# Pareto Diagram

## What is It

Also known as the **80/20 Rule**. The Diagram illustrates that **80% of effects arise from 20% of the causes** or in other terms: **20% of our actions/activities will account for 80% of the results/outcomes.**

## When

- Identify the **most impactful source** of a problem.
- There is a need to **analyze data** and its performance is unclear.
- Used in the **Analyze** phase of the **DMAIC.**

## Goals

- Be a support **decision making** tool.
- Divide the **Vital Few** sources of a problem from the **Useful Many** to help us focus on what is important.
- Help prioritize

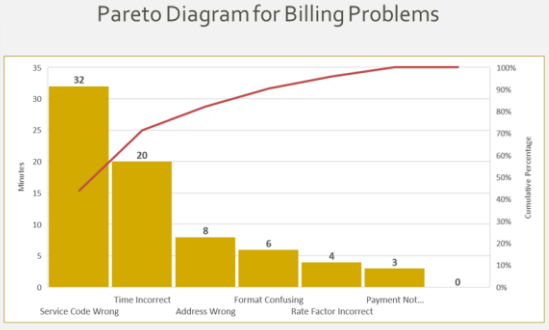
## How

1. Data on effect
2. Re-order contributors
3. Cumulative-percent
4. Graph
5. Vital Few & Useful Many
6. Analyze

| Defect Type | # Queries |
|---|---|
| Address Wrong | 8 |
| Time Incorrect | 20 |
| Rate Factor Incorrect | 4 |
| Service Coding Wrong | 32 |
| Format Confusing | 6 |
| Payment Not Credited | 3 |
| | 73 |

| Defect Type | # Queries | Cumulative % |
|---|---|---|
| Service Code Wrong | 32 | 44% |
| Time Incorrect | 20 | 71% |
| Address Wrong | 8 | 82% |
| Format Confusing | 6 | 90% |
| Rate Factor Incorrect | 4 | 96% |
| Payment Not Credited | 3 | 100% |
| | 73 | |

| Vital Few | Useful Many |
|---|---|
| 32 | 20 |
| | 8 |
| | 6 |
| | 4 |
| | 3 |
| Virtal Few at: | 20% |




## Hints

- Use MS Excel to plot a Pareto Graph.
- The Pareto Principle is merely an **observation,** not law. Although broadly applied, it does not apply to every scenario.

## Example

**Pareto**

Project:

Rolls produciton downtime

| # | Downtime Causes | Minutes | Cumulative% |
|---|---|---|---|
| 1 | Jam | 125 | 9.6% |
| 2 | Belt damage | 23 | 11.4% |
| 3 | Change conveyor | 10 | 12.1% |
| 4 | Start up | 550 | 54.3% |
| 5 | Changeover Die | 5 | 54.7% |
| 6 | Changeover Plates | 245 | 73.5% |
| 7 | Electric failure | 10 | 74.3% |
| 8 | Jam at cones | 325 | 99.2% |
| 9 | Jam at sensor | 10 | 100.0% |
| 10 | Cooling units failure | 0 | 100.0% |
| 11 | Jam at drop packer | 0 | 100.0% |