



Fishbone Diagram Template

Fishbone diagrams are the versatile cause-and-effect diagrams that can help uncover the root causes of issues from the very granular micro scale all the way up to the macro.

A blank fishbone diagram to a decision maker can be like a blank page to the author of a book: terrifying.

Understanding where and how to start, as well as what factors to consider when building your diagram, can ease a little of that blank page fright, and help you get the most out of your fishbone diagram.

What You Need to Know

Fishbone diagrams are powerful because they serve as structured cause-and-effect tools. Their effective use puts an end to disorganized searching and pursuit, and focuses the efforts of an investigative team.

Fishbone diagrams are part of the Lean toolkit, a collection of tools, protocols, and best practices that augment the Lean manufacturing program. Like many of the practical Lean tools, fishbone diagrams are easy to use and have an impact that is greater than the sum of their parts.

This is a recurring theme within the Lean framework. Among others, simplicity is one of the core philosophies of Lean thinking, and the simplicity of fishbone diagrams is an extension of this same school of thought. The benefits that fishbone diagrams confer are not restricted just to practitioners of Lean; they can be used by a variety of organizations in a range of business sectors.

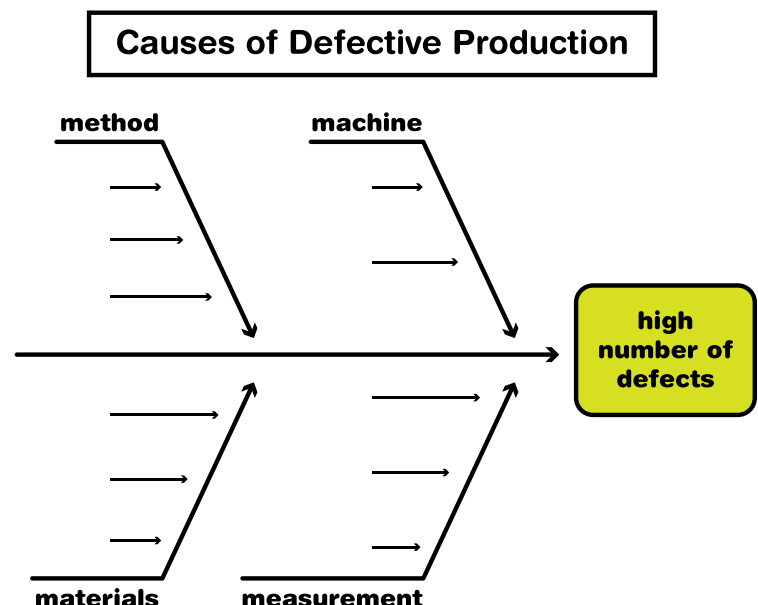
Some readers may also know these handy tools as Ishikawa diagrams (named after their creator, Kaoru Ishikawa) or herringbone diagrams.

The 5 M's of Manufacturing

When building your fishbone diagram, the basics are easy to get started with.

The problem goes on the right, and we work backward from there. The problem can be anything, but for this example we'll use one familiar to any practitioner of Lean: a high defect rate.

We know what the problem is, and now we're trying to find the root causes.



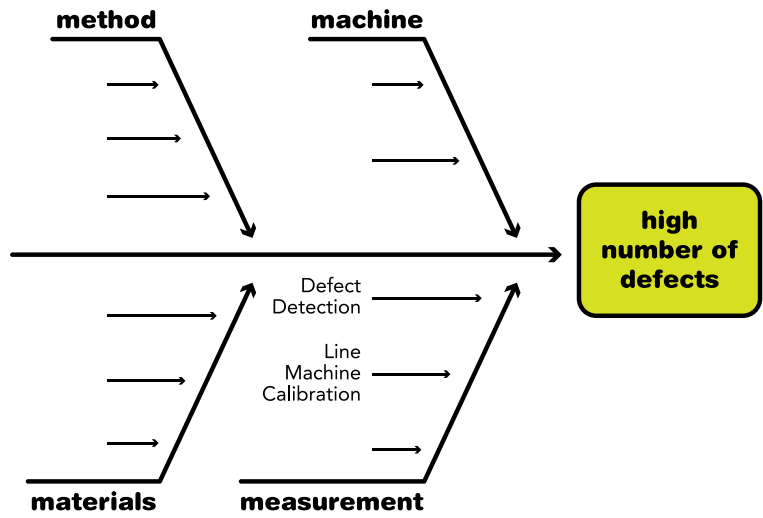
Here are the 5 M's of Manufacturing:

- Machine
- Method
- Material
- Manpower
- Measurement

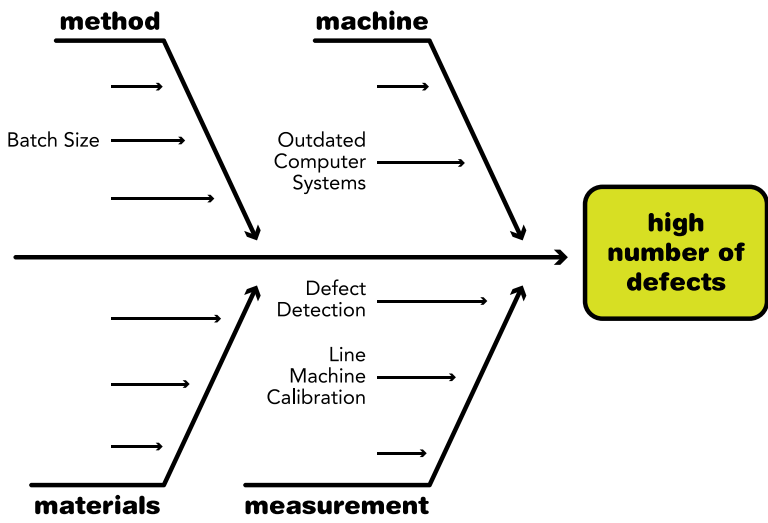
These can each be added to a leader that comes off the main "spine" of the fishbone diagram.

Instead of saying, "Well, we have a high defect rate, so let's recalibrate our monitoring system," this structured approach takes a different avenue toward problem solving. Recalibration of a quality monitoring system could be a machine issue, or it could be a measurement issue. The investigation team decides which one and adds it as a flag on the appropriate leader.

Causes of Defective Production



Causes of Defective Production



Then the team brainstorms additional possible issues. Each of our known issues goes on a leader in the fishbone diagram. These make up the fish's "bones".

What if the batch size is too high for our detection systems?

Add it to the diagram.

What if our computer systems are missing something critical in the defect detection process?

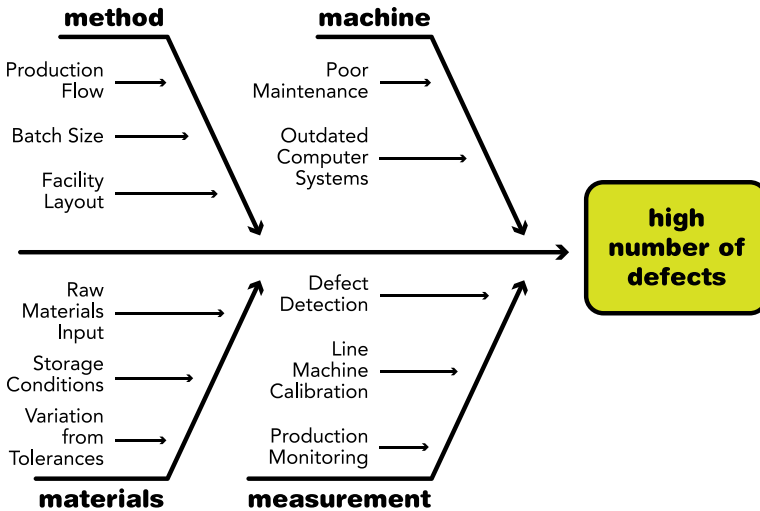
Add it to the diagram.

Instead of tackling smaller issues one at a time, for example recalibrating the quality monitoring systems and then going back to the drawing board, a complete fishbone diagram serves to provide a holistic view of the contributory causes to the issue at hand.

In this case, a high rate of defects.

This bird's eye view can assist decision makers in putting together action plans that address key issues. Like so many other Lean processes, fishbone diagrams are living documents, and should be updated with new learning and insight.

Causes of Defective Production



In this way, they become reliable sources for all members of the investigative team, as well as for other decision makers as the need arises.

What About Other Sectors?

The 5 Ms of Manufacturing are specific to one industrial sector. What about the rest of us?

Machine, method, manpower, measurement, and materials have been determined to be the overarching root cause categories for manufacturing operations. They are distilled from experience, common sense, and insight into how the manufacturing process works. These same principles can be applied to any process with those same guiding principles.

A common variation is the 8 Ps of Marketing:

- Product/Service
- Price
- Place
- Promotion
- People
- Process
- Physical Evidence
- Publicity

These are derived in the same ways as the 5 M's: through insight into how the marketing process works, through common wisdom, and through experience.

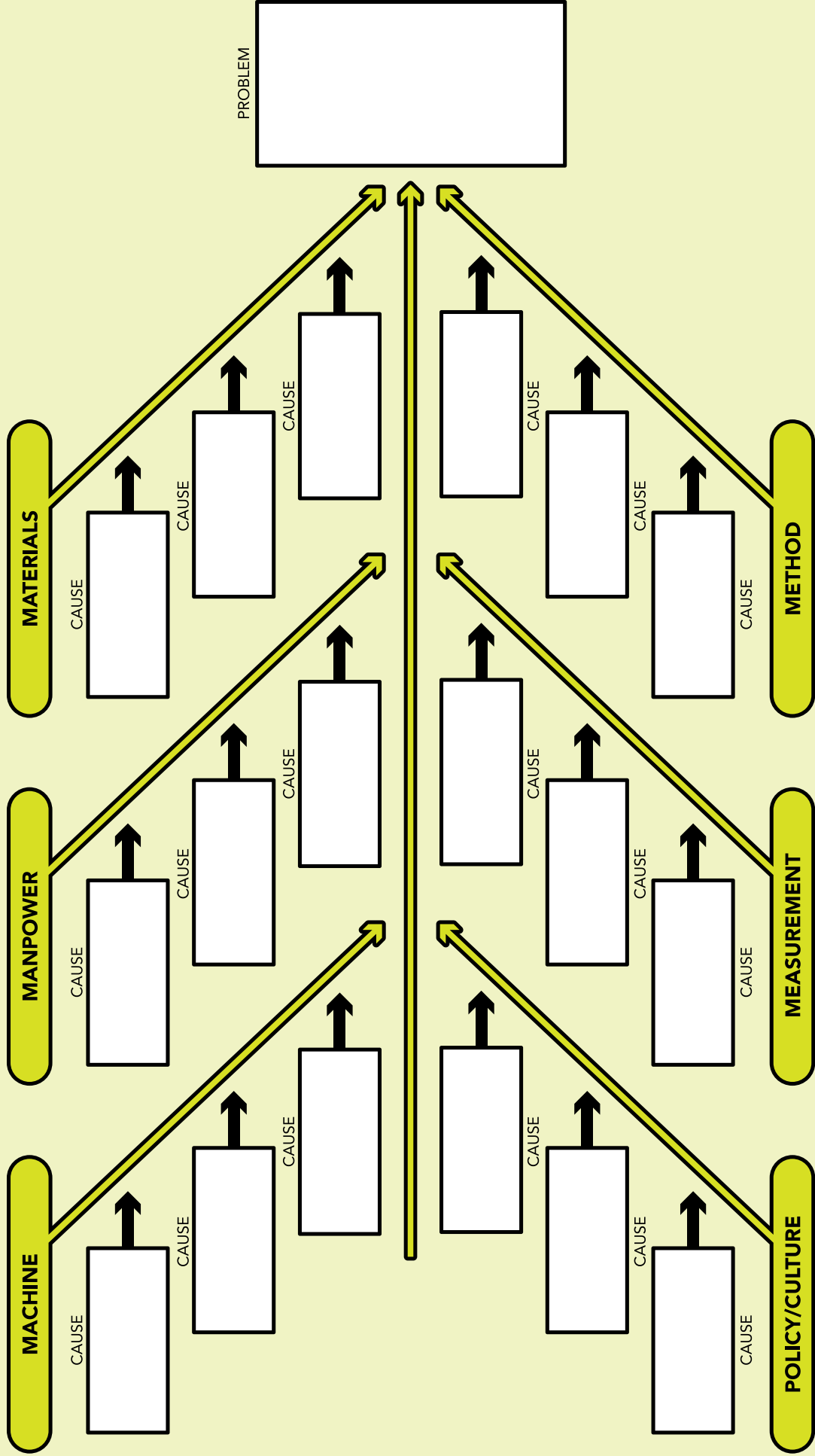
Fishbone Diagrams Aren't the Only Tool

Probably the most important aspect of fishbone diagrams to keep in mind is that they aren't the only tool for investigating cause and effect, and they alone cannot produce the solutions to problems.

Decision makers and members of investigative teams must be willing to leave the conference room and study the process in person. The best decision anyone can make is an informed one, and there is no better source of information than studying the problem itself.

The true purpose of a fishbone diagram is to disrupt a team's thinking and force them to consider all the pertinent conditions that may end up producing causal factors to the problem at hand. By structuring the cause-and-effect investigative process, a repeatable process is created.

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COMMENTS