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# Pareto Diagram

# Agenda

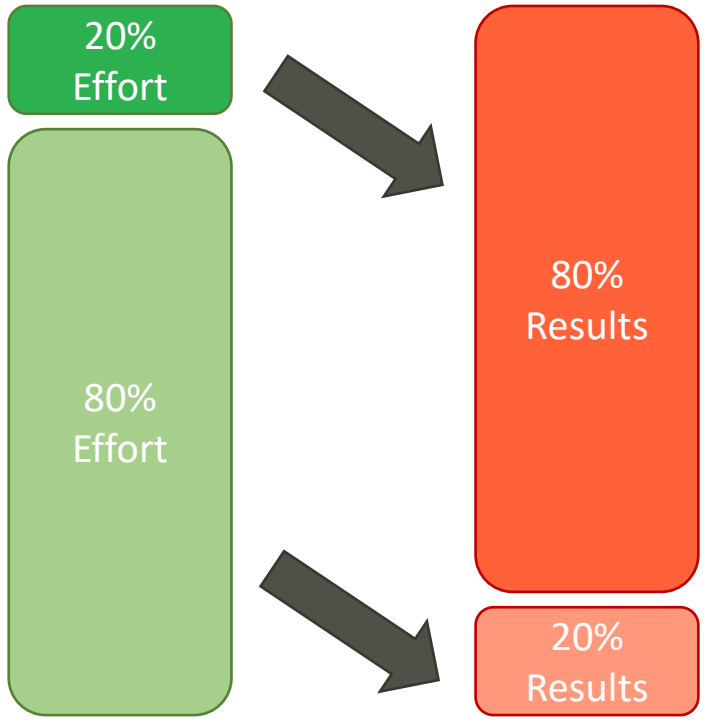
1. Pareto Diagram: What is it ?
2. Pareto Diagram purpose and benefits
3. Diagram Creation and Analysis
4. Takeaways

# Introduction

## What is it ?

The Pareto Principle, also known as the **80/20 Rule.**

The Pareto 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.

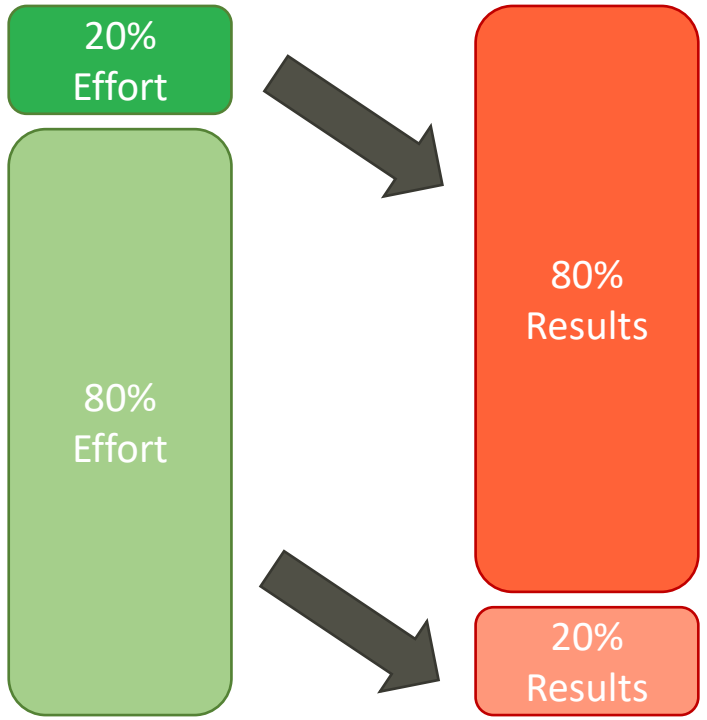


# Introduction

## Purpose and Benefits

- The Pareto analysis to **support decision making**.
- It divides the source of a problem into two categories:

1. **The vital few:** A small number of sources that account for most of the problem.
2. **The useful many:** The large number of remaining sources that individually and collectively account for a relatively small part of the entire problem.



# Pareto Diagram

## Diagram Creation

# Pareto Diagram

## Diagram Creation

Total the data on effect of each contributor, and sum these to determine the grand total.

A team wanted to reduce the number of billing problems. We ask customer service reps to record the type of defects (or billing problems) for each customer call during a one-week study period.

| 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**

# Pareto Diagram

## Diagram Creation

Re-order the contributors from the largest to the smallest.

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

# Pareto Diagram

## Diagram Creation

Determine the cumulative-percent of total.

| 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** | |

# Pareto Diagram

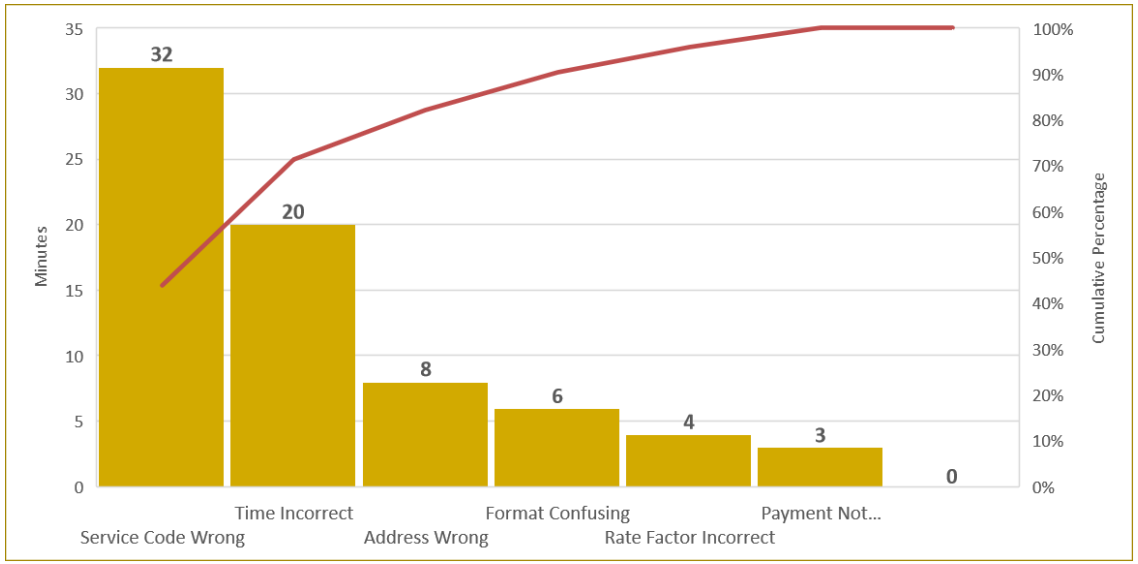
## Diagram Creation

4 Graph

Draw a graph to represent the cumulative percentage of total.

- The plotted points correspond to the cumulative-percent as measured on the right axis.
- Line up the points above the right-hand edge of the bars.
- Use MS Excel© to generate the completed graph.
- Look for a breakpoint on the cumulative-percent graph.

Pareto Diagram for Billing Problems



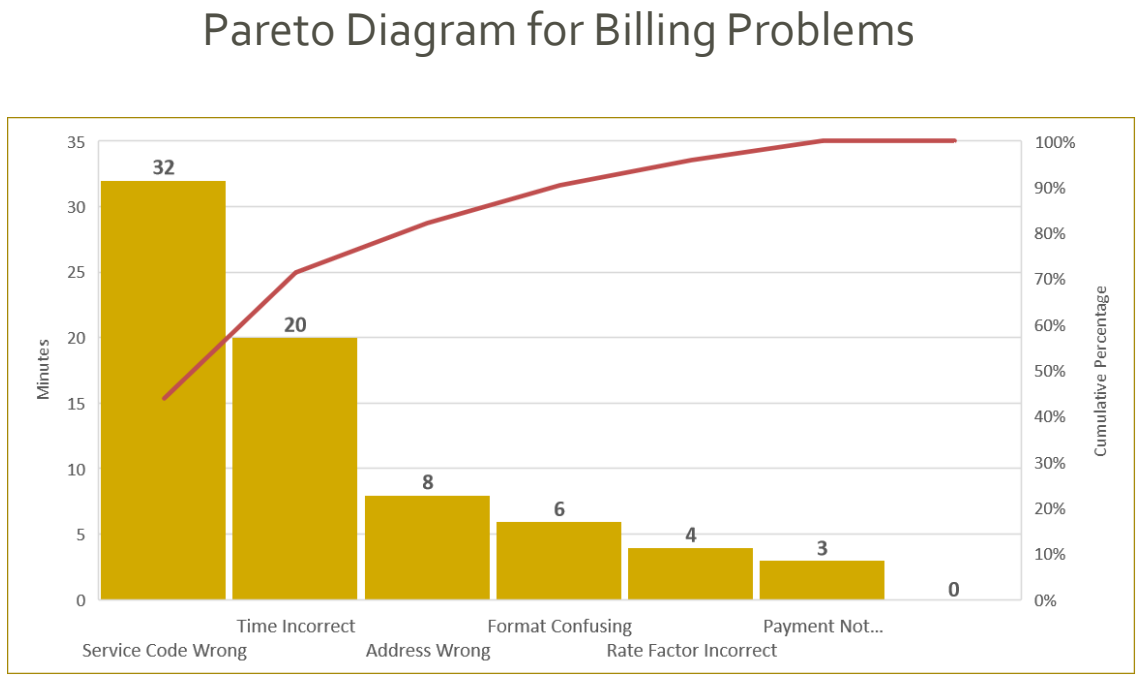
# Pareto Diagram

## Diagram Creation

5 Vital Few & Useful Many

Title the chart, label the "**vital few**" and "**useful many**", and show the cumulative-percent contribution of the vital few.

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



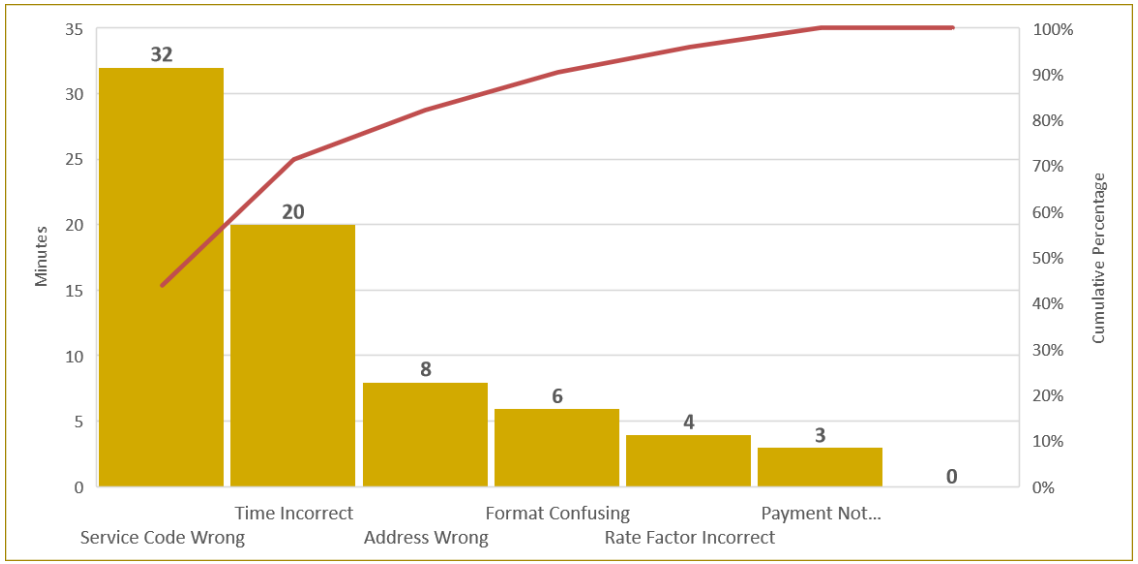
# Pareto Diagram

## Diagram Creation

Analyze the diagram. Choose the most appropriated tool:

- Affinity Diagram.
- Cause and Effect Diagram (with 5Whys).
- Frequency Chart.
- SCP Analysis.
- Etc.

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



LEARNING HUB

Pareto Diagram

# Pareto Diagram Game: The Buggy Factory Inc.

# Pareto Diagram

TOOLBOX

Pareto Analysis Template

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## Pareto Analysis

**Project:** Rolls produciton downtime

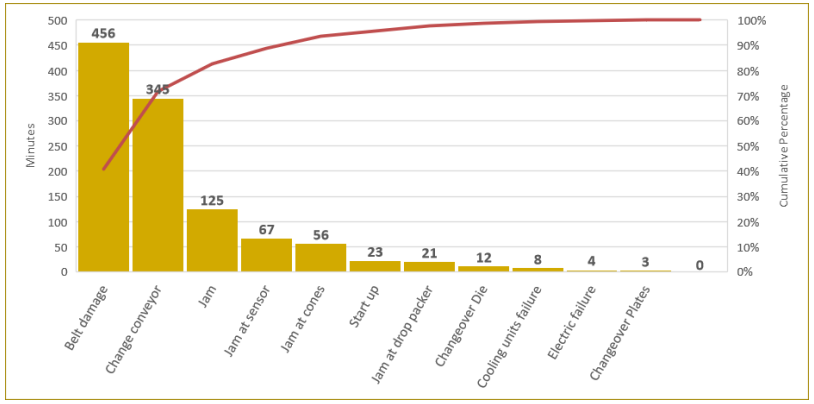
**Date:** 23 February 2022

| # | Downtime Causes | Minutes | Cumulative% |
|---|---|---|---|
| 1 | Jam | 125 | 11.2% |
| 2 | Belt damage | 456 | 51.9% |
| 3 | Change conveyor | 345 | 82.7% |
| 4 | Start up | 23 | 84.7% |
| 5 | Changeover Die | 12 | 85.8% |
| 6 | Changeover Plates | 3 | 86.1% |
| 7 | Electric failure | 4 | 86.4% |
| 8 | Jam at cones | 56 | 91.4% |
| 9 | Jam at sensor | 67 | 97.4% |
| 10 | Cooling units failure | 8 | 98.1% |
| 11 | Jam at drop packer | 21 | 100.0% |
| 12 | | | 100.0% |
| 13 | | | 100.0% |
| 14 | | | 100.0% |
| 15 | | | 100.0% |

| Vital Few | Useful Many |
|---|---|
| 125 | |
| 456 | |
| 345 | |
| | 23 |
| | 12 |
| | 3 |
| | 4 |
| | 56 |
| | 67 |
| | 8 |
| | 21 |
| | 0 |
| | 0 |
| | 0 |
| | 0 |

Virtal Few at: 80%

**The first 3 Downtime Causes cover 82.68% of the Total Minutes**



# Takeaways

- Drawing a Pareto chart is very simple and is very useful when it comes to prioritizing problems.
- Unlike other principles, the Pareto Principle is merely an observation, not law. Although broadly applied, it does not apply to every scenario.
- Can be used to determine the areas in which we need to focus our efforts and resources to improve work efficiency.

# Thank You

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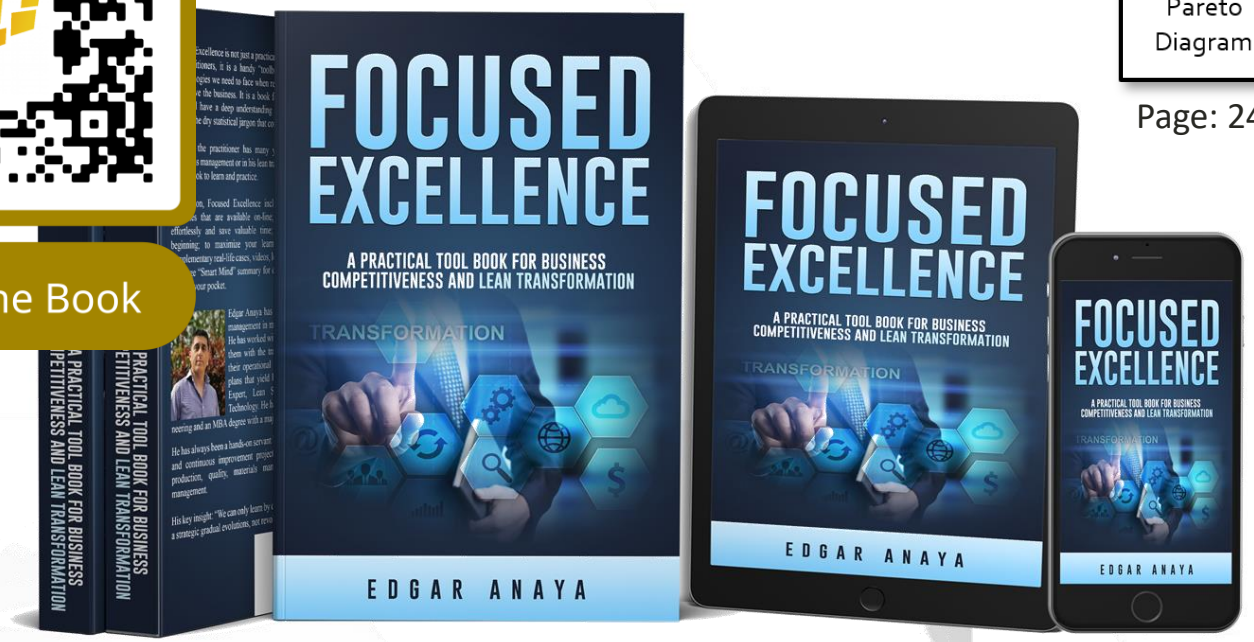


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**Reference:** Focused Excellence
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A Practical Tool Book for
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