Continuous Improvement Toolkit

Pareto Analysis
The Pareto Principle:

- Also referred to as the 80-20 rule.
- States that 80% percent of the problems or effects come from 20% of the causes.
- Focuses on identifying the ‘vital few’ from the ‘trivial many’.
- Helps focusing on what really matters.
The Pareto Principle:

- The exact percentages may vary in each situation.
- However, most of the activity is caused by relatively few of its factors.
- Pareto Analysis

Examples:

- 20% of car drivers cause 80% of the accidents.
- 20% percent of workers do 80% of the work.
- 20% of a company’s clients are responsible for 80% of its revenue.
- 20% of the time spent on a task leads to 80% of the results.
- 80% of the customer complaints come from 20% of customers.
- 80% of the wealth belongs to 20% of the population.
- **Pareto Analysis**

**The Pareto Principle:**

- Used when we have many problems or projects and we want to focus on the most significant ones.
  - Helps prioritize the improvement opportunities that bring the most value to the business.
  - Allows to reach a consensus about what needs to be addressed first.

- Used during improvement projects to focus on the causes that contribute most to a particular effect.
- Pareto Analysis

The Pareto Chart:

- A frequency bar chart.
- The most frequent activities are placed in order from left to right.
- Normally plots the frequencies of categorical data:
  - Such as defects and errors.
- The horizontal axis represents the types of activities:
  - Such as issues, problems or causes.
- The vertical axis represents the frequencies of those activities.
The Pareto Chart:

- By arranging the bars from largest to smallest, the vital few activities can be easily addressed to have greater attention.
- If there are a lot of small or infrequent factors, consider adding them together into an “other” category.
- You may optionally have a cumulative line above the bars so that the cumulative percentages can be read from the right vertical axis.
Pareto Analysis

The Pareto Chart:

- If the resulted Pareto chart clearly illustrates a Pareto pattern, this suggests that only few causes account for about 80% of the problem.
- This means that there is a Pareto effect.
- If no Pareto pattern is found, we cannot say that some factors are more important than others.
- Pareto Analysis

How to Construct a Pareto Chart:

- Define the problem.
- Identify the possible causes of the problem (using brainstorming or similar technique).
- Collect then record the data.
- Calculate the frequencies of the identified causes.
- Draw a vertical bar for each cause or cause group.
- Sort them by frequency in descending order.
- Calculate then draw the cumulative percentage line.
- If you observe a Pareto effect, focus your improvement efforts on those few factors.
- Pareto Analysis

Example:

- A factory team has prepared the following Pareto charts to address the rising number of customer complaints in a way management can understand.

The results suggest that they can solve the majority of the problem by concentrating on the vital few.
Further Information:

- Named after the Italian economist Vilfredo Pareto, who observed that 80% of property in Italy was owned by 20% of the population.

- Someone should be thinking of the Pareto Principle and apply it to his business and life. He should be asking himself questions such as: what are the critical few wants and needs of the consumer, and what are the critical few measures that indicate the true performance.