



Cause and effect diagram

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Cause and effect diagram

Also called the 'Fishbone Diagram', or Ishikawa chart, this participatory exercise explores the links between the effects and the possible causes of an issue. This tool encourages a group setting for problem — solving and demonstrates that problems can have a number of causes.

What is it?

Cause and effect analysis is a technique for identifying the possible causes of a problem or effect. The technique uses a Cause and Effect Diagram to record the possible causes as they are suggested.

When should you use it?

Use this tool when you want to establish the cause of an effect. The effect may be either a problem or a desirable effect — when something desirable has happened it is useful to find out what caused it so you can make it happen again.

Constructing a Cause and Effect Diagram

Establish what the problem, or effect, is. It must be stated in clear and concise terms, agreed by everyone.

Write the effect (problem) in a box on the right and draw a long line pointing to the box.

Decide the major categories of causes. This may be done in several ways:

- Brainstorming
- Using standard categories such as the 4Ms (Machines, Materials, Methods, Manpower) or PEMPEM (Plant, Equipment, Materials, People, Environment, Methods).

When the effect results from a recognisable process or set of activities, the major steps in the process can be used.

Write the major categories in boxes parallel to, and some distance from, the main line.
Connect them to the main line with slanting arrows.

Brainstorm for possible causes.

Add the causes to the diagram clustered around the major causes they influence.
Divide and sub-divide the causes to show how they interact, and draw links between causes that are related. If the diagram becomes too crowded, move one or more categories to a new sheet of paper.

Evaluate and analyse the possible causes.

Decide and act.

This will probably involve using other tools. For example, in order to verify some of the possible causes identified you may need to collect data (using checksheets) and analyse it (Pareto Analysis, graphs, etc.).

Example of a cause and effect diagram

