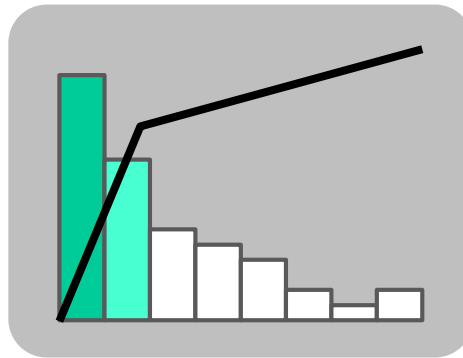
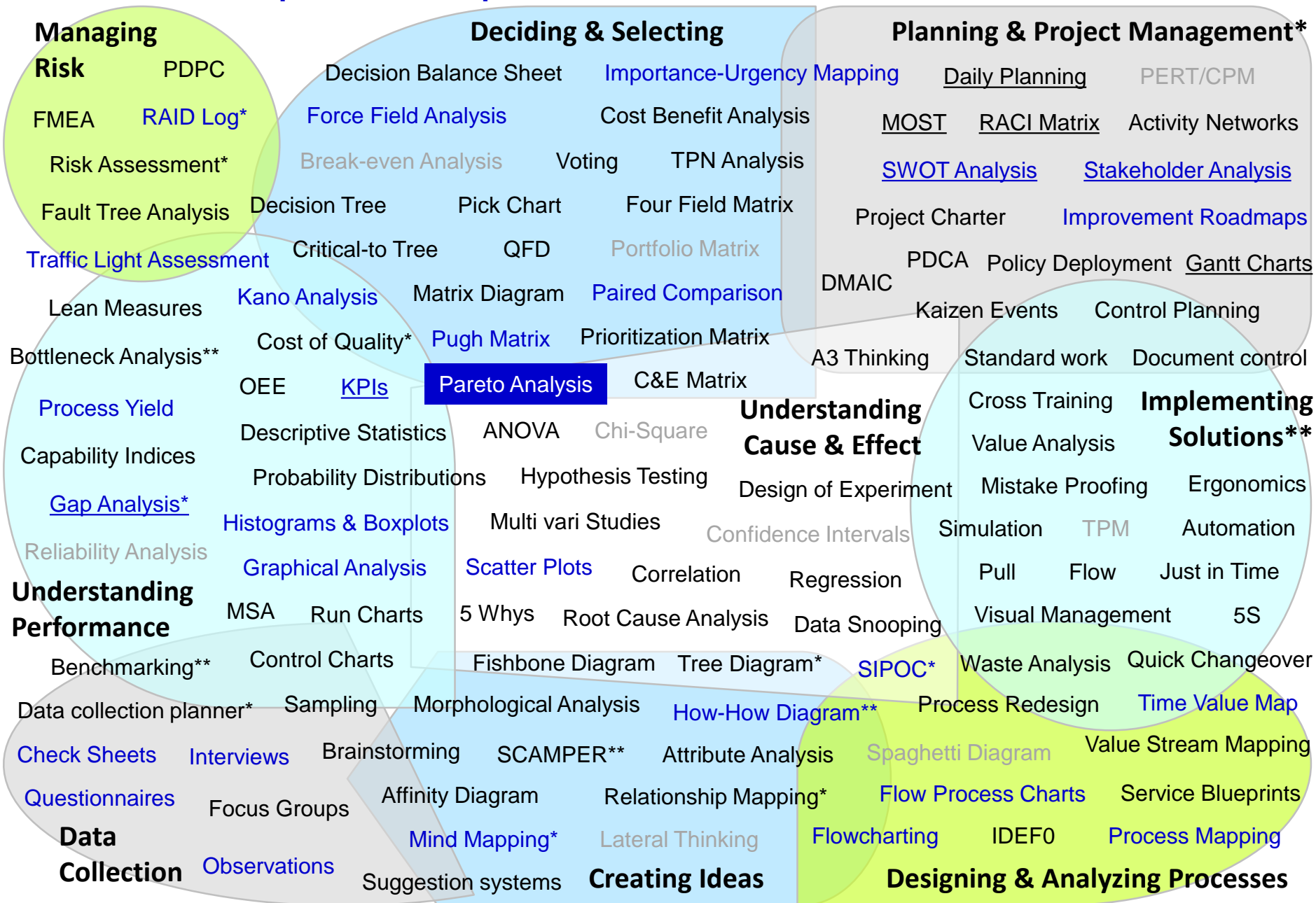


Continuous Improvement Toolkit

Pareto Analysis



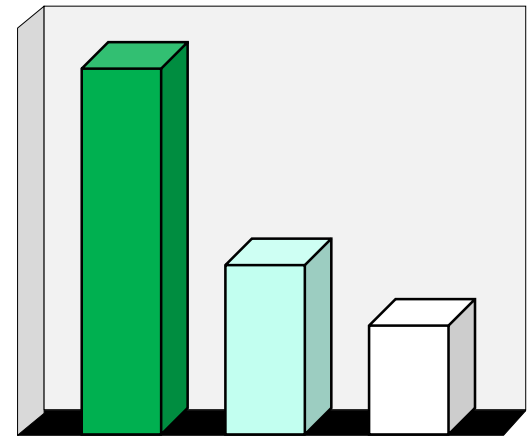
The Continuous Improvement Map



- Pareto Analysis

The Pareto Principle:

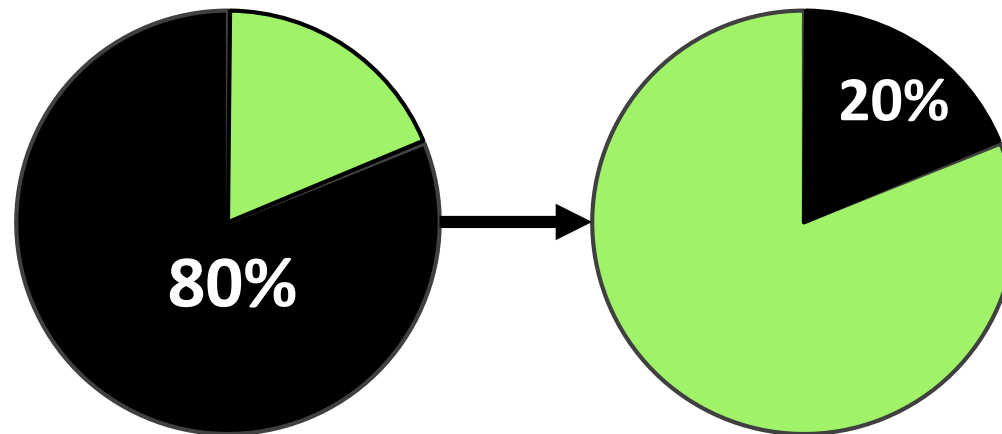
- ❑ Also referred to as the 80-20 rule.
- ❑ States that 80% percent of the problems or effects come from 20% of the causes.
- ❑ Focuses on identifying the '**vital few**' from the '**trivial many**'.
- ❑ Helps focusing on what really matters.



- Pareto Analysis

The Pareto Principle:

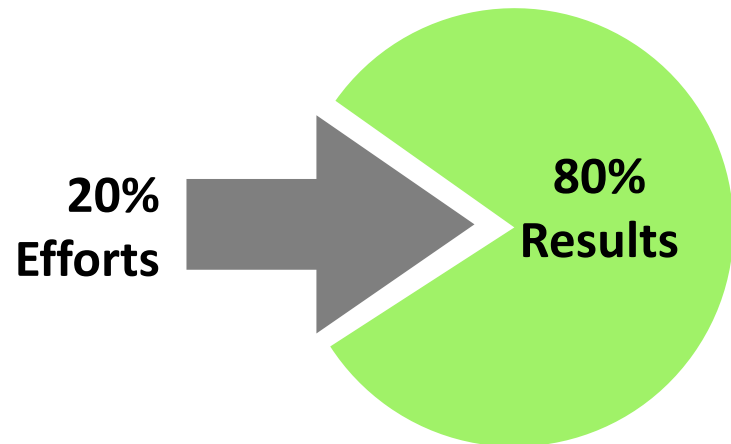
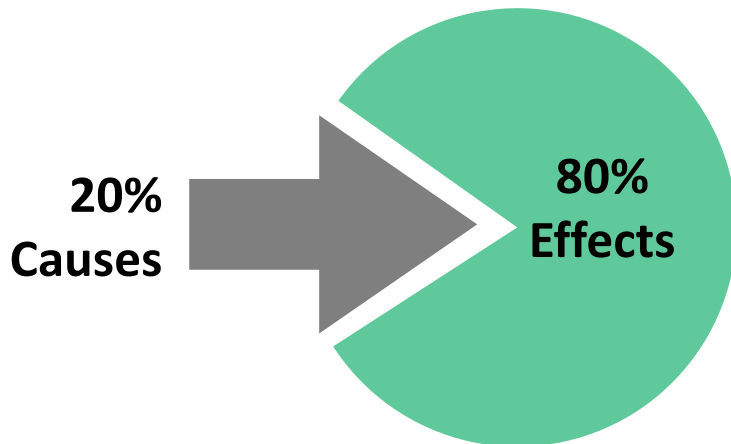
- ❑ The exact percentages may vary in each situation.
- ❑ However, most of the activity is caused by relatively few of its factors.



- 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.

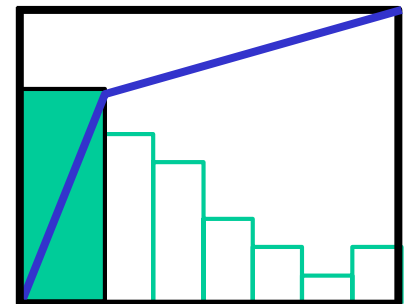
- ❑ **Used during improvement projects to focus on the causes that contribute most to a particular effect.**



- Pareto Analysis

The Pareto Chart:

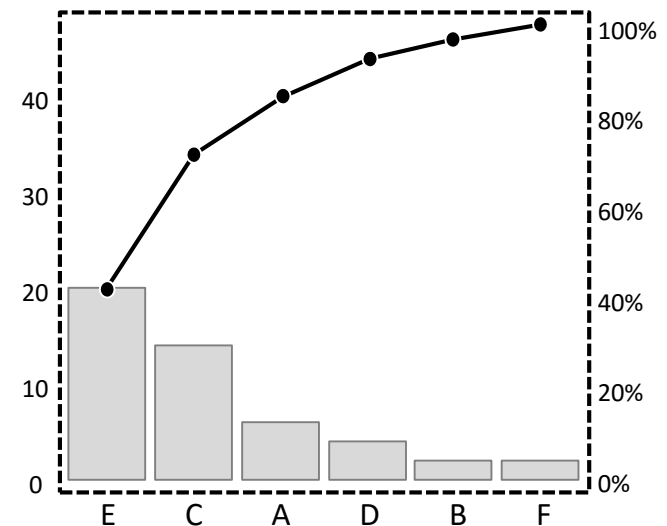
- ❑ A frequency bar chart.
- ❑ The most frequent activities are placed in order from left to right.
- ❑ Normally plots the frequencies of categorical data:
 - Such as defects and errors.
- ❑ The **horizontal axis** represents the types of activities:
 - Such as issues, problems or causes.
- ❑ The **vertical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



- Pareto Analysis

The Pareto Chart:

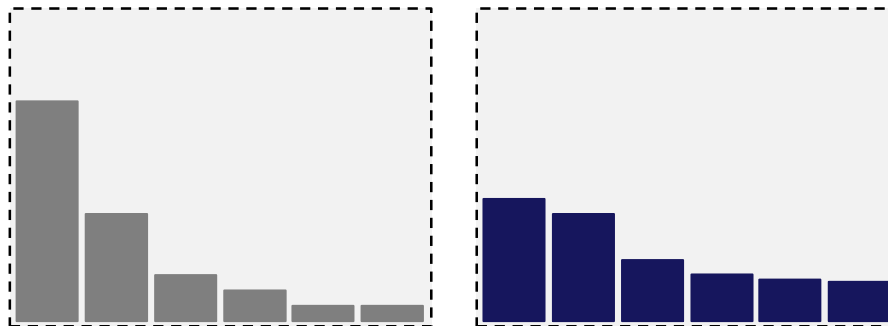
- ❑ By arranging the bars from largest to smallest, the vital few activities can be easily addressed to have greater attention.
- ❑ If there are a lot of small or infrequent factors, consider adding them together into an “other” category.
- ❑ You may optionally have a cumulative line above the bars so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



- Pareto Analysis

The Pareto Chart:

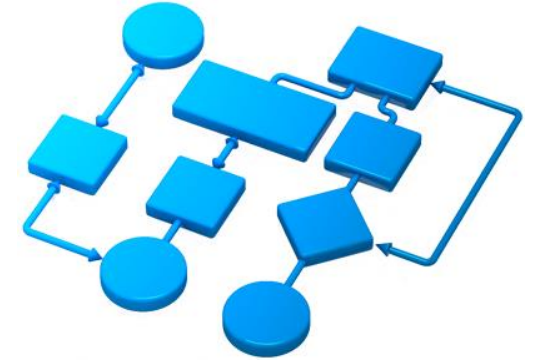
- ❑ If the resulted Pareto chart clearly illustrates a **Pareto pattern**, this suggests that only few causes account for about 80% of the problem.
- ❑ This means that there is a **Pareto effect**.
- ❑ If no Pareto pattern is found, we cannot say that some factors are more important than others.



- Pareto Analysis

How to Construct a Pareto Chart:

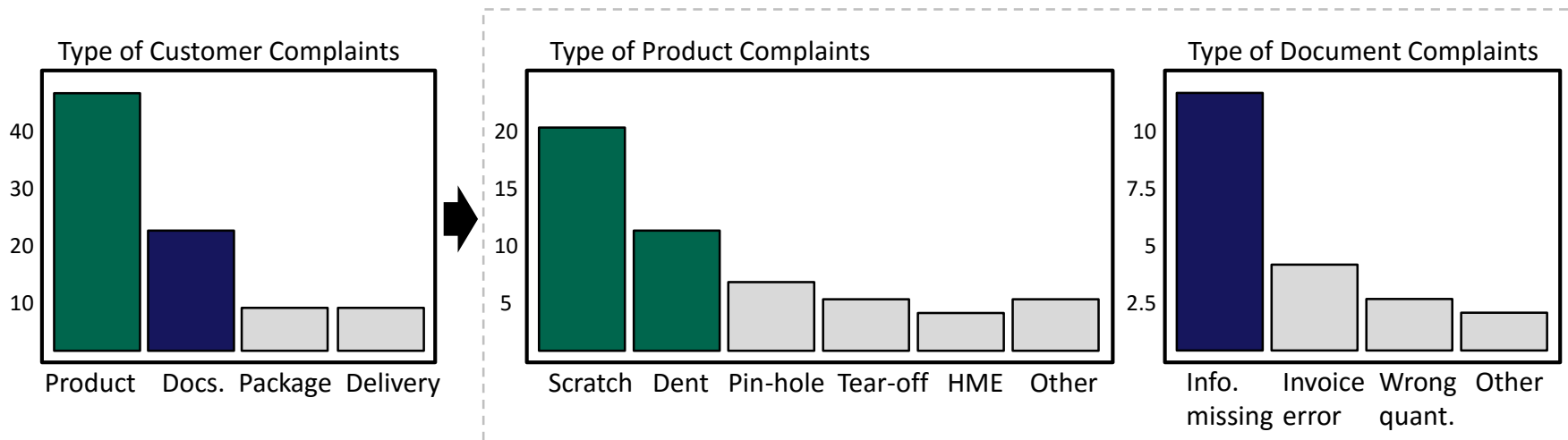
- ❑ Define the problem.
- ❑ Identify the possible causes of the problem (using brainstorming or similar technique).
- ❑ Collect then record the data.
- ❑ Calculate the frequencies of the identified causes.
- ❑ Draw a vertical bar for each cause or cause group.
- ❑ Sort them by frequency in descending 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.

- Pareto Analysis

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.

