Problem

Bad Method

Do not get all the facts

Jump to Solution (deploy countermeasure)

Problem

Returns

Insert Revised Problem Statement Here.

Problem

Machine           Man
       Materials Methods
Lean Method

5G Principle

5 Why

why?
why?
why?
why?
why?

Fishbone Diagrams

5W1H

Insert Revised Problem Statement Here.
5G Principle – 1st 3 G’s:

- Actual Place
- Go to the spot
  (GEMBA)

- Actual Things
- Examine the objects
  (GEMBUTSU)

- Actual Facts
- Check facts and figures
  (GENJITSU)
5G Principle – Last 2 G’s:

- **Principles**
- Refer to the proper tools / methods (GENRI)

- Standards & parameters
- Follow the standard (GENSOKU)

Goal: Restores conditions to the Standard
What is 5W1H?

- Questioning technique
- That provides the full story of a problem
When do we use 5W1H?

- To define a problem/problem statement

A problem well stated is a problem half solved......
5W1H – How to do it – Step 1

Write down your problem statement (top section)

<table>
<thead>
<tr>
<th>5W1H - Define the problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Problem Statement</td>
</tr>
</tbody>
</table>

Write down your problem statement (top section)
### 5W1H – How to do it – Step 2
Answer the questions in the boxes at the right (top section)

<table>
<thead>
<tr>
<th>What</th>
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<tbody>
<tr>
<td>&gt; What does the issue look like?</td>
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<td>&gt; Where did you see the issue or where does it occur?</td>
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<td>&gt; Everyone? Or Specific groups, organizations, customers, etc.?</td>
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<td>&gt; Which trend or pattern does the abnormality have? e.g. Is the abnormality more frequent on Monday mornings? After a change-over? Or is it random in nature? Which direction does the abnormality happen in? (Note: Not many abnormality are truly random)</td>
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<tr>
<td>&gt; How is the state of the equipment changed from the optimal?</td>
</tr>
<tr>
<td>&gt; How many times does the problem occur?</td>
</tr>
<tr>
<td>&gt; How many parts are involved?</td>
</tr>
<tr>
<td>&gt; How are you going to solve the problem? Using what method or techniques?</td>
</tr>
</tbody>
</table>

Is / Is not
Don’t Forget to Ask Both!
5W1H – How to do it – Step 3

Rewrite your problem statement using the answers you wrote at the right of the questions

<table>
<thead>
<tr>
<th>What</th>
<th>revised problem statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; What does the issue look like?</td>
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<td></td>
</tr>
<tr>
<td>&gt; Where was the issue observed?</td>
<td></td>
</tr>
<tr>
<td>&gt; Who was affected?</td>
<td></td>
</tr>
<tr>
<td>&gt; Which trend or pattern does the abnormality have?</td>
<td></td>
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<tr>
<td>&gt; How does the state of the equipment change from the optimal?</td>
<td></td>
</tr>
</tbody>
</table>

Make sure you can take action!!
What is a Fishbone Diagram?

Problem

Insert Revised Problem Statement Here.

Revised Problem Statements are Developed using 5W 1H.
What is a Fishbone Diagram?

- Visual problem solving tool
- Provides a way to understand potential causes of an abnormality
Why use a Fishbone Diagram

- To reach the root cause of an abnormality
- To display and identify possible causes of a problem
How to complete a Fishbone Diagram

1. Write the abnormality in the right hand box
2. Write the 4 categories in the other boxes
   - Manpower (Man, Personnel)
   - Machine
   - Material
   - Methods
3. For each category, list the relevant causes
4. Focus on one category at a time.
5. Circle the most probable root causes for 5 Why analysis

Revised Problem Statements are Developed using 5W 1H.
What is a 5Why Analysis?

- A method of analyzing cause & effect
- A problem solving tool used to reach the root cause of a problem
- The method involves asking "Why … ?" five times
Reasons to use a 5 Why Analysis

- To understand the real root cause(s) of a problem
- To reach solutions that treat the root cause and not the symptoms

Problem or Abnormality

Root cause Elimination
5Why Guidelines

Stop at last why where you can do something.
How to conduct a 5 Why Analysis

1. Define and write down the Problem

2. Ask "Why" the problem happened and write down the answer

3. If the answer is not a action that solves the problem, Ask Why the answer happened and write down the answer

4. Repeat Step 3 until you have a action that solves the problem has been identified.
   • May take more or less than 5 Whys.
   • Keep asking until you can no longer answer or you can no longer action the answer.
5 Why Analysis - Finding the Real Root Cause

Problem

Repeat the “Why” search again and again.

The real root cause becomes apparent at this point.

If you make a Solution (Countermeasure) at this point, the problem will reoccur, because the Real Root Cause wasn’t found until the 5th Why…

Based on the Real Root Cause, Select a SMART Target…

Specific
Measureable
Achievable
Realistic
Timed
### MACHINING EXAMPLE: 5Why Analysis

<table>
<thead>
<tr>
<th>Effect</th>
<th>1-Why</th>
<th>2-Why</th>
<th>3-Why</th>
<th>4-Why</th>
<th>5-Why</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can't Edit Programs at Machine</td>
<td>Insufficient Memory on Computer</td>
<td>Many Programs Located on Leader's Computer</td>
<td></td>
<td></td>
<td></td>
<td>Add PC to Machinist's Booth</td>
</tr>
<tr>
<td>Tooling Shortage</td>
<td>Existing Tools Are Worn Out</td>
<td>No Stable Process to Repair or Replace Tools</td>
<td>Lack of Dedicated Person to Take Care of Tools</td>
<td></td>
<td></td>
<td>Move Tool Resp. to Tool Crib in Bay 2</td>
</tr>
<tr>
<td>Problems with Parts</td>
<td>Wrong Parts are Delivered</td>
<td>BOM is Incorrect</td>
<td>Last Minute Changes to Parts not Communicated</td>
<td></td>
<td></td>
<td>Revise BOM Process</td>
</tr>
</tbody>
</table>

- **The 2 or 3 Most Likely Potential Root Causes from the Fishbone Analysis**
- **The REAL Root Causes**
- **Actions to Correct the Issue**
5Why Guidelines

- Use short and simple phrases
- Be as precise as possible, avoid general expressions
- Try to quantify
- Do not stop if you can ask “why” another time
- A root cause has been found if you can put an action on it that will eliminate the abnormality
- The analysis should be supported by real facts and figures
- Do small logical steps
Summary

- The 5 Why Analysis is a **problem solving tool** used to reach **root causes**.
- Use a 5 Why Analysis to:
  - **Reach the root cause of a problem.**
- Remember the general guidelines for 5 Why Analysis.
  1. Don’t jump to conclusions or assume the answer is obvious.
  2. Be objective.
  3. Focus on systems and processes, not people
  4. **Ask “Why” until the root cause is uncovered**
  5. Path should make sense when read in reverse using “therefore”
- How to conduct the 5 Why Analysis.
  1. Write down the problem
  2. Ask “Why” the problem happened and write down the answer.
  3. Repeat until the Root Cause has been identified.
    - May take more or less than 5 Whys.
    - Keep asking until you can no longer answer
5G Principle

5 Why

why?
why?
why?
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Fishbone Diagrams

5W1H

Problem
Statement Here.

Machine

Man

Materials

Methods
# 5W1H Form

## 5W1H - Define the problem

### Initial Problem Statement

<table>
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<tr>
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<th>Is / Is Not</th>
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> How many times does the problem occur?  
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### Revised Problem Statement

| Revised Problem Statement |  |

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## 5 Why form:

<table>
<thead>
<tr>
<th>Effect</th>
<th>Potential Causes</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-Why</td>
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