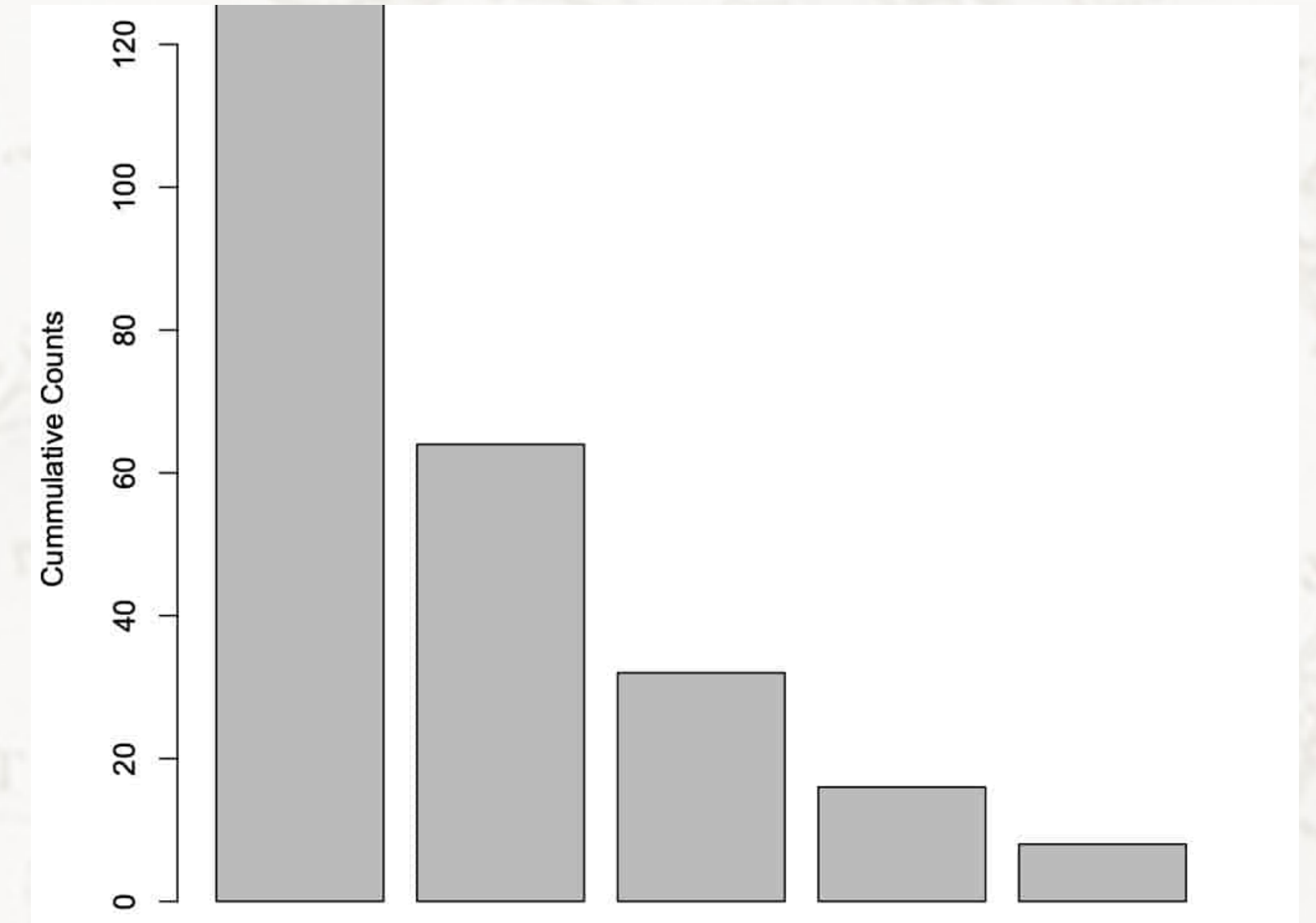


**What are examples**

**of the 80/20 rule?**



# Building Pareto Charts





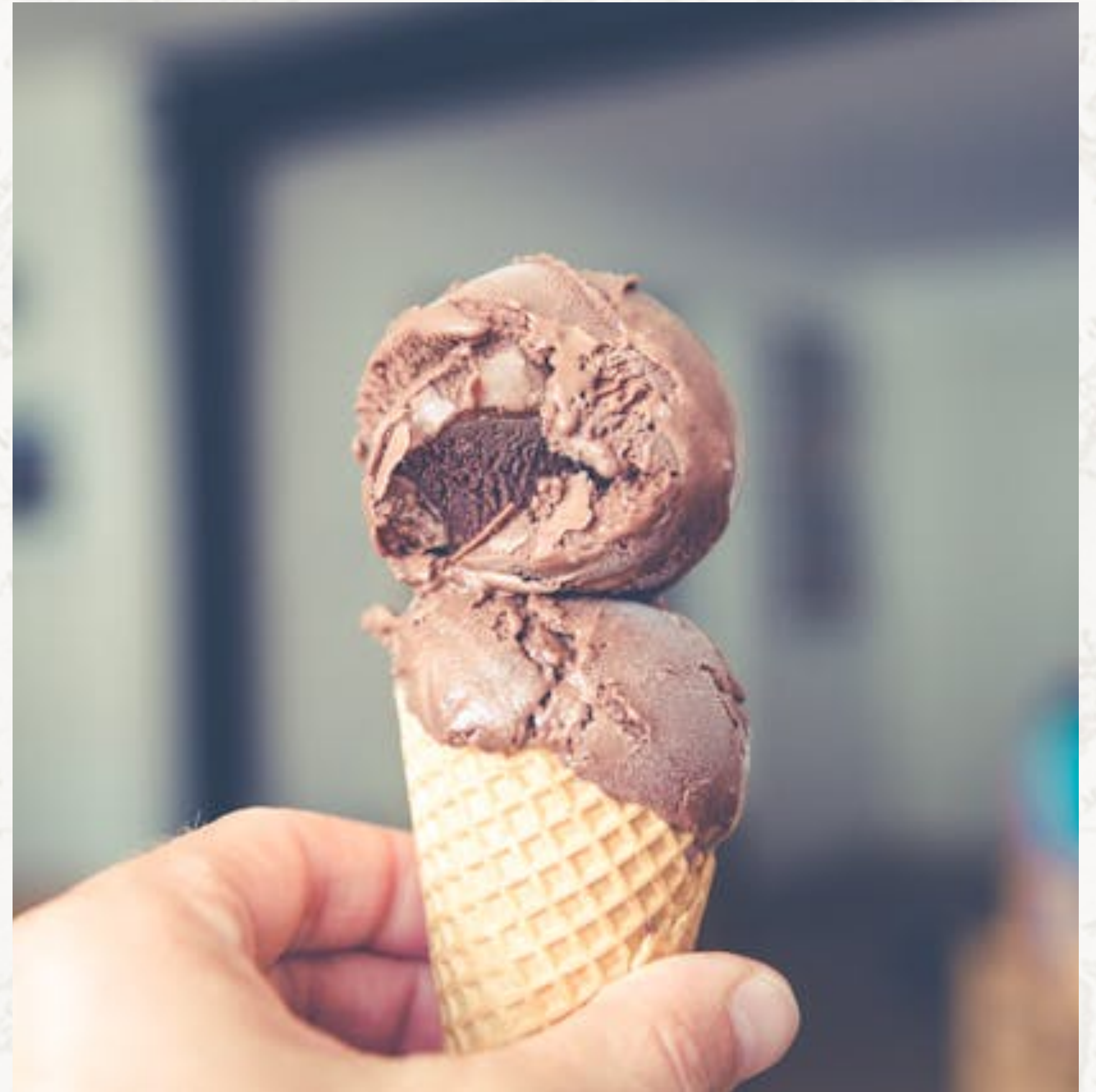
# The data

## Building Pareto Charts

We need observed data

field returns or downing events

Typically, count by category



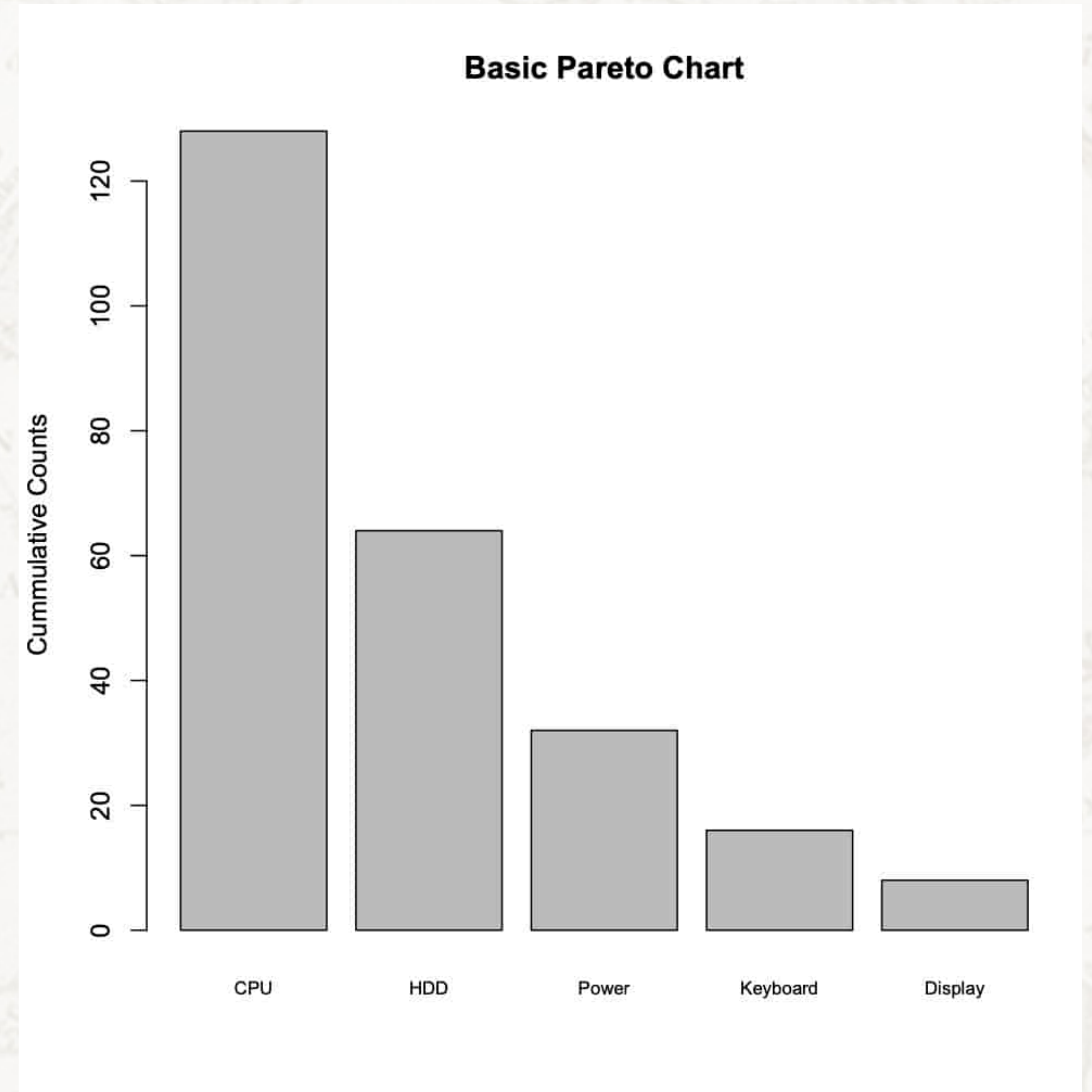


# Basic plot

## Building Pareto Charts

Like a bar chart, except organized in count order from largest to smallest.

Some situations use the dollar amount per failure or event.



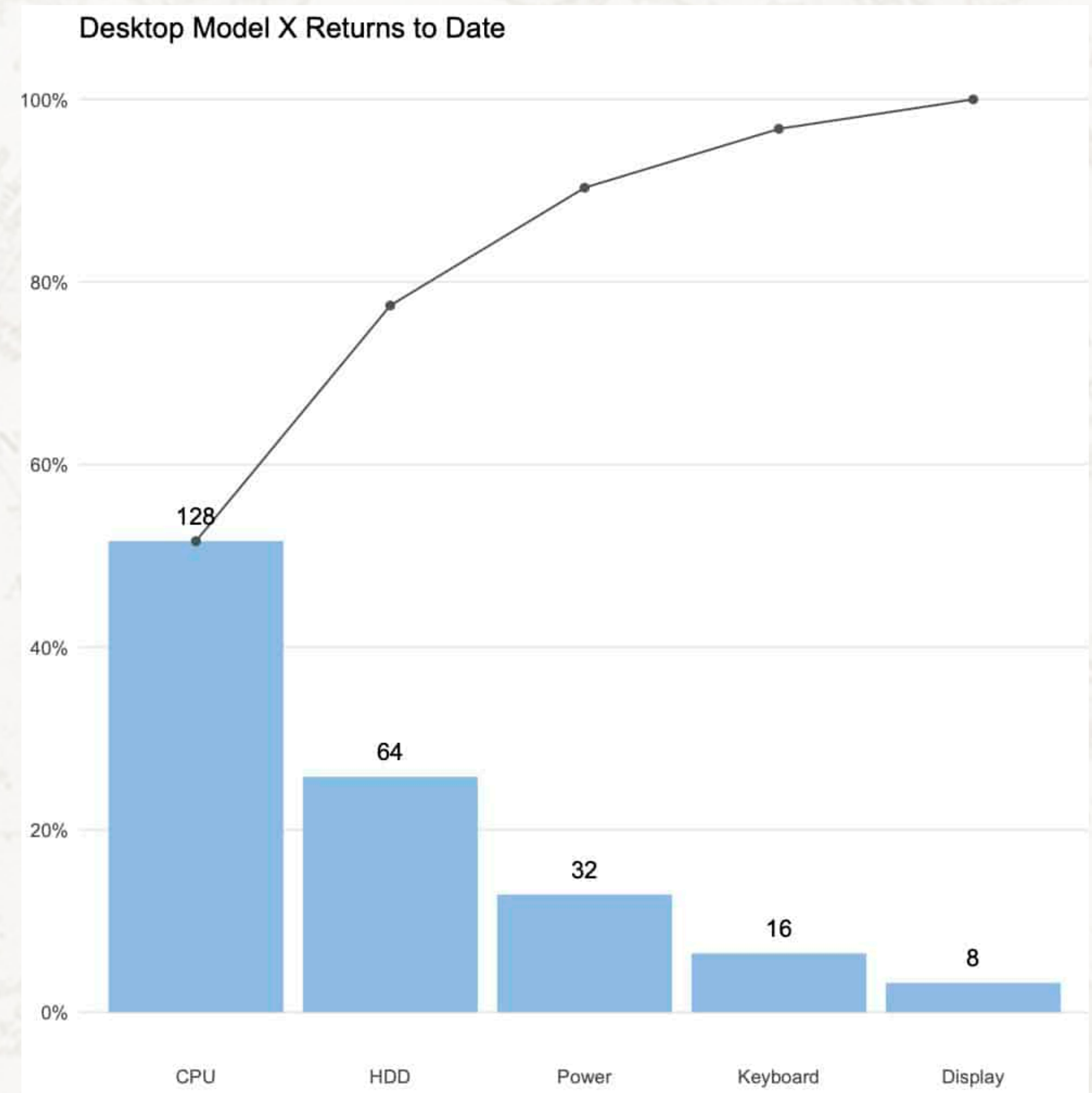


# Enhanced plot

## Building Pareto Charts

### Variations and Enhancements

- use the relative frequency instead of counts
- add a cumulative count line
- add count to each bar
- mark the 20% of causes





**Any great examples**

**you wish to share?**



# Considerations





# Measurement error

## Considerations

Garbage in garbage out...

Shot gun approach to repairs





# Benefit/Cost Balance

## Considerations

Safety considerations

Cost to address

Same solution for many causes





# Actionable Detail

## Considerations

Component vs failure mechanism

Prioritize what matter

Not everything follows 80/20

What happens when you solve the first 20%?





**What other tools**

**do you use with Pareto?**



# Additional Comments and Questions



# Thanks

**see more at [AccendoReliability.com](https://AccendoReliability.com)**