Continuous Improvement Toolkit

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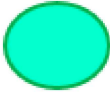
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Flowcharting

A flowchart is a graphical tool that illustrates the flow of a business process and the relationships between its activities. It allows to break up any process into individual activities to see how it looks like. The simplicity of flowcharts make them useful for understanding processes and finding waste and inefficiencies for further problem-solving efforts. They can be used for any process and in any industry.
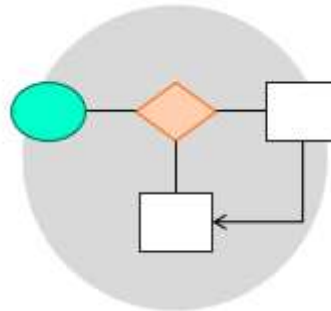
Flowcharts are ideal tools to visually representing business processes. For example, if you want to see the flow of activities for the purchase order or a sales order through the various departments within a company, flowcharts are among the best means. They help you and your team understanding what activities and decisions are involved, and thus, performing the tasks correctly and in the right order. This is why they are often used to document how to do a particular job, and can be found in procedures and quality manuals.

Flowcharts are also used when designing new processes to support organizational transformation. Software developers can use them to map processes that need to be automated. Kaizen and continuous improvement teams use them to identify and analyze problem areas in order to simplify the work and improve efficiency and performance. They help revealing areas of inefficiency such as unnecessary activities, bottlenecks, excessive delays and complex procedures.

Flowcharts are typically drawn with arrows and shapes of various kinds to indicate different types of activities. There is no specific format for a flowchart, however, there must be an agreement of the shapes used to ensures they are drawn in a consistent manner. It's worth checking whether your company has any standard set of shapes or symbols that should be complied with. The following are the basic shapes that are applicable in most situations:

Activity: The most frequently used shape which represent the task or action to be performed.

Decision point: Requires a YES/NO response. Other options are also valid such as (TRUE/FALSE) and (Less than/Equal or more than).

Start / End: Defines the process boundaries. Also used to indicate that a branch from a decision comes to an end.

Flow line: Connects the shapes and indicates the flow of the process. Sometimes used in indicate a loop.

Other shapes may also be used to describe the type of activities more specifically. Flowcharts can show more
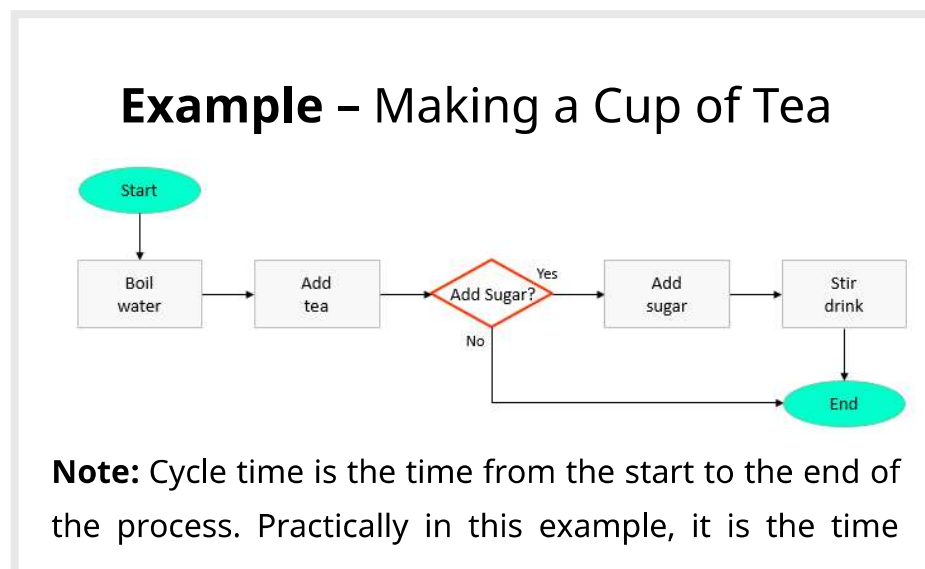
information such as who is responsible to perform the activity and how much time each step takes. A single flowchart can quickly becomes long and complicated. That's why connectors are used to link sub-processes and indicate converging paths.

There are three common types of flowcharts based on objective of the analysis.

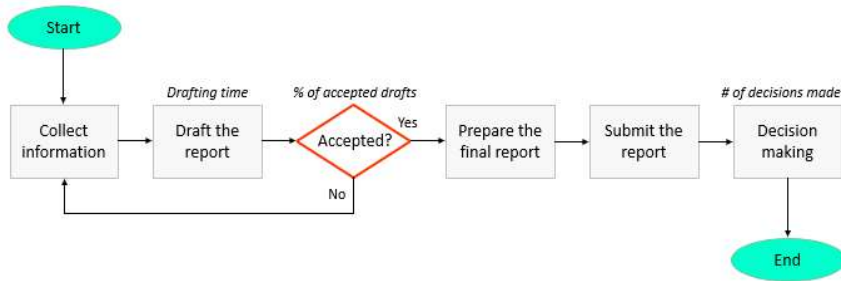**ACTIVITY**   **SWIMLANE**   **OPPORTUNITY**
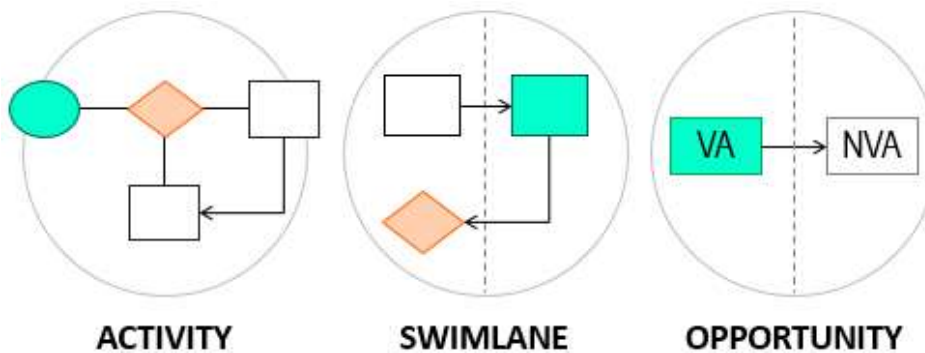
Activity Flowcharts

An **activity flowchart** displays the sequence of the activities that make up the process in a way that focuses on what happens. They are the basic forms of flowcharts and illustrate the flow of activities, decision points, rework loop and the overall order of the process.

Example – Making a Cup of Tea

Note: Cycle time is the time from the start to the end of the process. Practically in this example, it is the time

needed to prepare the cup of tea.

Example – Preparing Reports for Decision Makers

Note: More information can be displayed in flowcharts. For example, the performance indicators that need to be tracked for this process were added above three of the steps.
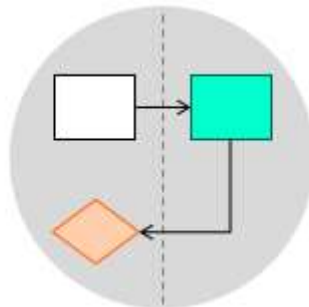
Example – Changeover

The following is an example of a flowchart that was created for a changeover operation (size conversion) for a production line.
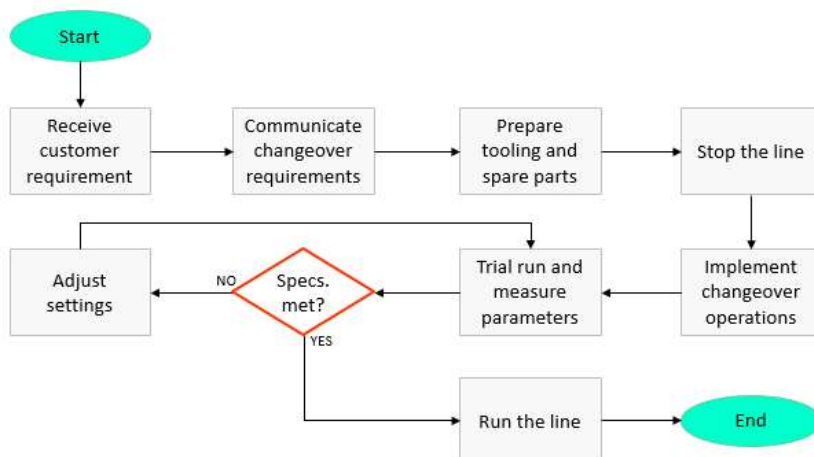
Note: There is a rework loop in this manufacturing process, so that the approver can reject to run the line until the specifications are met.

Swimlane Flowcharts

A process is described as a cross-functional when it involves several departments. A swimlane flowchart (or a cross-functional flowchart) illustrates the sequence of activities required to accomplish a cross-functional process. This type of flowchart is divided into multiple lanes to indicate multiple responsibilities. An activity or decision appearing in a particular lane is within the control of that department. This helps clarifying the responsible department for performing the activity or making the decision.

Swimlane flowcharts are particularly helpful for non-manufacturing processes that mainly involve the flow of information, knowledge, and documents between several functions. Those type of processes involves many handoffs where information and documents are passed back and forth among the departments. When a swimlane flowchart shows a lot of hand offs, this maybe a sign for having waste due to unnecessary transporting, wasted motion or overprocessing.

Example – Acquiring New Equipment

This example illustrates a cross-functional flowchart for acquiring new equipment by a company's business unit.
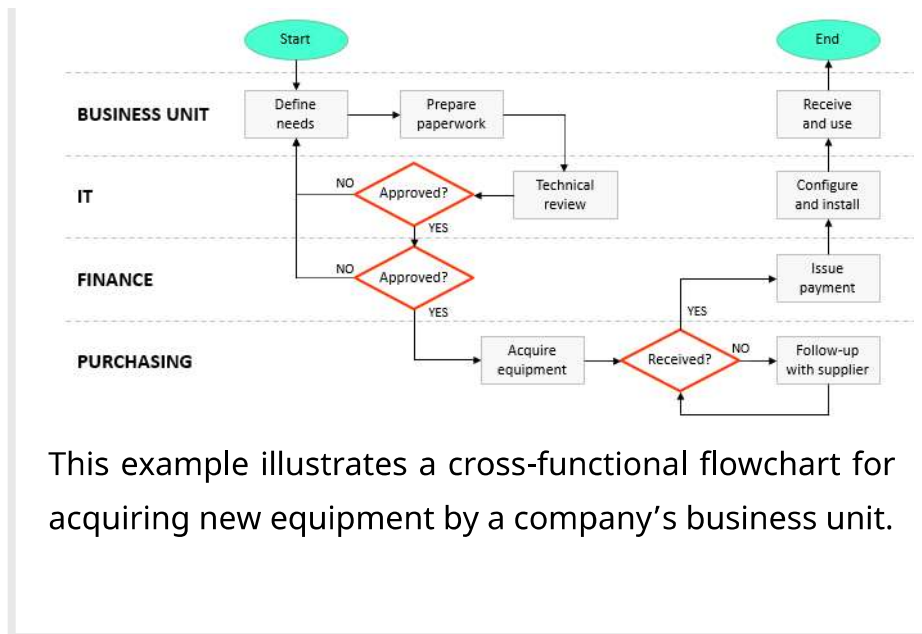
Opportunity Flowcharts

An opportunity flowchart provides a way to analyze and study business processes by highlighting those steps that add waste and complexity. This type of flowchart is normally divided into two sections to differentiate the activities and decisions in the process that add value from those that don't.
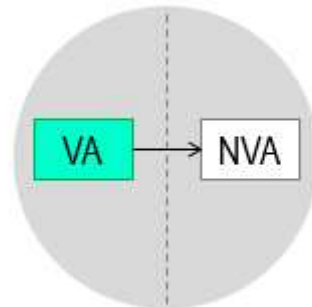
Opportunity flowcharts reveal opportunities for improvement as they will increase the awareness of what previously was accepted as normal and unavoidable waste. By separating the non-value-added steps, it will be more clear and easy to see opportunities for improvement. If the non-value activities could be reduced or eliminated, there is a great chance to simplify and streamline the process, and this is one of the main goals of the lean methodology.

Example – Use of an Office Copy Machine

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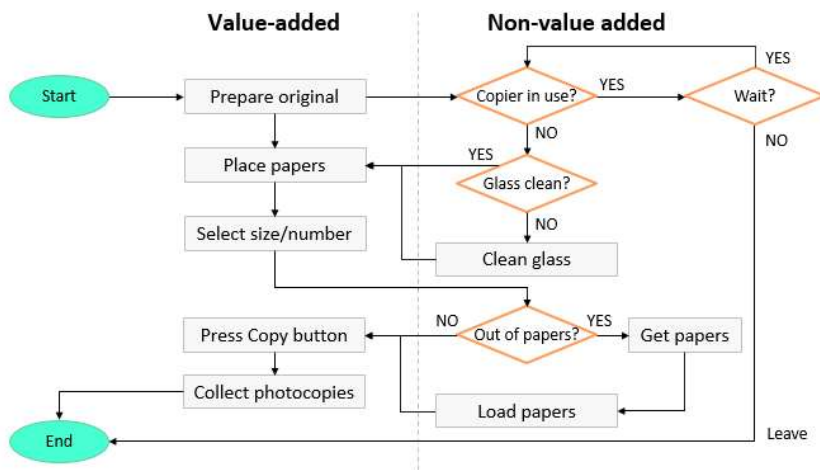
How to Construct a Flowchart

Flowcharts are easy to understand and simple to construct through the following steps:

- With your team, describe the process and your objectives.
- Determine the type of flowchart, the level of detail, and the appropriate scope and boundaries.
- Brainstorm and identify all major process activities, decisions and the sequence of completion.
- Draft the flowchart using the standard set of shapes, and label each step appropriately.
- Prepare the final flowchart, check for missing steps or decisions, and add further details as necessary.
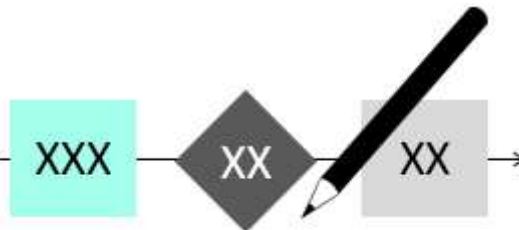
- Test the flowchart to make sure that it represents the process accurately and completely.
- Publish and distribute the completed final version of the flowchart to all concerned.
- Update the procedures and other documentation as necessary.
- Identify the areas that hinder the process or add little or no value for further process improvement.
- Plan and implement actions to reduce inefficiencies and waste.

Flowcharts and Document Management

Companies often document their procedures and processes to comply with regulations in their industry and to meet the continuous
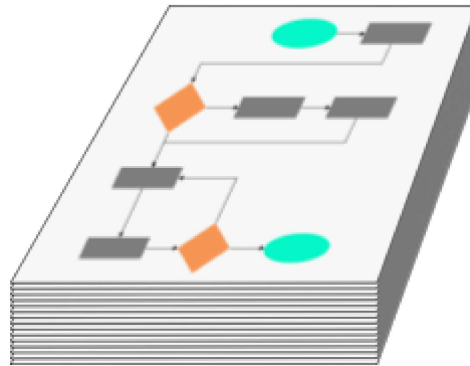
auditing needs of customers. Every company should have a standardized way for documenting their procedures and processes. Flowcharts are useful to summarize the procedure or process. They provide a common language & understanding of the process or procedure. They can highlight issues and reveal opportunities to improve the process□or procedure. They can either be included under the relevant procedure, or be placed in the appendix at the end of the documentation or manual.

Software Applications and Online Services

The process of drawing a flowchart can be an overwhelming task. This is where applications and online services can offer the flexibility that a piece of paper can't. Although you can draw flowcharts by hand, it's often more convenient to use any of the drawing applications to create visually appealing flowcharts. A good practice is to draft the flowchart on a paper before designing it with software.

Industry Specific Flowcharts

Flowcharts are widely used in software development, quality management and auditing practices. This is an example of a flowchart that was created by an information technology department to help in designing and documenting computer programs.

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