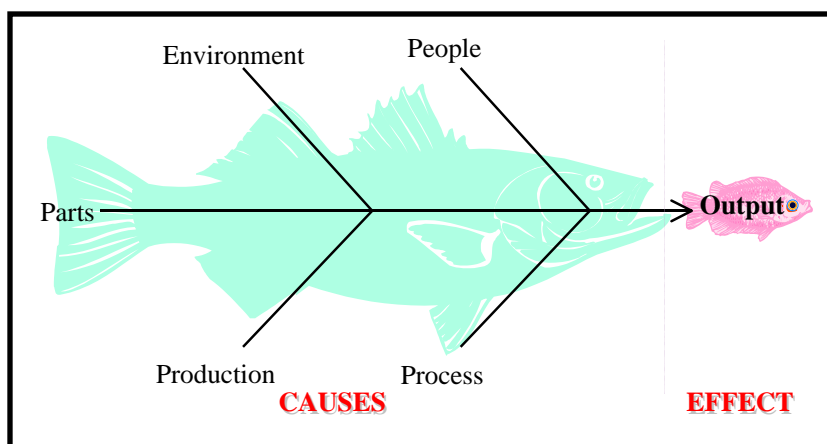


Cause & Effect Diagram

What The Cause & Effect Diagram, also known as the “Fishbone Diagram” is a graphic tool used to display a brainstormed list of causes to a known problem, issue, or situation (effect). There are usually five cause categories used: They could be remembered as 4M-1E (Manpower, Method, Material, Machinery, and Environment) or the 4P-1E (People, Procedures, Policies, Plant, and Environment).

When It is used When you need to identify, explore and display all possible causes to a specific problem, condition, or variation.

- How**
1. **Select the right team:** Members should be chosen for their working knowledge of the process under consideration.
 2. **Set up the chart:** Using a double sheet of flip chart paper taped side-by-side on a wall or board, write the issue statement in a box on the right. Choose a cause category label (4M-1E or 4P - 1E) and draw the bone (left) side of the chart.
 3. **Generate a list of causes:** Using the rules for brainstorming generate a list of possible causes for the issue. Posting an “as is” flow chart of the process may help. You can also have participants observe the process and identify causes before coming together.
 4. **Determine the placement of individual causes on chart:** Discuss each input to determine where it goes on the chart. It is possible to place a cause on more than one category. After placing the inputs go back over each one and ask “Why is this causing (the effect)?” Try to take this an additional 3 bones deeper to attempt to identify the root or underlying causes.
 5. **Analyze the results:** The value of the tool is in the discussion of the relative value of each input. Use Multi-Voting to narrow the causes you will select for further investigation and NGT to prioritize the most likely few causes.



CAUTION!

Identify the borders of issues under investigation to reduce frustration.

Use as few words as possible.

Agree on the issue statement before you begin.