# Think.

ROOT CAUSE ANALYSIS

# An Introduction to Systematic Problem Solving

# A Definition of Root Cause Analysis

It is an objective, thorough and disciplined methodology employed to determine the most probable underlying causes of problems and undesired events within an organisation.

RCA aims at formulating and agreeing on corrective actions to at least mitigate if not eliminate those causes and so produce significant long term performance  improvement.

Root cause analysis is working towards finding the most probable cause of a non–conformity within a process.

# A Problem

Objective evidence exists showing that:

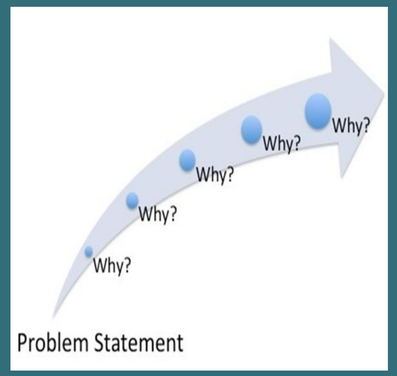
1. a requirement has not been addressed (intent)
2. practice differs from the defined system (implementation)
3. the practice is not effective (effectiveness)

A Cause is a reason for an action or condition; something that brings about an effect or result.

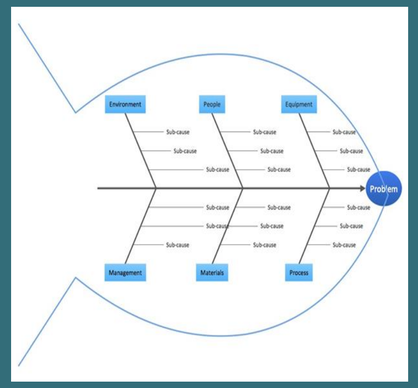
# The Purpose Root Cause Analysis is to examine problems or events to identify:

1. What happened
2. How it happened
3. Why it happened…so that
4. Actions for preventing reoccurrence are developed

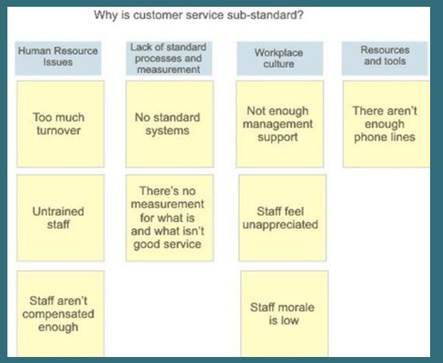
# The Tools of Root Cause Analysis




5 Whys



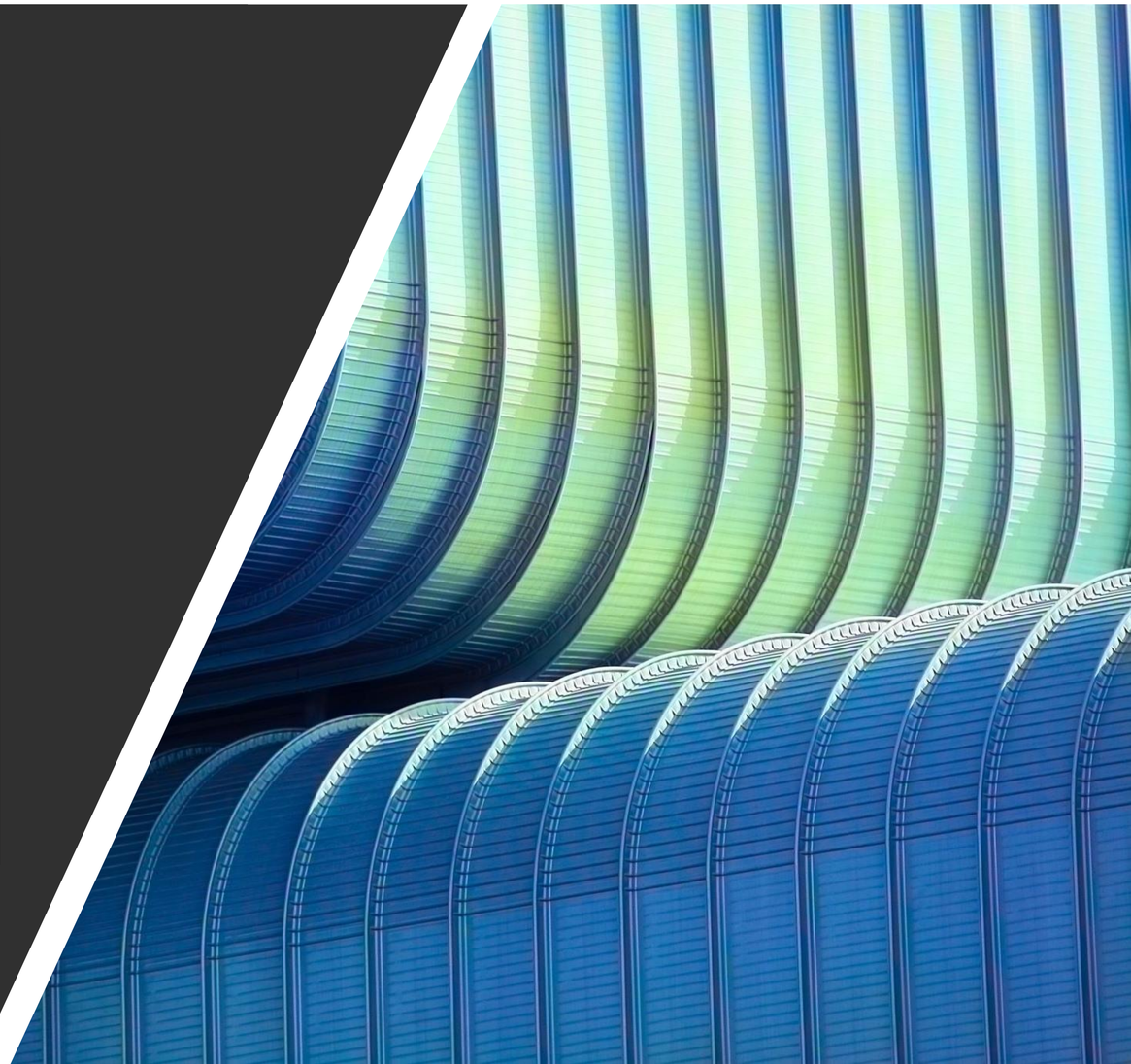

Fishbone Diagram



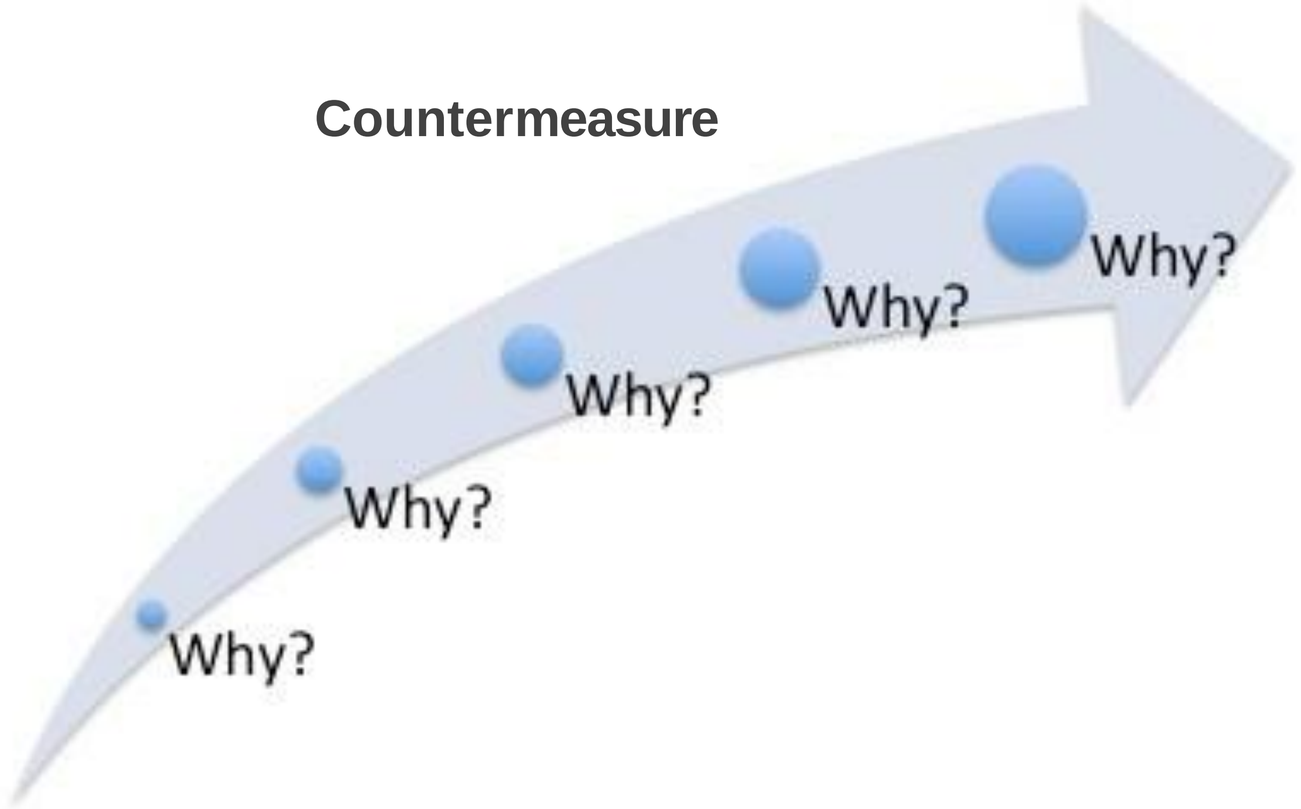

Affinity Diagram

# APPLICABILITY OF THE ROOT CAUSE ANALYSIS TOOLS

| 5 Why's Analysis | Affinity Diagram | Fishbone Diagram |
| --- | --- | --- |
| • When looking at **one major cause** and needs drill-down to arrive at<br>• **one root cause** | • When looking at several **inter-related** and **detailed causes** which have some things in common and can be grouped together to see the **Major Causes** | • When looking at **numerous major causes** and needs drill-down probing to arrive at **numerous root causes(s)** based on their **Cause and Effect Relationships** |



# 5 Why's Analysis




**Problem Statement**

A simple tool for drilling- down on the problem statement until the root cause is identified by asking "**WHY**" 5 times.

Avoid intentional or unintentional bias while answering Find the right person who can answer the 5Why's.

Use other RCA Tools if you're getting misleading answers.

# EXAMPLE OF 5 WHYS ANALYSIS

**Problem Statement**: The pizza delivery personnel's motorbike stopped while on his way to deliver several orders of pizza resulting to delay

**Cost Impact**: All delayed pizza were given free of charge to the customers

Why 1: Why did the motorbike stopped?

Answer 1: Because it ran out of gas while on its way to deliver pizzas

Why 2: Why did then gas run out?

Answer 2: Because the delivery personnel did not gas up the motorbike that morning

Why 3: Why didn't the personnel gas up the motorbike that morning?

Answer 3: Because the personnel did not have money to buy the gas

Why 4: Why did the personnel not have money to buy the gas?

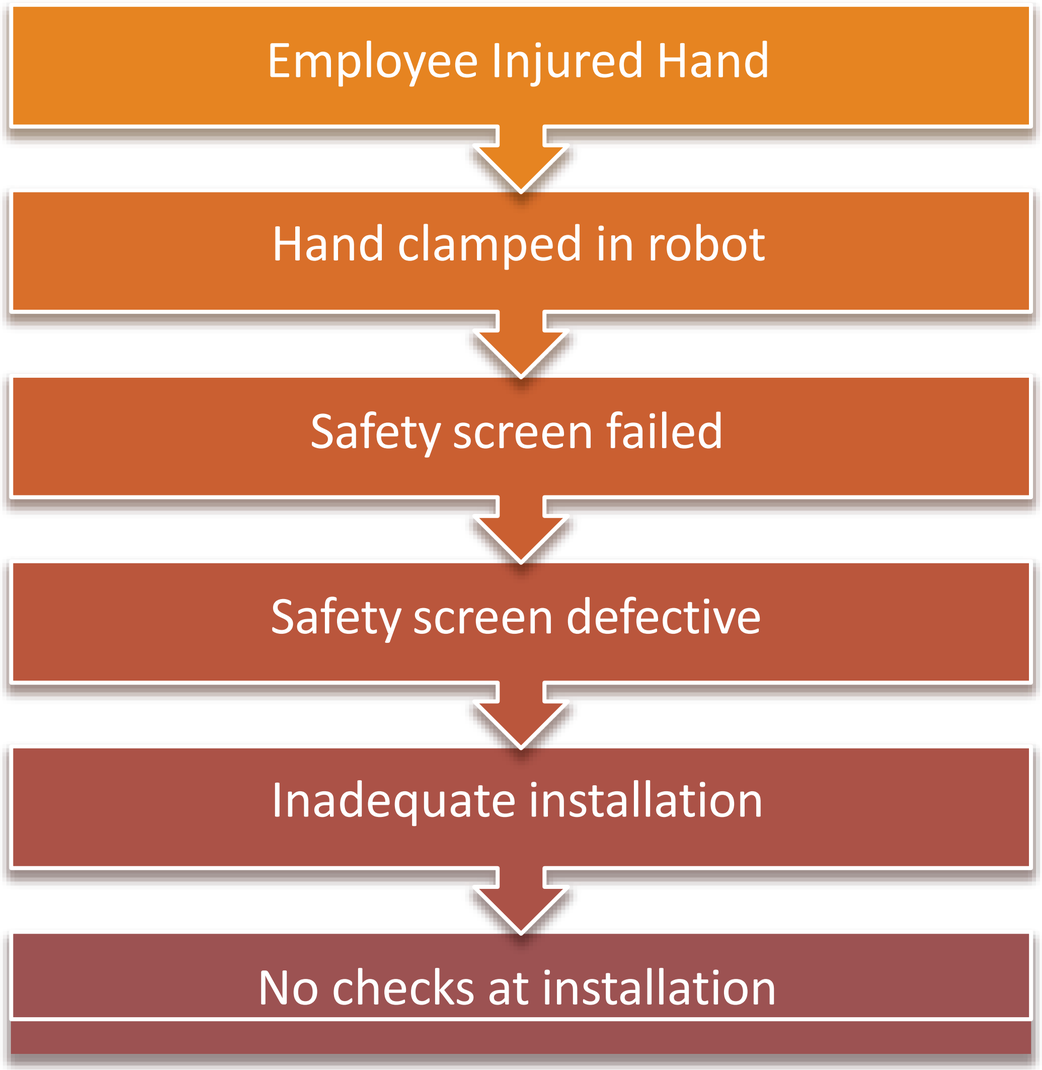
Answer 4: Because he was not able to ask money from his manager

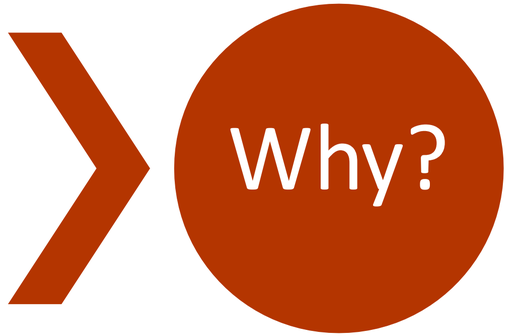
Why 5: Why was he not able to ask money from his manager?

Answer 5: Because he came in late and was not able to find the manager

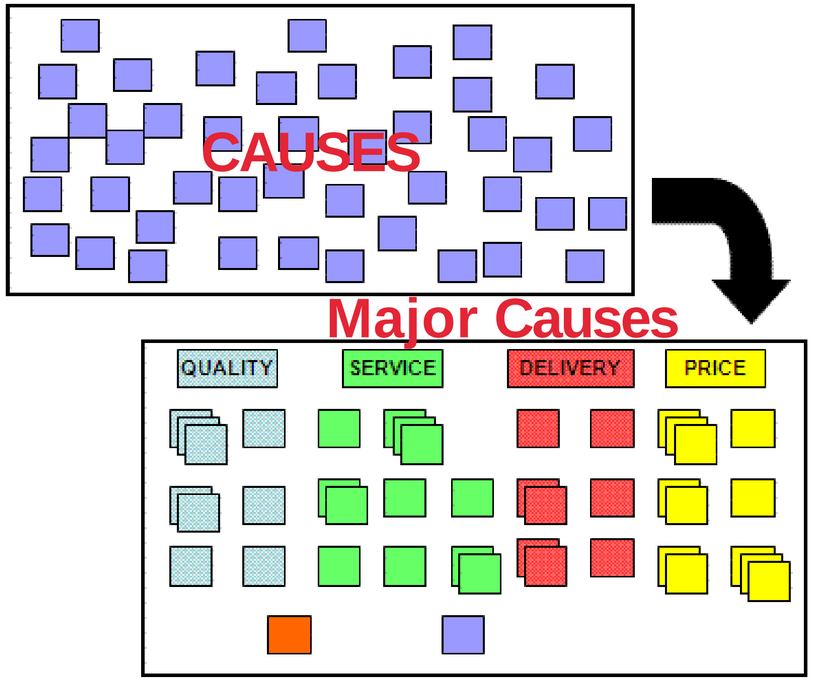
**Solution**: The pizza delivery personnel should come to the office on time or earlier to find the manager and ask for gas money before the deliveries.

# EXAMPLE OF 5 WHYS ANALYSIS



# Affinity Diagrams



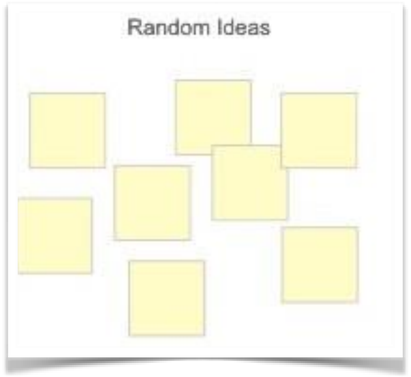

**Problem Statement**

A simple tool for putting together a big number of detailed and inter-related causes and group them according to broad topics.

This helps in focusing on the bigger picture or Major root cause.

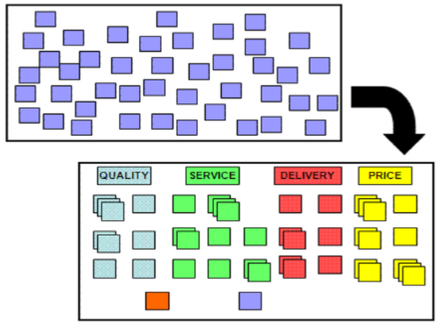
Similar to Zooming Out.

# EXAMPLE OF AFFINITY DIANGRAM ANALYSIS

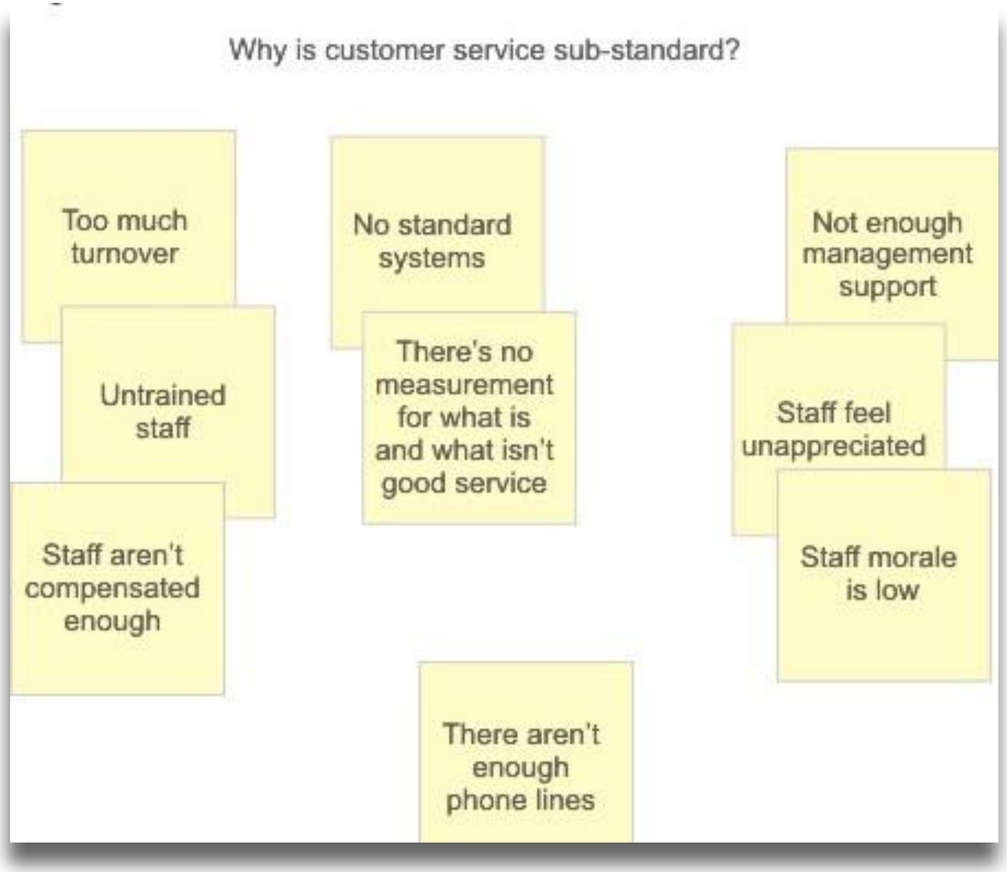



Brainstorm on ideas about the causes

# EXAMPLE OF AFFINITY DIANGRAM ANALYSIS




Group inter-related causes



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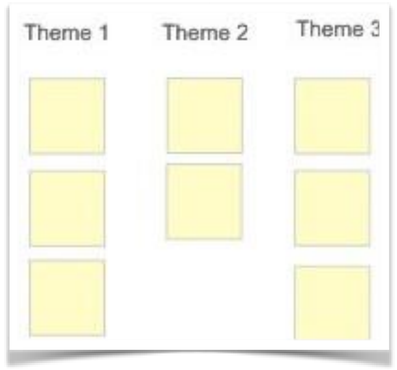


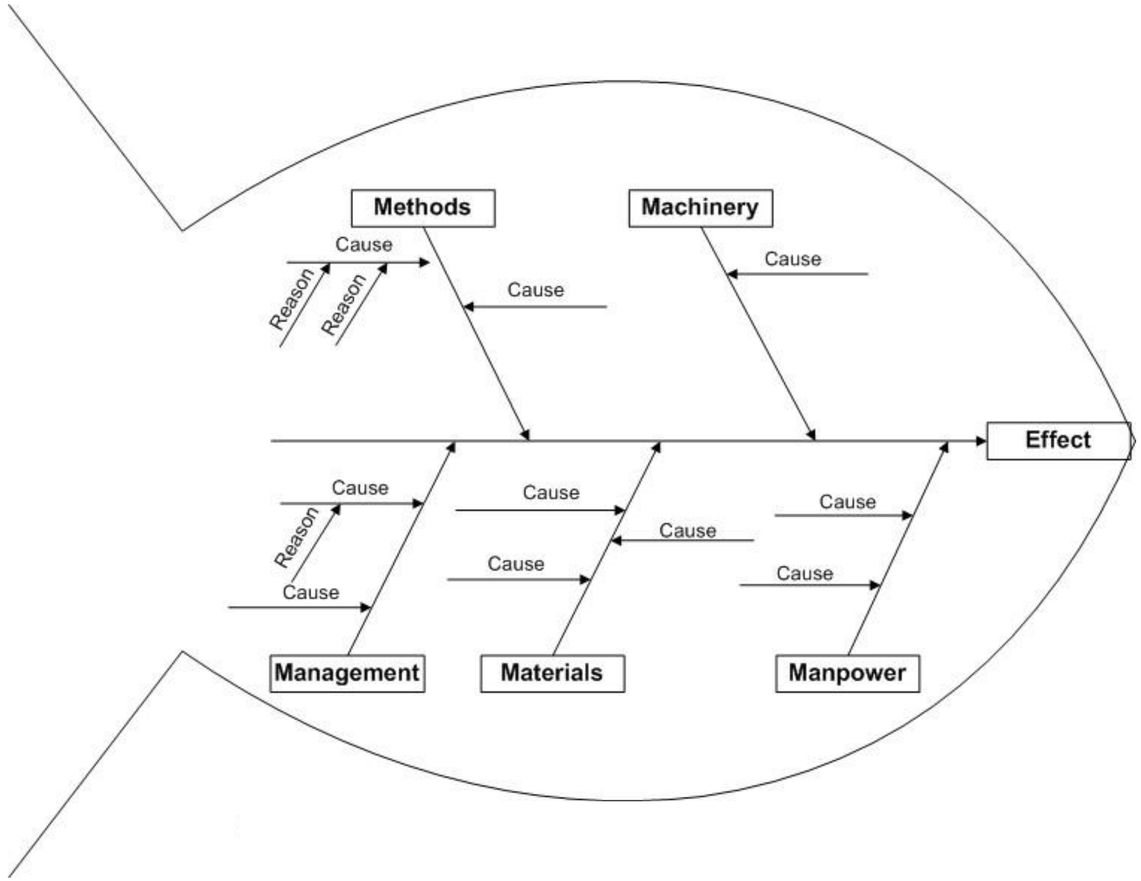

Identify the Major Causes

**Figure 5**

Why is customer service sub-standard?

| Human Resource Issues | Lack of standard processes and measurement | Workplace culture | Resources and tools |
|---|---|---|---|
| Too much turnover | No standard systems | Not enough management support | There aren't enough phone lines |
| Untrained staff | There's no measurement for what is and what isn't good service | Staff feel unappreciated | |
| Staff aren't compensated enough | | Staff morale is low | |

# Fish Bone Diagrams




**Problem Statement**

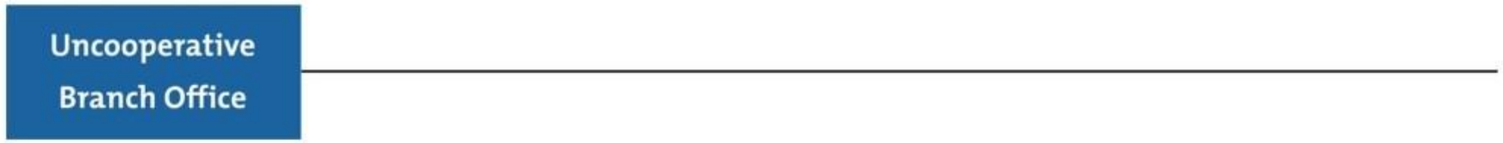
A quality tool used for identifying the root cause based on the "Cause & Effect" relationships.

Useful for analysis of complex problems.

Grouping of causes can be according to 5Ms or by major causes.

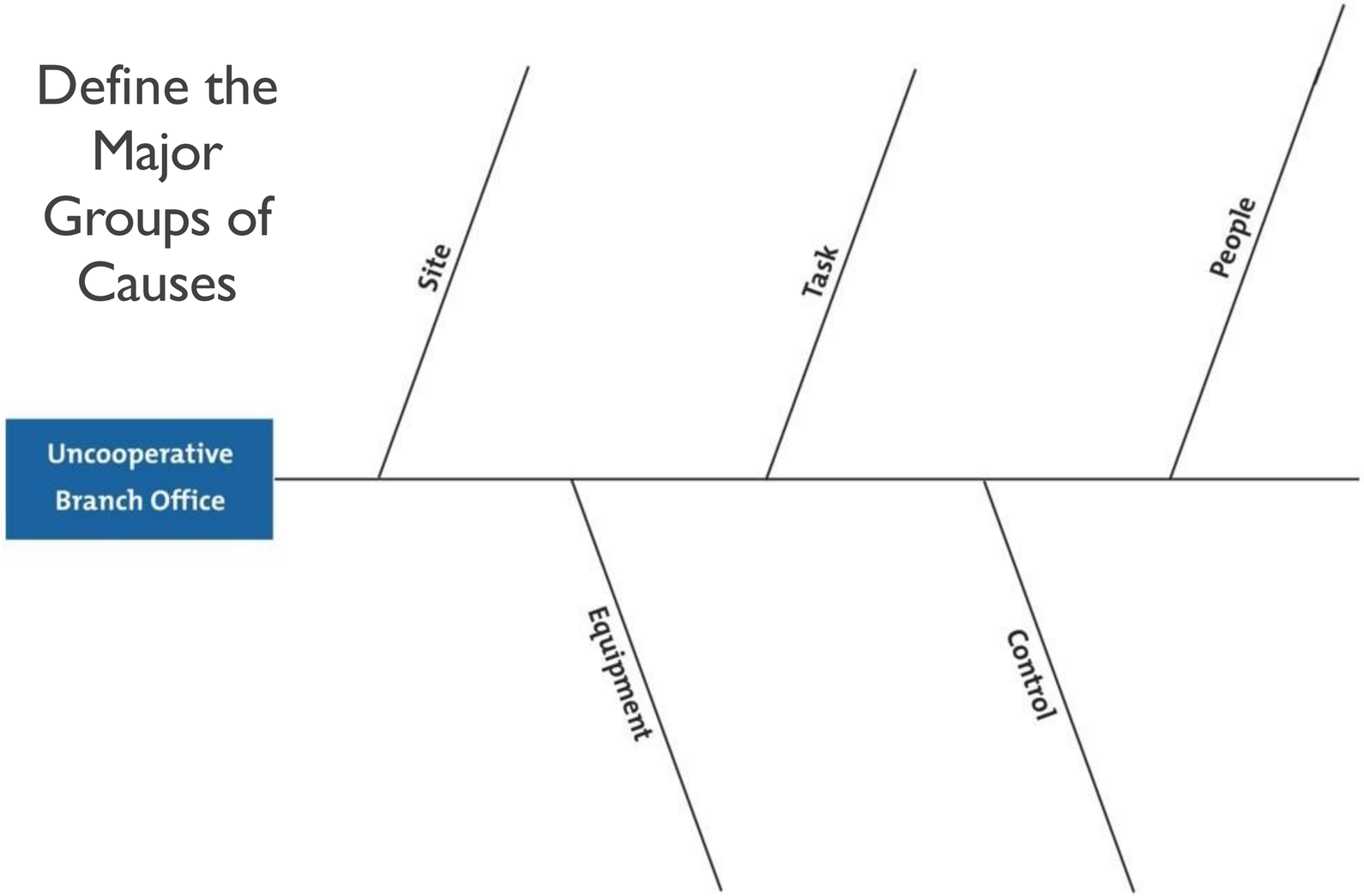
# EXAMPLE OF FISHBONE DIANGRAM ANALYSIS

State the problem



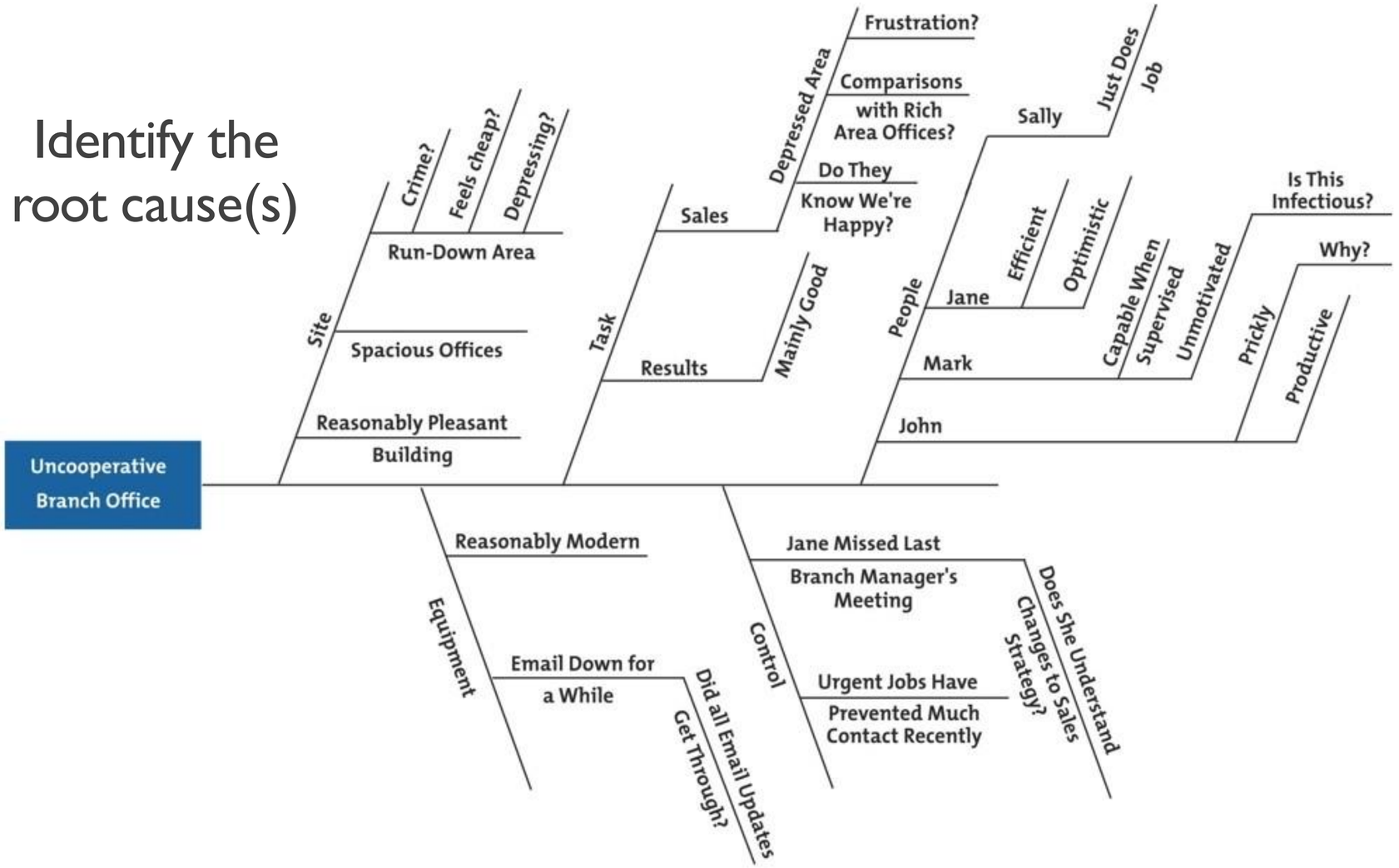
# EXAMPLE OF FISHBONE DIANGRAM ANALYSIS

Define the Major Groups of Causes

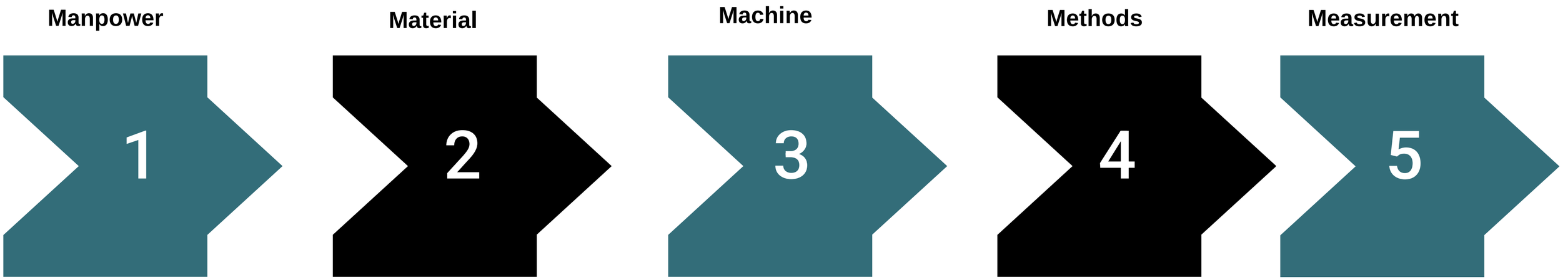


# EXAMPLE OF FISHBONE DIANGRAM ANALYSIS

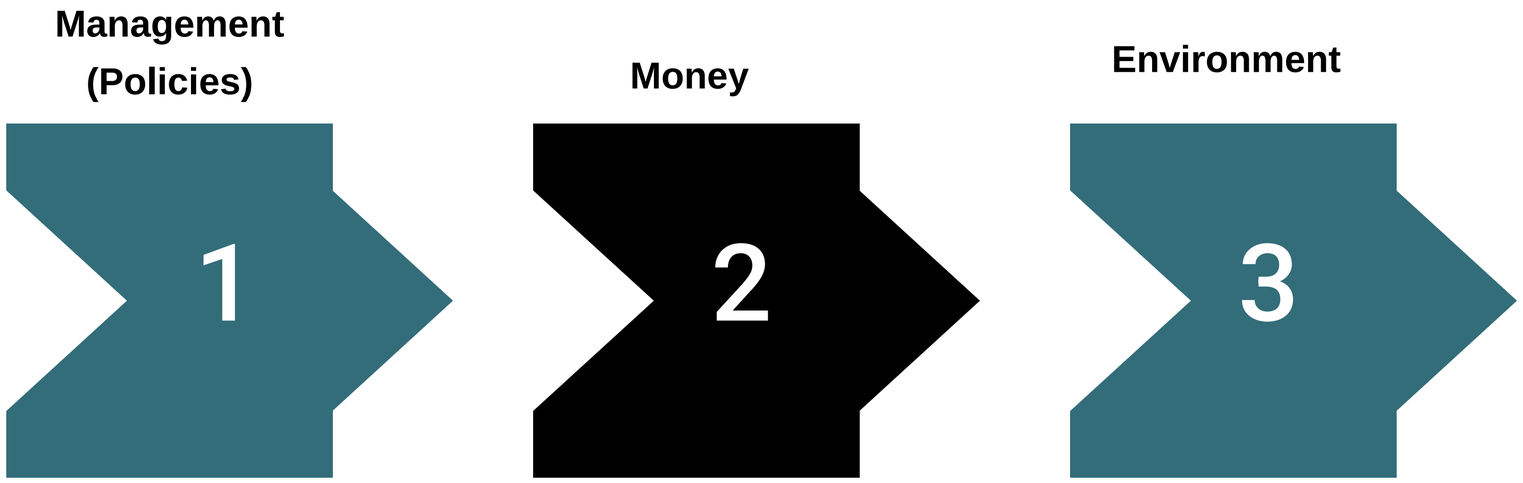
Identify the root cause(s)



# The 5 Ms




## Other Influences




If you don’t ask the right questions, you don’t get the right answers.

A question asked in the right way often points to its own answer.  Asking questions is the ABC of diagnosis. Only the inquiring mind  solves problems.