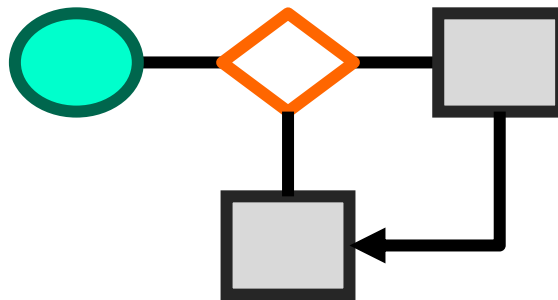
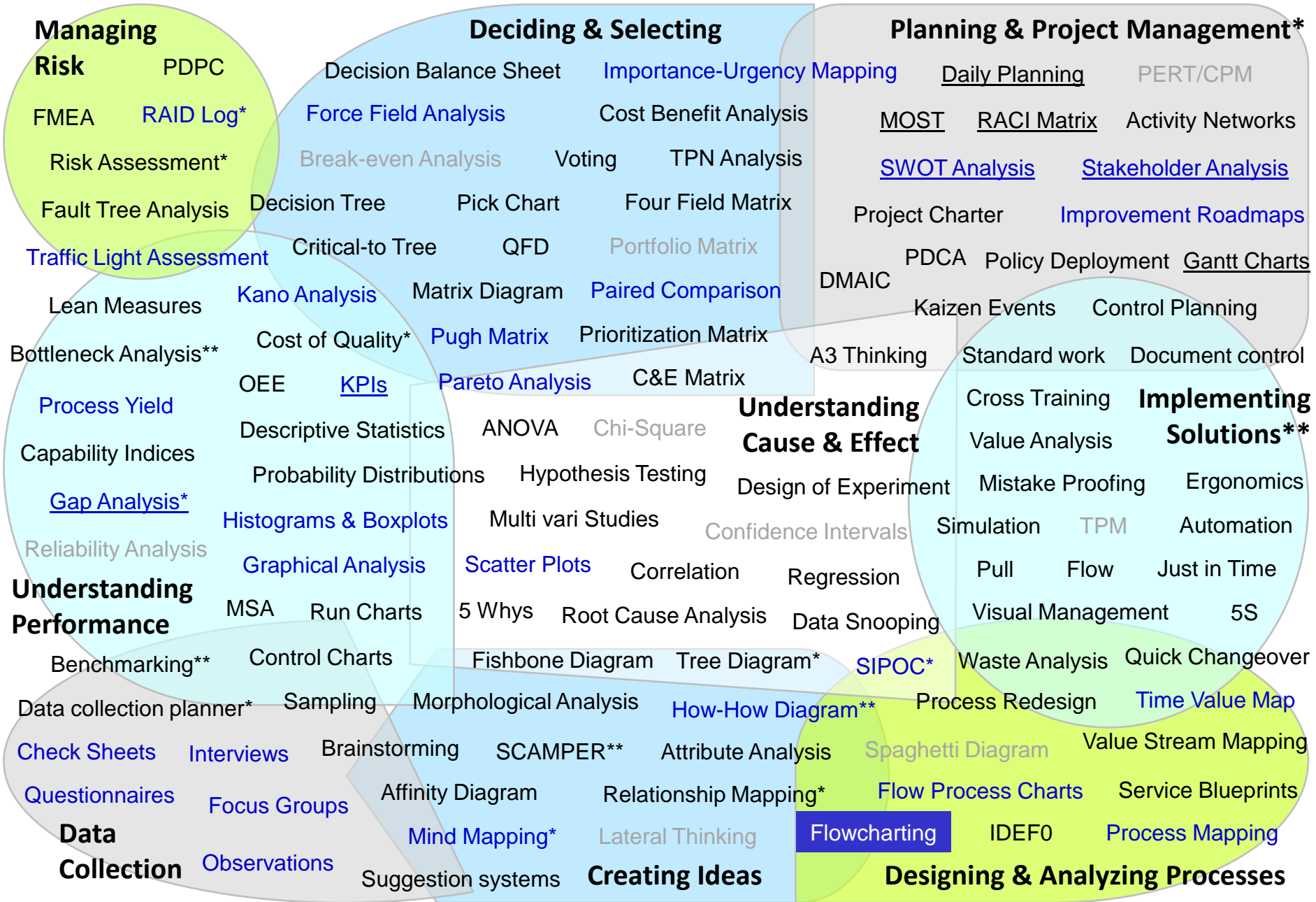


Continuous Improvement Toolkit

Flowcharting

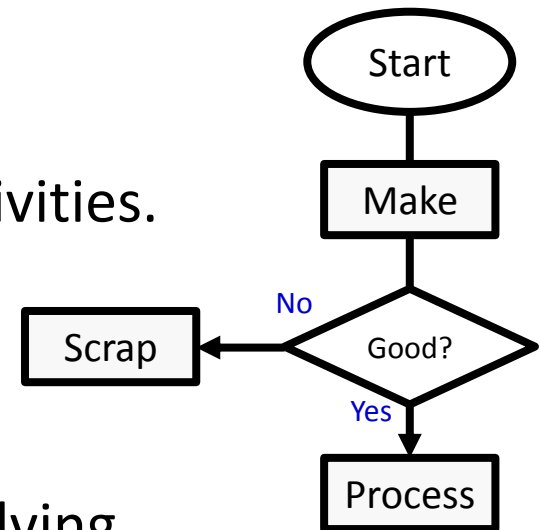


The Continuous Improvement Map



- Flowcharting

- ❑ A diagram that shows how the steps in a process fit together.
- ❑ Breaks any process down into individual activities.
- ❑ Illustrates the flow of the process and the relationships between its activities.
- ❑ Useful for understanding processes and finding inefficiencies for further problem-solving efforts.
- ❑ Often used to provide a detailed view of how a process should be.



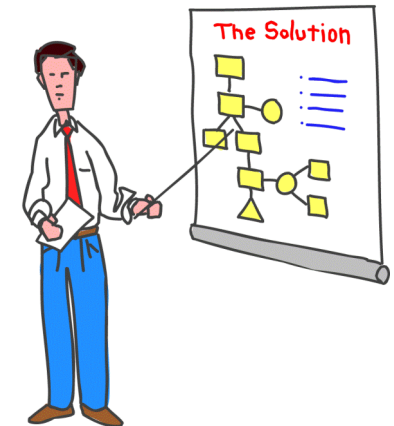
- Flowcharting

- ❑ Useful for **communicating** the sequence of activities and how a process works.
- ❑ Often used for **documenting** how to do a particular job.
 - Can be found in procedures and quality manuals.
 - Helps understand the activities and decisions and thus perform the tasks correctly and in the right order.
- ❑ Also used when **designing** processes and programs.
 - Software developers can use them to map processes that need to be automated.



- Flowcharting

- ❑ Constructing flowcharts promotes better understanding of processes by all participants of a problem-solving team.
- ❑ Teams can use them to **identify** and **analyze** problem areas and provide insight in order to:
 - Simplify work.
 - Reduce cycle times.
 - Troubleshoot a problem.
 - Improve or redesign the process.
- ❑ They help **investigating** the performance of a process.
- ❑ They can reveal areas of inefficiency such as unnecessary activities and excessive delays.



-- Flowcharting

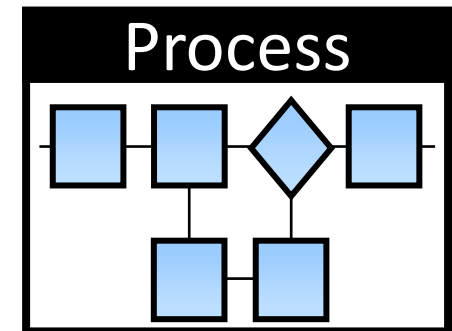
Common Process Problems:

- Errors and rework.
- Unnecessary activities and duplication.
- Bottlenecks.
- Long cycle times and excessive delays.
- Missing and unclear steps.
- Too many inspections or checks.
- Complex procedures.
- Departure from procedure.
- Dead ends.
- Costly steps.
- Non-value adding steps.



- Flowcharting

- ❑ Typically drawn with arrows and shapes of various kinds.
- ❑ There is no specific format for a flowchart.
 - There must be an agreement of the used symbols.
 - They should be drawn in a consistent manner.
 - Check your company for any standard set of symbols that you should comply with.



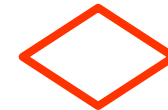
- Flowcharting

The Most Common Symbols:

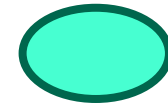
- ❑ **A process step** which represents an activity.
 - denoted as a rectangular box.
 - In most flowcharts this will be the most frequently used symbol.
- ❑ **A decision** which represents a decision point.
 - denoted as a diamond.
 - This symbol will require a yes/no response.
- ❑ **The start and the end of a process.**
 - denoted as ovals.
- ❑ **Arrows** that connect the symbols and show process flow.



Process step



Decision



Start / End

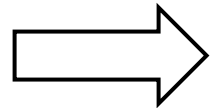
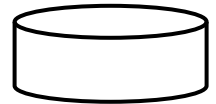
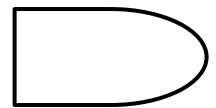


Process flow

- Flowcharting

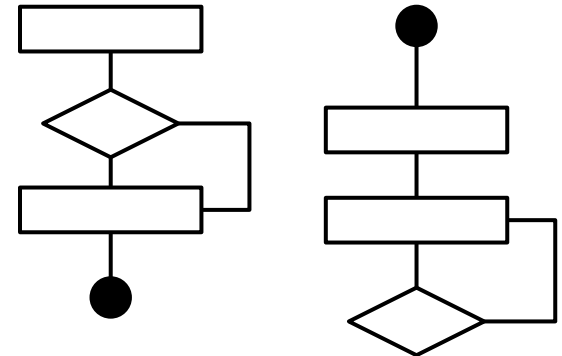
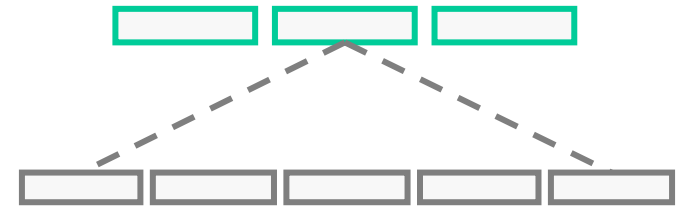
- ❑ You may use other symbols to describe the type of activities in the chart more clearly.
- ❑ Keep things simple to gain people's understanding.
- ❑ Colors and shading can be used to call attention to different types and steps.

- ❑ **Some flowcharts show more information:**
 - Who is responsible for each specific step.
 - How much time each step takes.
 - ...



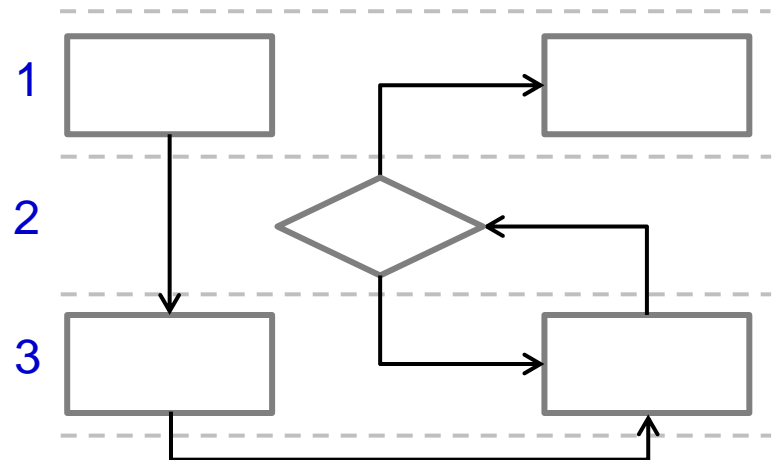
- Flowcharting

- ❑ Flowcharts can be created for many different levels of the process.
- ❑ A single flowchart can quickly become long and complicated.
- ❑ You may need to represent everything in more than one flowchart.
- ❑ **Nested flowcharts** can be created for this purpose.
- ❑ **Connectors:**
 - Can be used to link sub-processes.
 - Often denoted as numbered circles together.



- Flowcharting

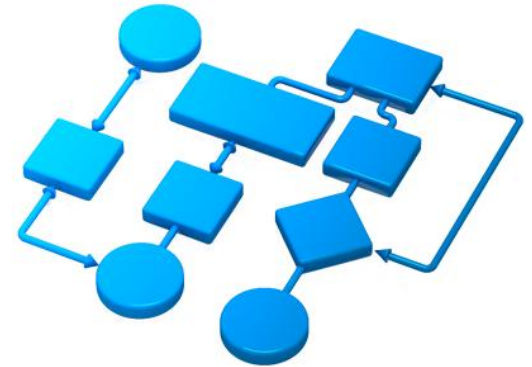
- ❑ A **Cross-Functional Flowchart** is a diagram that shows all steps and their logical sequence arranged per department or function.
- ❑ This type of flowchart is divided into different “lanes”.
- ❑ It demonstrates the control of the different departments on each process step.
- ❑ It allows to clarify the responsibility for performing an action or making a decision.



- Flowcharting

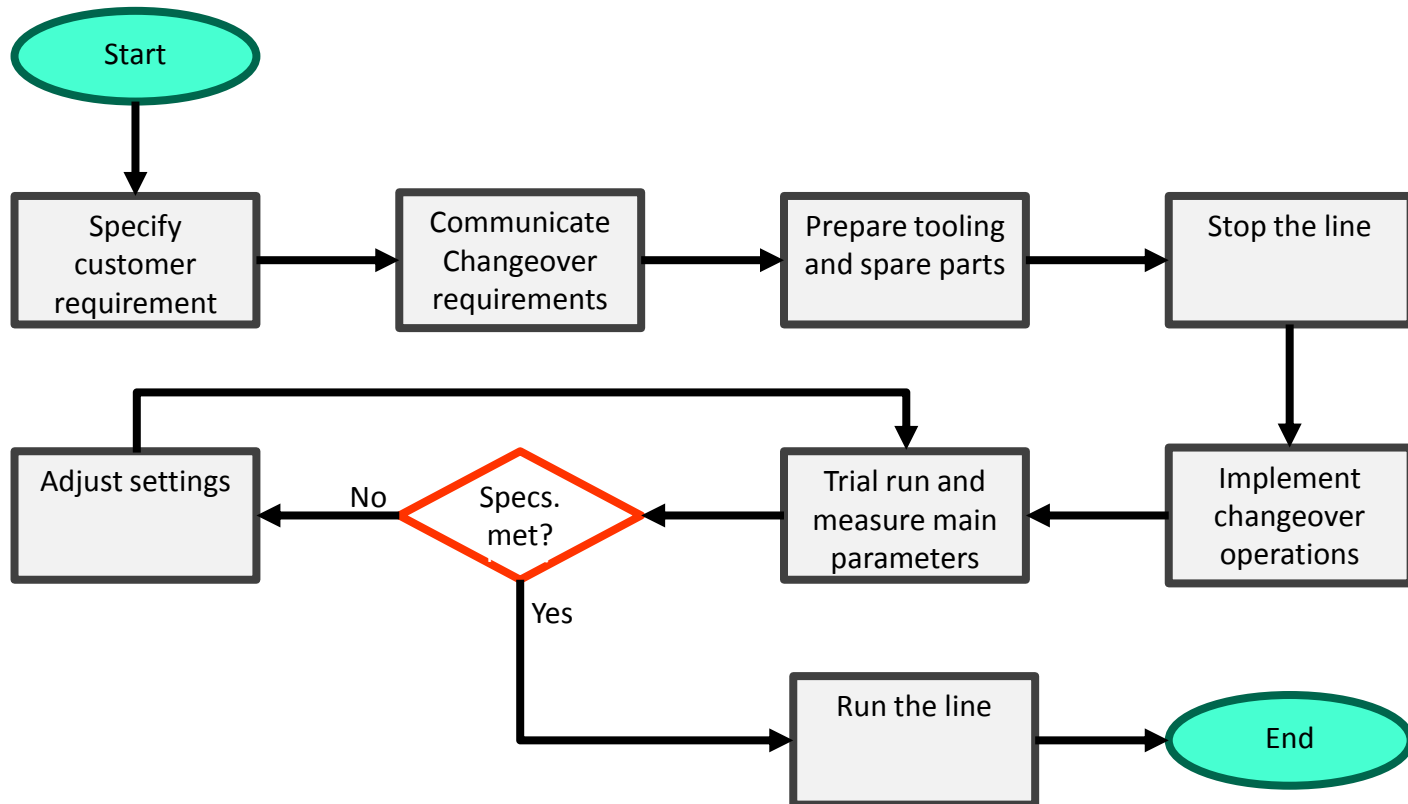
How to Construct a Flowchart:

- ❑ Describe the process and its objectives.
- ❑ Determine the level of detail, the scope and the boundaries of the chart.
- ❑ Identify all major process steps, decisions and the sequence of completion.
- ❑ Draft a flowchart using the standard set of symbols.
- ❑ Label each symbol appropriately.
- ❑ Prepare the final flowchart and add further details as necessary.
- ❑ Test the flowchart to make sure that it represents the process accurately and completely.
- ❑ Identify problem areas and improvement opportunities.



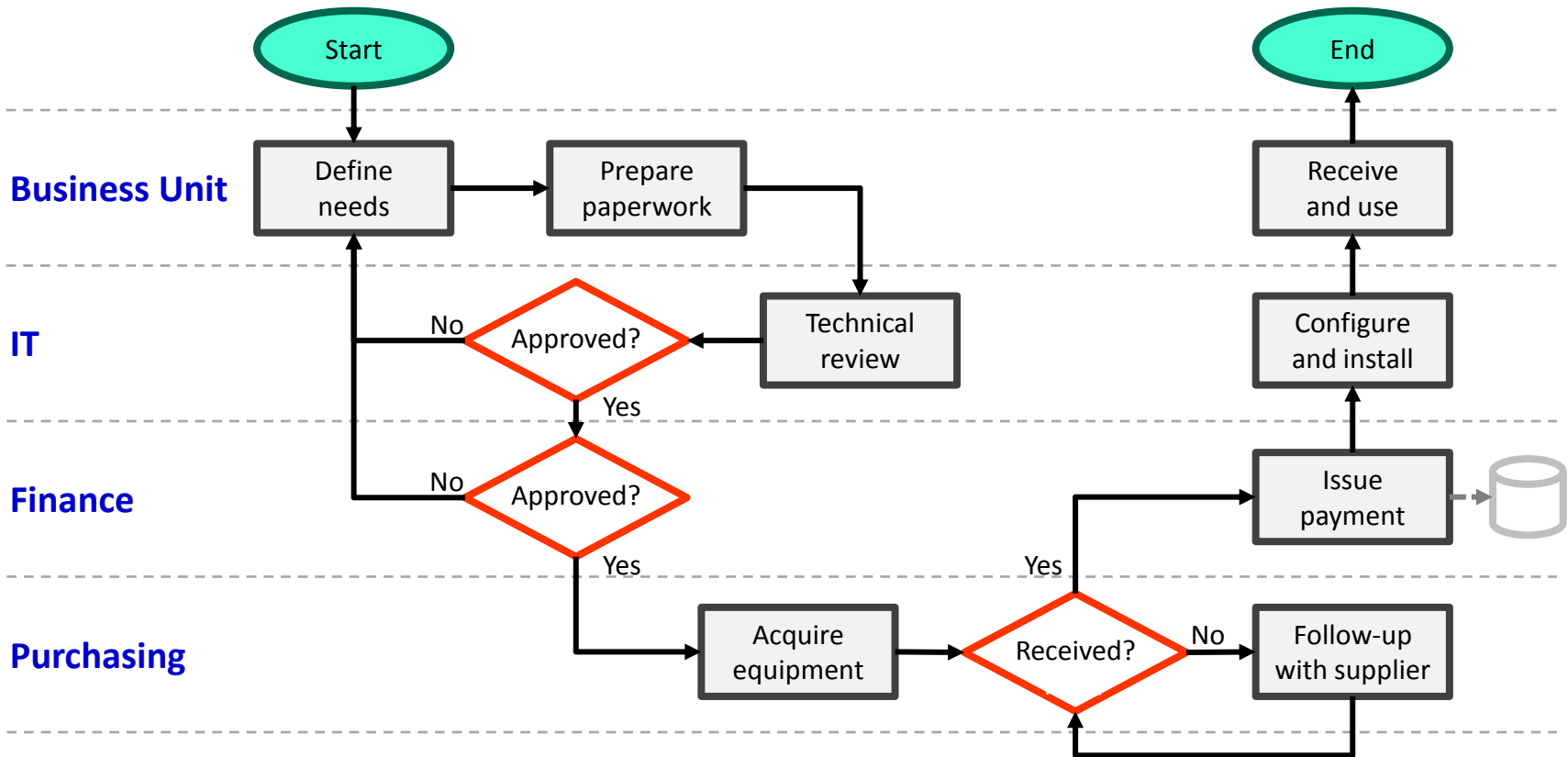
- Flowcharting

Example – Changeover Operation (Size Conversion):



- Flowcharting

Example – Acquiring New Equipment:



- Flowcharting

Further Information:

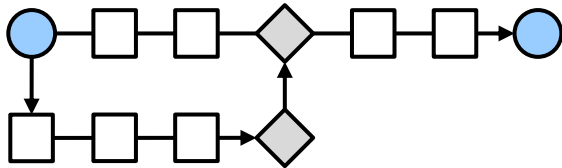
- ❑ The exercise of flowcharting internal processes can clarify your and your team's understanding of their work.
- ❑ It's always a good practice to walk the process before you draw your flowchart to get an overview of the process and identify the boundaries.
- ❑ Although you can draw flowcharts by hand, it's often convenient to use any drawing program to create visually appealing flowcharts. Some applications even offer special support for flowchart drawing.
- ❑ Flowcharts showing steps that are visible to the customer are considered service blueprints.

- Flowcharting

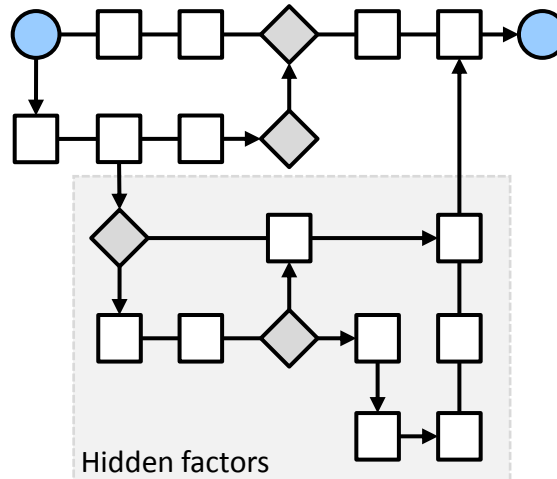
Further Information:

- ❑ What do we think of a process is not necessary what it actually is.

What you think it is...



What it actually is...



What you would like it to be...

