

FISHBONE DIAGRAM

Improvement Cymru Academy

What is a Fishbone Diagram?

The fishbone diagram also known as:

A cause and effect or Ishikawa diagram (after its inventor, Professor Kaoru Ishikawa of Tokyo University). Is a tool to enable you to explore and display the possible causes to a specific effect or problem. It is known as a fishbone as when it's completed, it looks like a skeleton of a fish.

When to use it?

The tool quickly helps to understand a problem and to help identify many possible causes - not just the obvious.

This tool enables a group of stakeholders/Improvement team to focus on the cause of the problem rather than its history or the differing interests of team members. It creates a snapshot of the collective knowledge and consensus of a team around a problem and focuses the team on the root cause of the problem - not its symptoms.

How to use and draw a fishbone diagram?

All stakeholders need to be involved, utilise the brainstorming technique to generate possible causes for inclusion on a fishbone diagram and let all participants contribute their own unique experiences and ideas.

1. Firstly, identify the problem. Write it in a head of the fish and draw an arrow pointing towards it (creating the spine of the fish, see image below). Think about the exact problem in detail. Where appropriate, identify who is involved, what the problem is and when and where it occurs.
2. Brainstorm the major categories of causes of the problem. If this is difficult, you can use generic headings, as the categories:

Methods
Machines (equipment)
People (man power)
Materials
Measurement
Environment

Or the 4Ws:

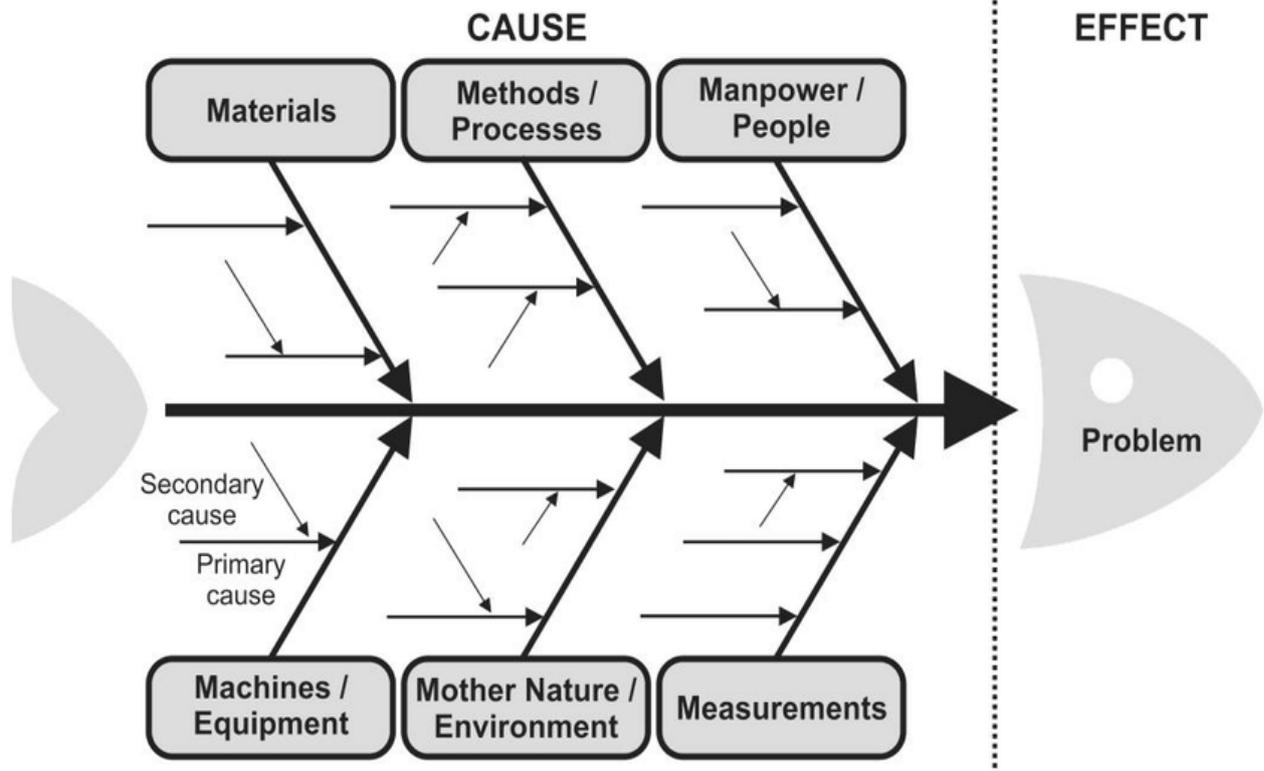
What

Why
When
Where

Or the 5 Ps:

People
Provisions
Procedures,
Place,
Patrons

3. Write the categories/themes of causes as branches from the main arrow (see image below)
4. Brainstorm all the possible causes of the problem. Ask “Why does this happen?” As each idea is given, the facilitator writes it as a branch from the appropriate category. Causes can be written in several places if they relate to several categories.
5. Again ask “Why does this happen?” about each cause. Write sub-causes branching off the causes. Continue to ask “Why?” and generate deeper levels of causes. Layers of branches indicate possible causal relationships.
6. When the group runs out of ideas, look at the diagram and focus the group’s attention to the category/theme that has the least amount of ideas related to it.



(Designingbuildings.co.uk, 2019)

Tips

- Make sure that your team agree on the problem statement.
- Include as much information as possible in the 'what', 'where', 'when' and 'how much' of the problem.
- Use data to specify the problem. If possible, construct the Fishbone with the people involved in the problem
- You can use a Fishbone as a working document that is updated as and when you collect more data, or to trial various solutions.
- Use a paper format so that you can transport the final Fishbone.

What next?

The fish bone diagram identifies a large number of possible causes, depending on the complexity and importance of the problem, you need to agree with your team/ stakeholders which cause(s) you are going to investigate further.

Improvement tools that may be useful at this stage are; process maps, five whys or Pareto charts.

Referencing

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