

Lean Poster Series #3

How to Create an Ishikawa Diagram

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What is an Ishikawa Diagram?

Ishikawa Diagram (also called Fishbone Diagram or Cause-and-Effect Diagram) is a tool that can help to identify potential causes of a problem, classify them and discover the root causes.

When is an Ishikawa Diagram used?

This tool can be used during the Measure (to classify potential causes) and the Analyze (to analyze root causes) phases of a DMAIC Project.



How to Create an Ishikawa Diagram

A Define the problem statement. This will be the head of the fish.

B Define the major cause categories. These will be the spines.

Brainstorm to detect the possible causes per category.

C Focus on one category at a time and discover the root cause of each possible cause.

D Map it out in programs such as Excel or Visio and review the diagram for completeness.

Identify and mark causes that are most critical according to the team.

Develop plans to confirm that the potential causes are actual causes.

What is the purpose of an Ishikawa diagram?

1. To help look beyond symptoms to uncover potential root causes.
2. To provide structure to a root cause identification effort.
3. To ensure a well balanced list of ideas have been generated during brainstorming and that major possible causes are not overlooked.

Tips to define a problem statement

You can use the **SMART** rules to define the problem statement:

- Specific:** Target a specific area of the business
- Measurable:** Quantify the problem
- Acceptable:** Agree the problem statement with sponsor and relevant stakeholders.
- Relevant:** Make sure the problem is relevant
- Time-bound:** When quantifying the problem, don't forget about the time aspect.

Potential sources of a problem statement are:

- Process KPI's
- Financial results
- Voice of the customer (internal & external)

Define the major factors involved using the 6M*

- Manpower
- Machine (Technology)
- Methods (Processes)
- Materials (Including information)
- Measurements
- Mother Nature (Environment)

* Other categories include 3S (Services) and 7P (Marketing)

Root cause analysis - 5 Whys

The 5 Whys is a simple question asking method used to derive the root causes of a problem. 5 is the number of iterations usually required to arrive at the root cause. The question is "Why did [the potential cause] happen?". The answer to the question forms the basis for the next Why-question.

Root cause analysis is used to analyze the problem from the perspective of its root causes.

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Ishikawa Diagram Structure



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