

EFFECTIVE PROBLEM SOLVING & DECISION MAKING

การแก้ปัญหาและตัดสินใจอย่างมีประสิทธิภาพ



Group Activity



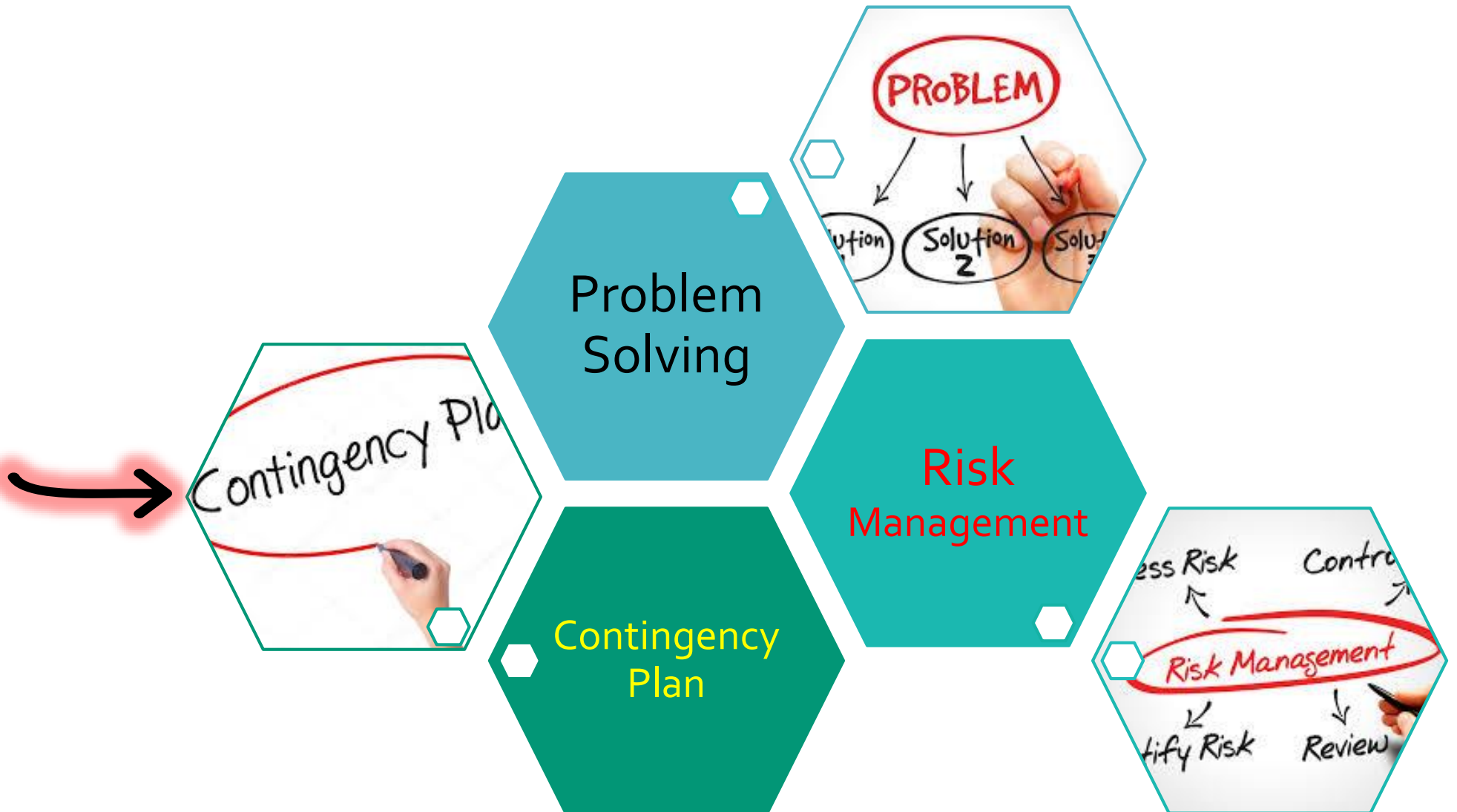
ความคาดหวังในวันนี้

ความยาก/ความท้าทายเมื่อ
เกิด **Incident** มีอะไรบ้าง

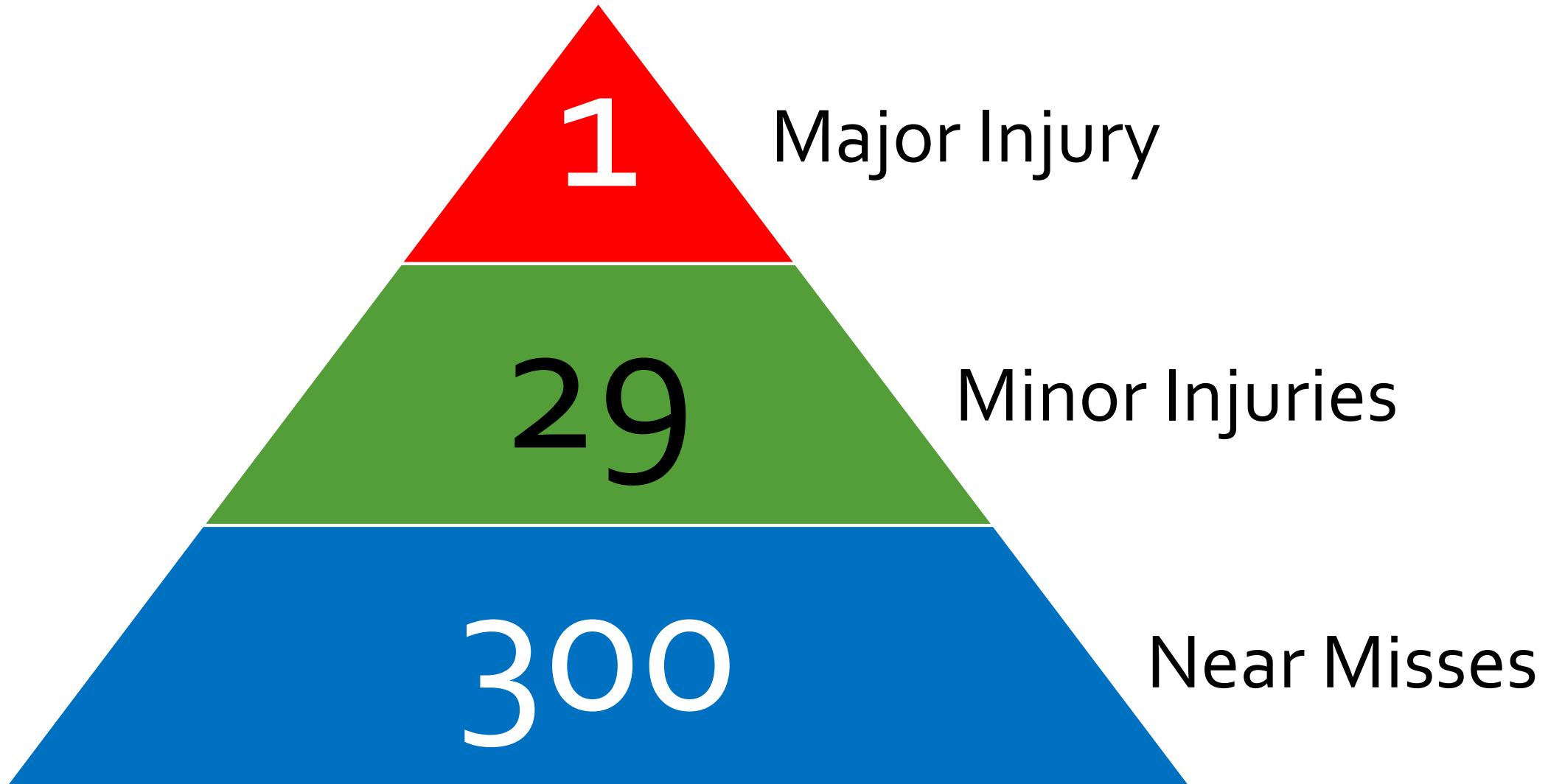
ตั้งชื่อกลุ่ม
เลือกหัวหน้ากลุ่ม

10 mins

HOW TO HANDLE INCIDENT CASE?



The Heinrich 300-29-1 Model



Structured Problem Solving Process

DESCRIBE

1. Describe the Problem

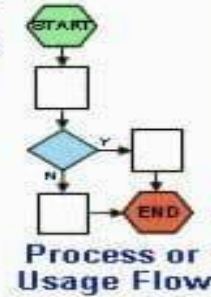
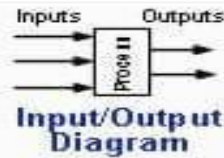
	IS	IS NOT
WHAT		
WHEN		
WHERE		
EXTENT		

Is/Is Not Diagram

Problem Definition

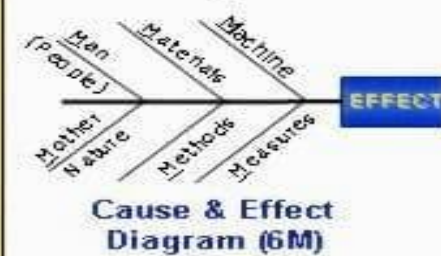
Final yield of process changed from 55% to 33% during the period from March 1998 to April 1999.

Definition



IDENTIFY

2a. Identify Potential Causes:



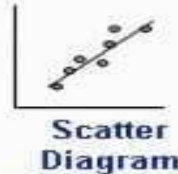
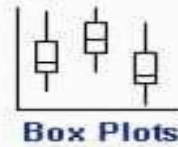
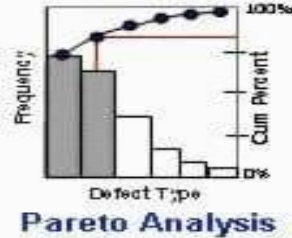
Eliminator	Changer
Subst. of process	Change flow
Subst. of job	Change flow
No. of items	Change process
Assignment	Change process
Process itself	Change

Distinctions & Changes

Failure Modes & Effects Analysis						
Item Number	Failure Mode	Cause	Effect	Yield	CP	PPM

Failure Modes & Effects Analysis

2b. Collect, Organize, and Analyze Existing Data:



	M	T	W	Th	F
A		X			
B			X	X	X
C		X		X	
D	X	X			

Checksheet

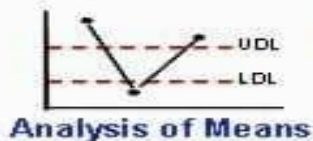
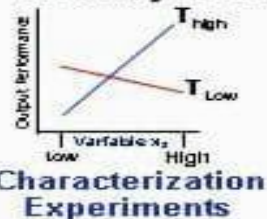


EVALUATE

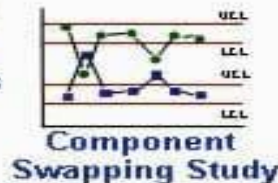
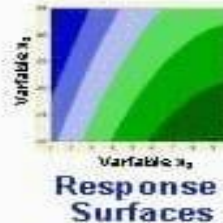
3. Compare Causes to the Facts From Step 1



4. Collect Additional Data to Identify Root Cause(s):



- ANOVA
 - Contingency Tables
 - Comparison Tests
- Statistical Comparisons



SOLVE

5. Determine Corrective Actions:

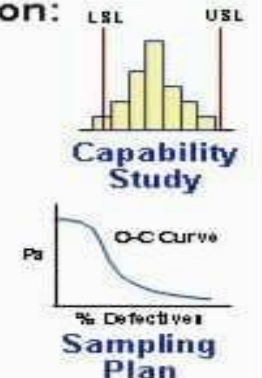
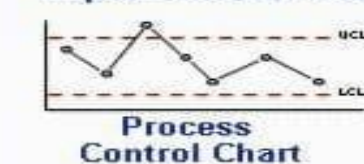
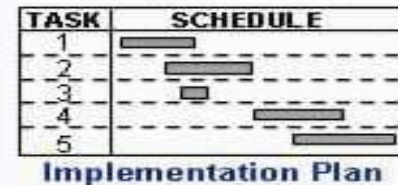
Corrective Action Plan

Item	Description	Priority	Status	Responsible	Due Date

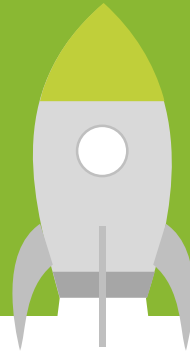
- Elimination
 - Facilitation
 - Mitigation
 - Flagging
- Error Proofing

CONTROL

6. Validate, Implement, and Standardize Solution:



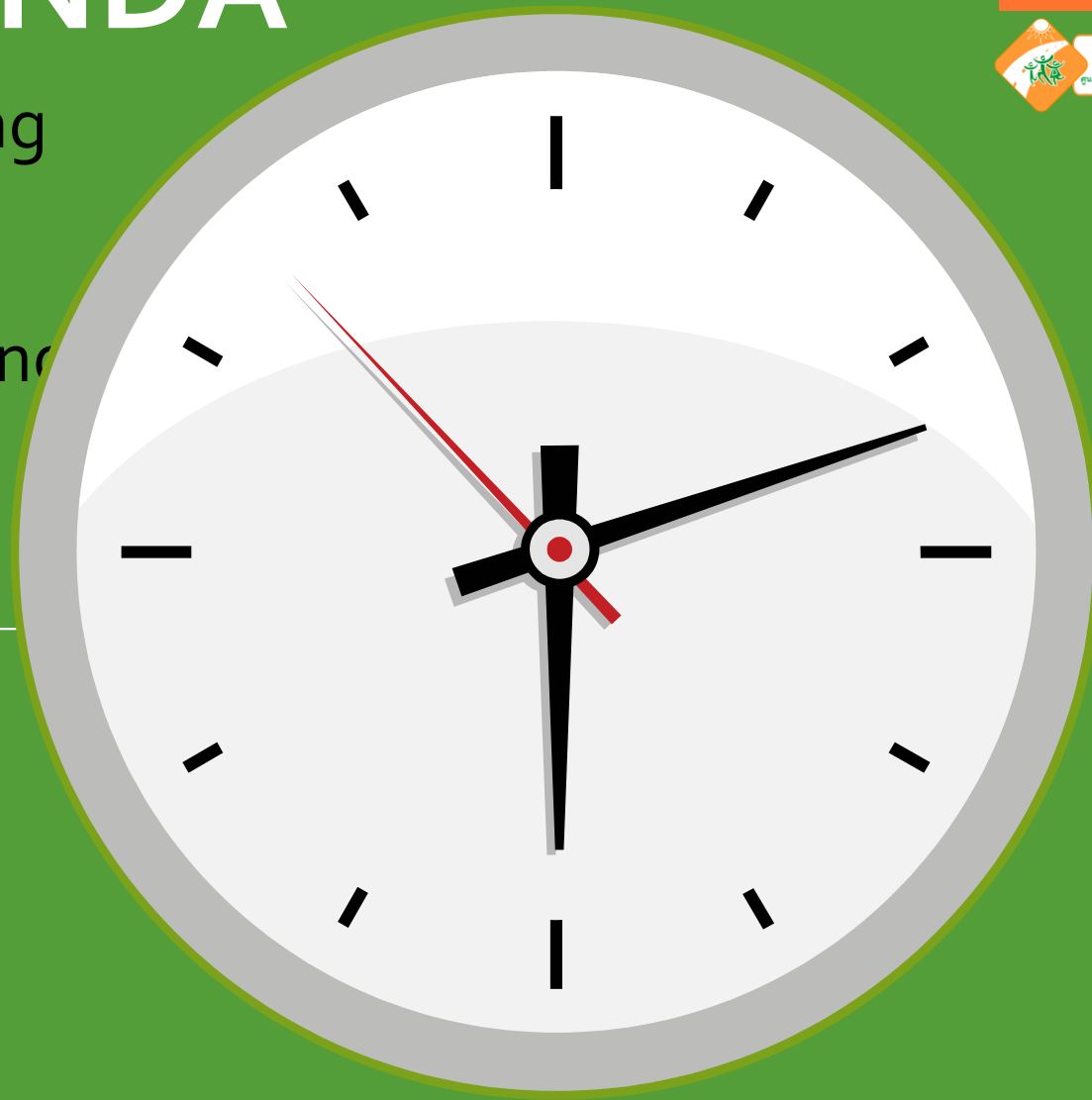
Funny Ball Game



What helped you to **improve**?

AGENDA

1. Introduction to Basic Problem Solving
2. Lean vs Six Sigma
3. 4 Steps of Systematic Problem Solving
4. **Simulation Round 1**
5. Step 1 Define Problem
6. Step 2 Understand Cause
7. Step 3 Implement Solution
8. **Simulation Round 2**
9. Step 4 Sustain Performance
10. Key learning & How to apply



Lean vs Six Sigma

Lean : Flow, Cycle Time, Waste



Six Sigma : Accuracy, Variation, Defects



4 Steps of Systematic Problem Solving



Define Problem

How big of problem?



Understand Causes

Focus on workflow



Implement Solution

Using tools to screen out solution



Sustain Performance

How to sustain?

4 Steps of Systematic Problem Solving



Define Problem

- Describe Problem
- Problem & Goal Statement
- Visualize Graphical



Understand Causes

- Map & Analyze Process
- Identify Causes



Implement Solution

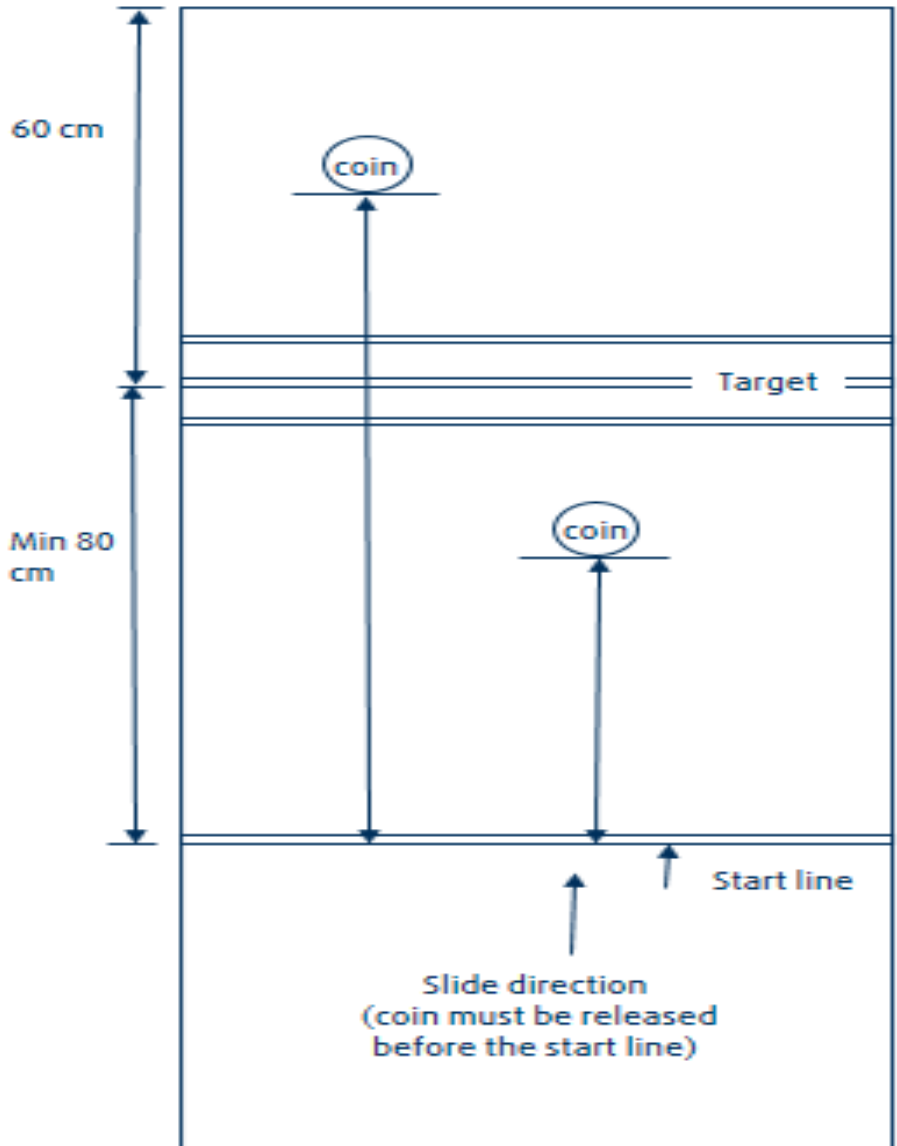
- Develop Solution
- Roll-out Solution



Sustain Performance

- Sustain Performance
- Visualize Improvements

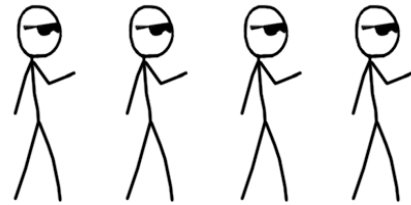
Simulation Round I



สิ่งที่ถูกคัดต้องการ

เหรียญที่อยู่ในสเปค ± 10 cm ของเส้น Target

กระบวนการผลิตของ Sliding Coin factory



พนักงานฝ่ายผลิต



พนักงานวัดระยะ



พนักงานจัดบันทึก



ผู้บริหาร

4 Steps of Systematic Problem Solving

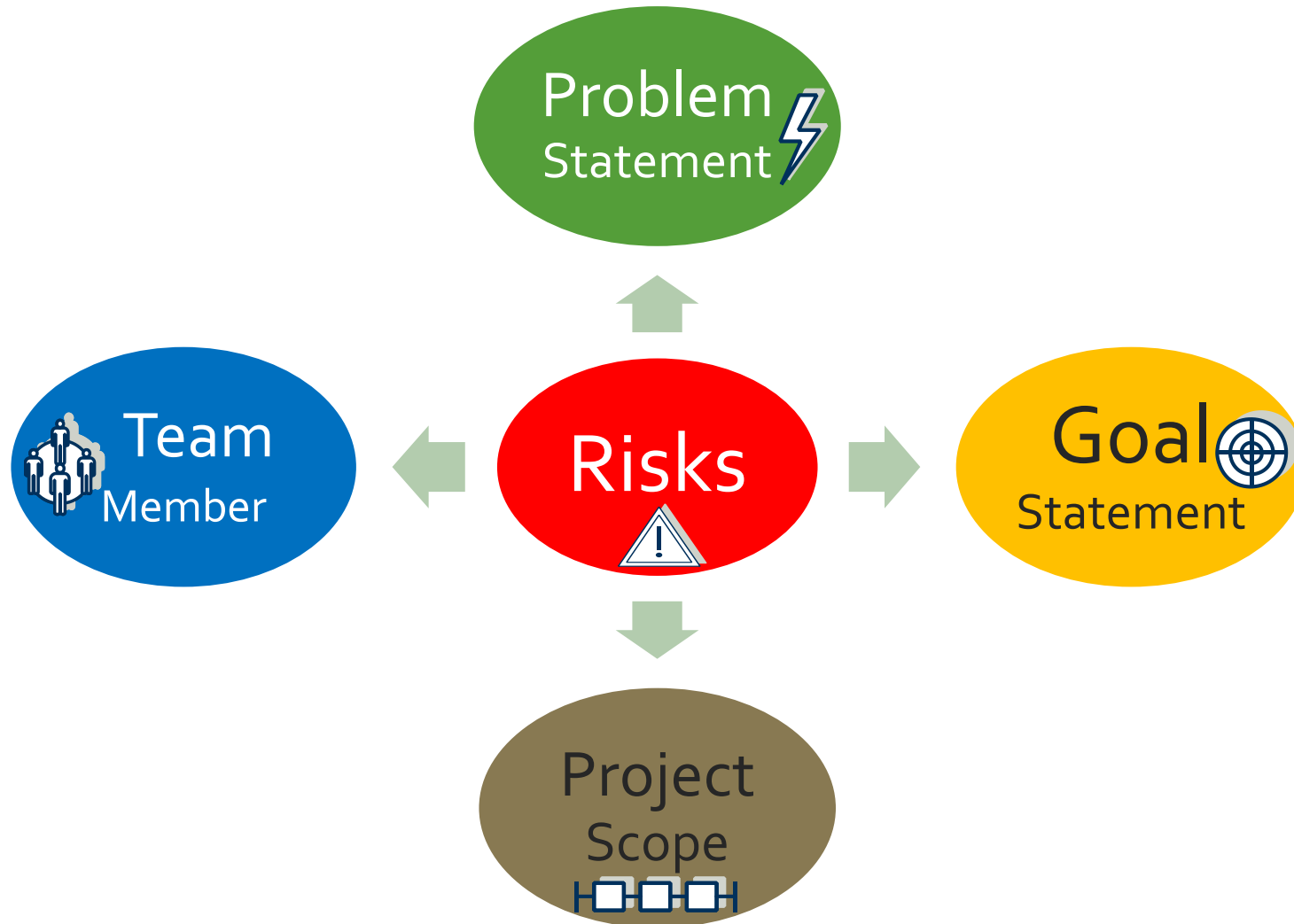


Define Problem

How big of problem?

- Describe Problem
- Problem & Goal Statement
- Visualize Graphical

5 Elements to Describe Problem



What is your **PROBLEM** statement?

Example



Product returns are **5% of sales**,
resulting in a **profit impact of 5 MB**
and **customer dissatisfaction**.

What is yours?

What is your **GOAL** statement?



Example

Reduce product returns
from 5% **to** 2.5% of sales
by year end.

What is yours?

Group Workshop 1

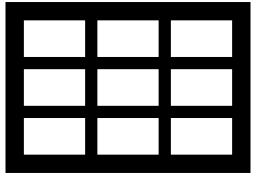
- Identify **Problem Statement** and **Goal Statement** of your factory performance.
- Report Out.



GOAL

A dart with a black shaft and a silver tip is hitting the bullseye of the letter 'O' in the word 'GOAL'. The word 'GOAL' is written in large, bold, red capital letters.

Visualize Graphical = Collect Data + Display Data



Collect Data

Check Sheet

Distribution
Check Sheet

Concentration
Diagram

Load data
from
System

Display Data

Bar Chart

Pareto
Chart

Pie Chart

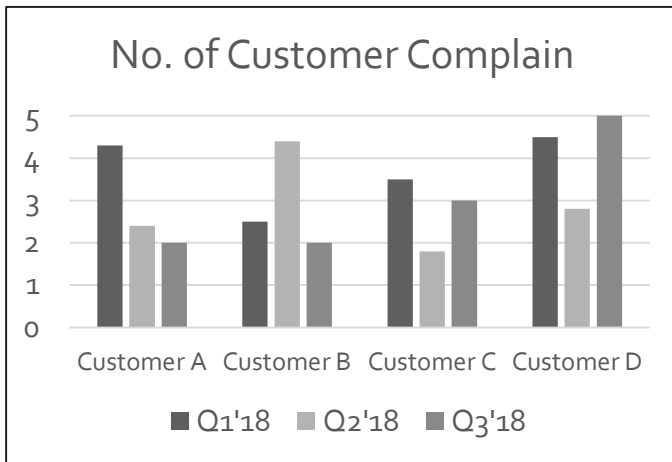
Run Chart
/Time Series
Plot

Correlation

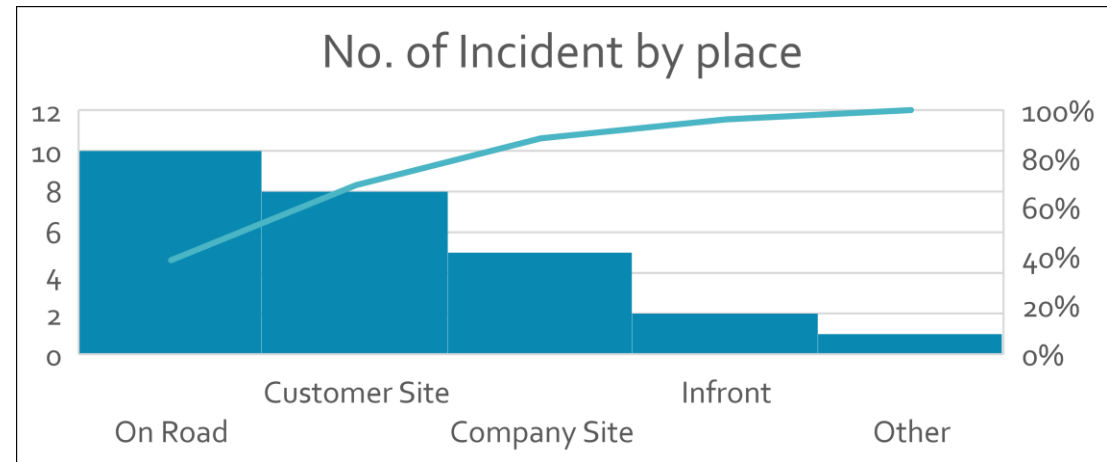


Display Data

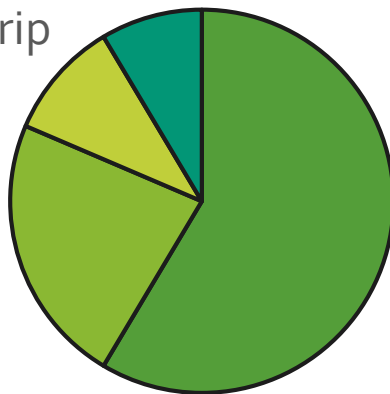
Bar Chart



Pareto Chart



No. of Delivery Trip



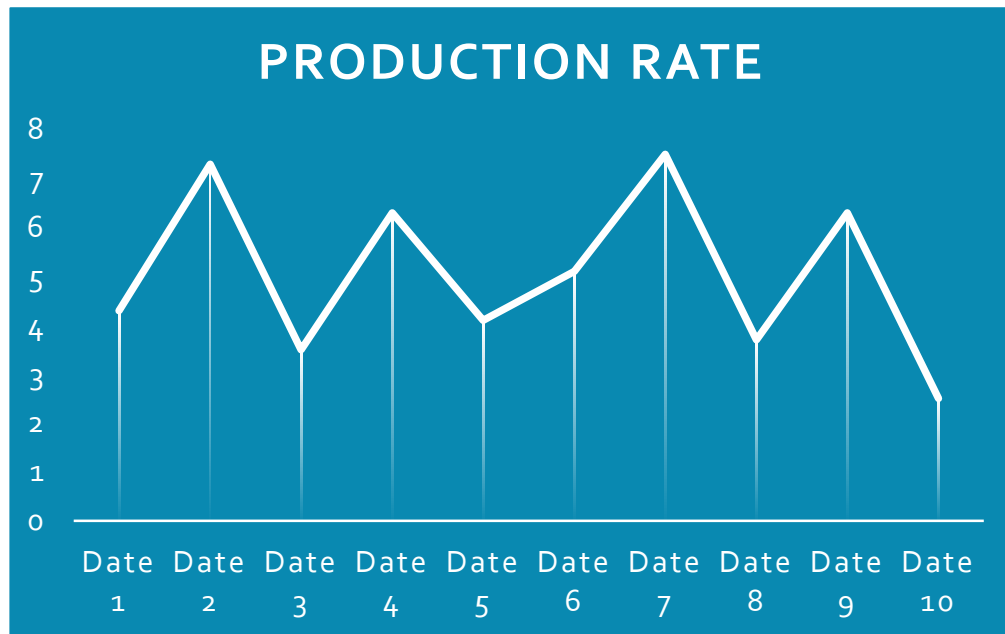
■ Central ■ Northeast ■ North ■ Southern

Pie Chart

Comparison

Display Data

Run Chart / Time Series Plot



Trend over Time

Correlation



Relationship

ASK yourself !

What am I trying to communicate with my data / graph ?

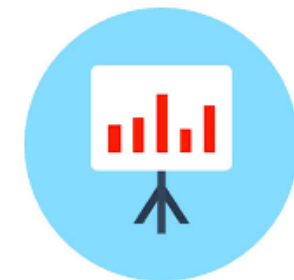
- (i) Comparison ?
- (ii) Trending over time ?
- (iii) Relationship ?

Positive Negative No relationship ?



Group Workshop 2

- Work in your team
- Visualize your data by using simulation data
- Draw Bar chart, Pareto, Pie chart & Time series plot
- Report Out



4 Steps of Systematic Problem Solving

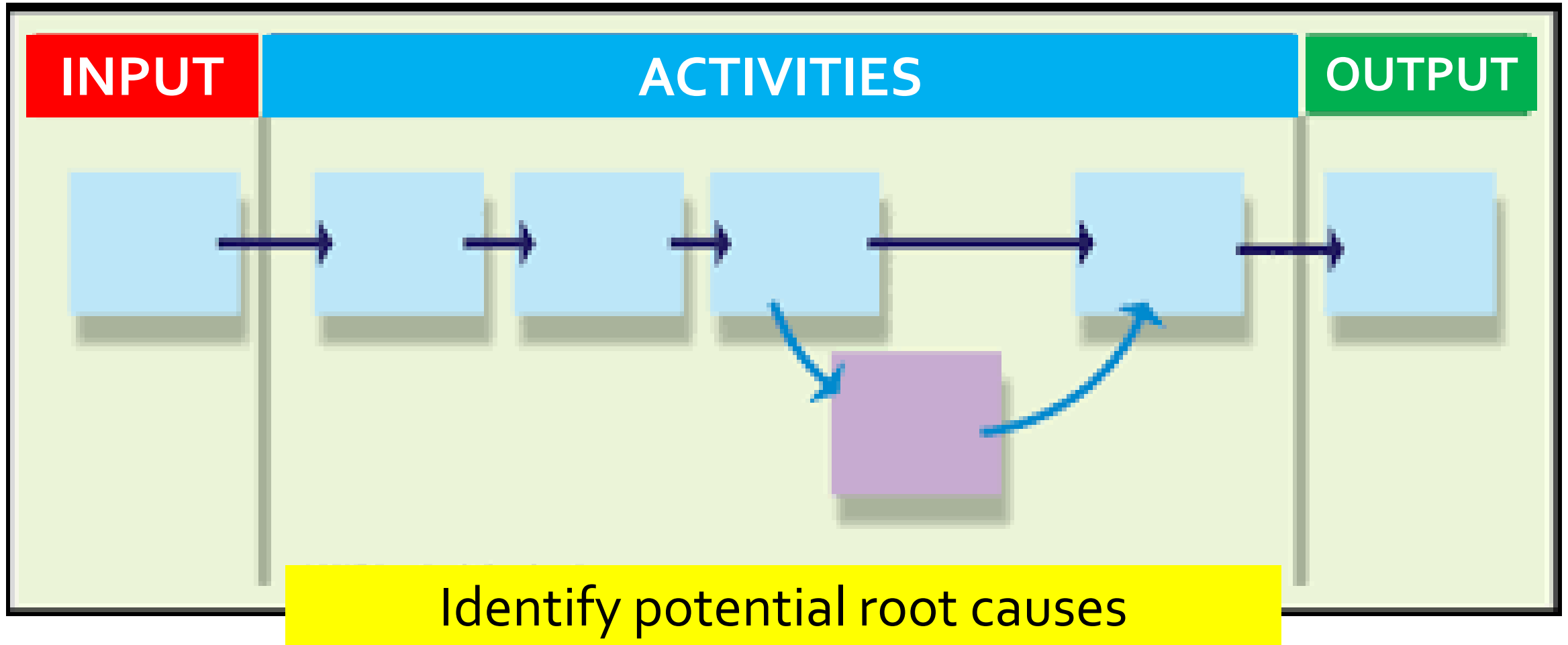


Understand Causes

Focus on workflow

- Map & Analyze Process
- Identify Causes

Map and Analyze Process



8 WASTES



D

งานผิด

O

ผลิตเกิน

W

คอยนาน

N

ขีดความสามารถ

ของพนักงาน

T

ย้ายบ่อย

I

สต็อกบาน

M

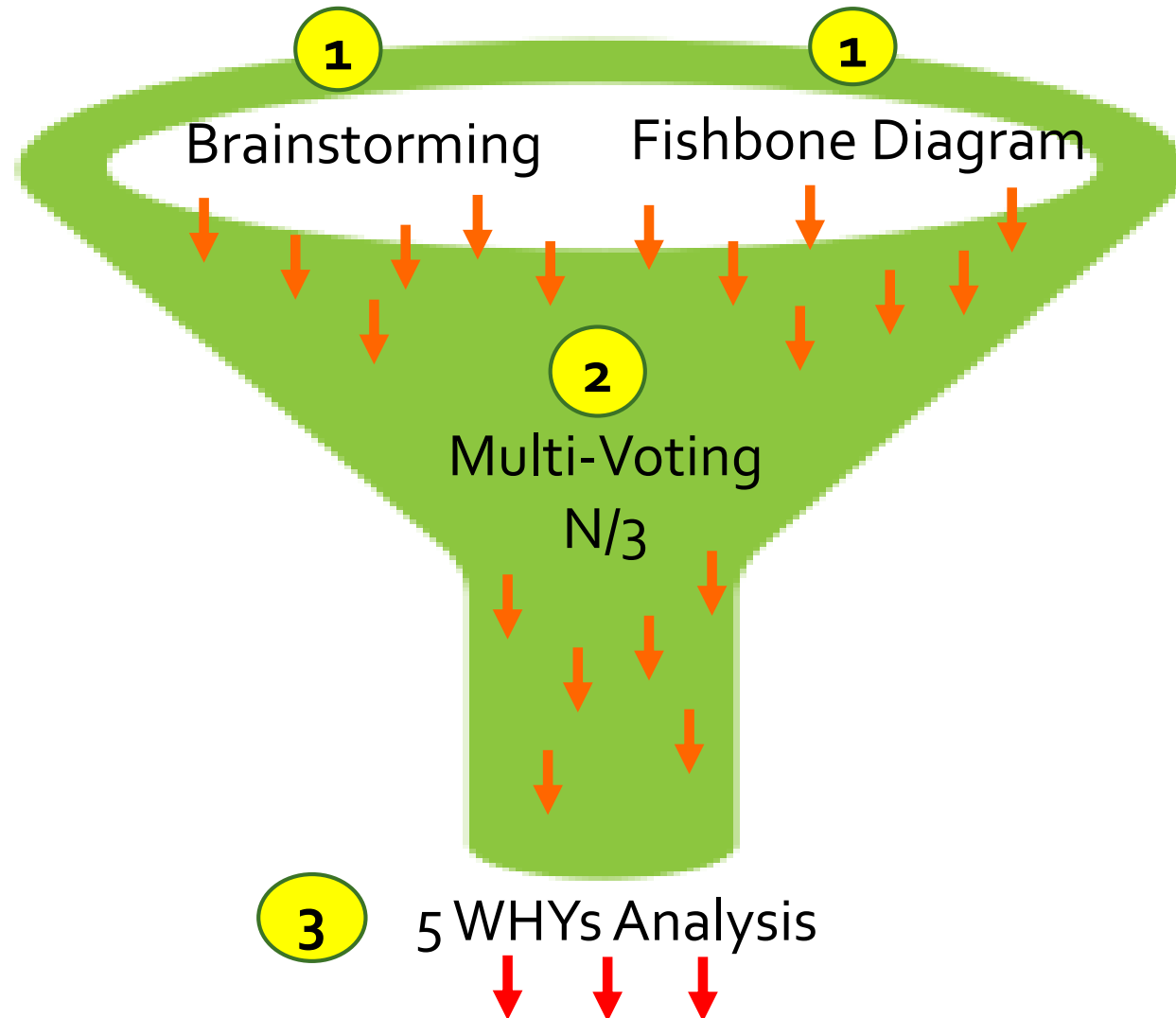
เดิน เอ็ม หั้น

E

ขั้นตอนไร้ค่า

ระบุสาเหตุที่แท้จริง

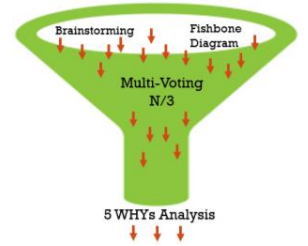
Identify Causes



1

การระดมสมอง

Brainstorming



All ideas allowed

No negativity

Record Ideas

Everybody participates

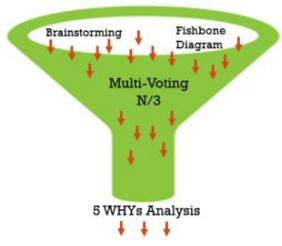
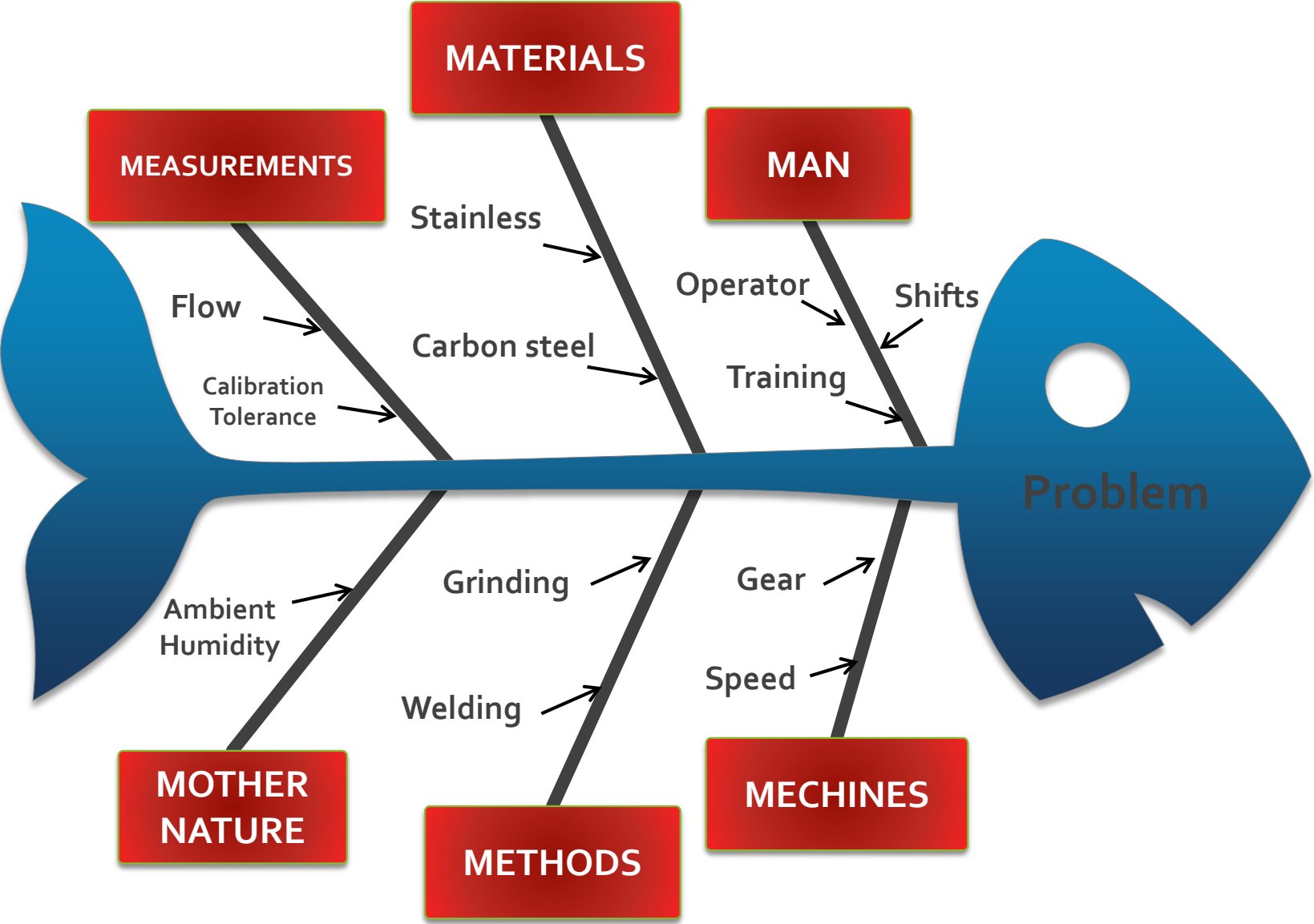
Open vs Silent

No judging at this point

1

แผนผังก้างปลา

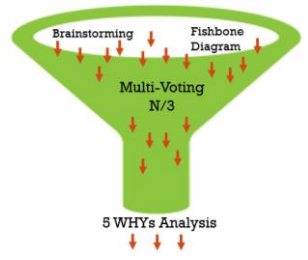
Fishbone Diagram



Multi-voting

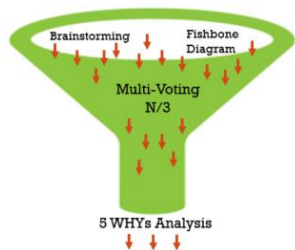
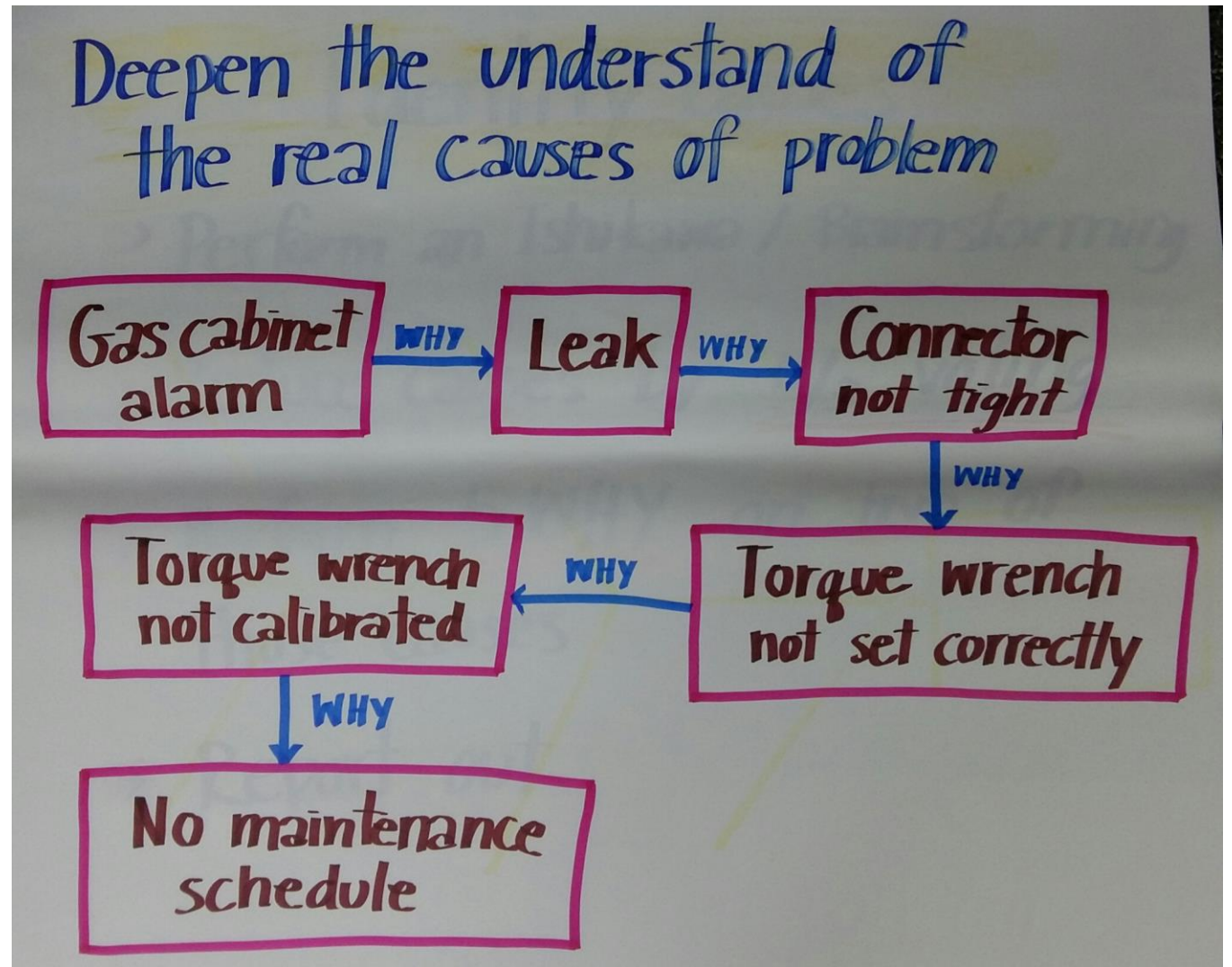
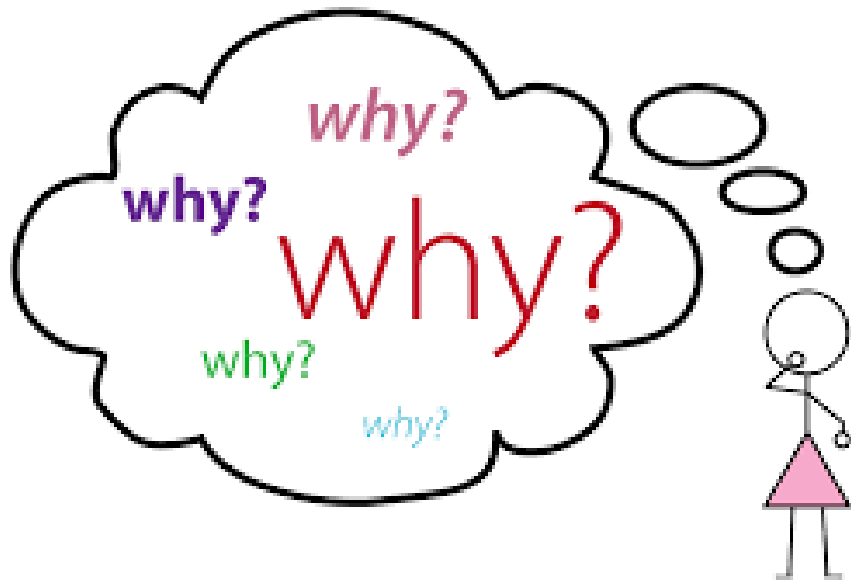


N/3

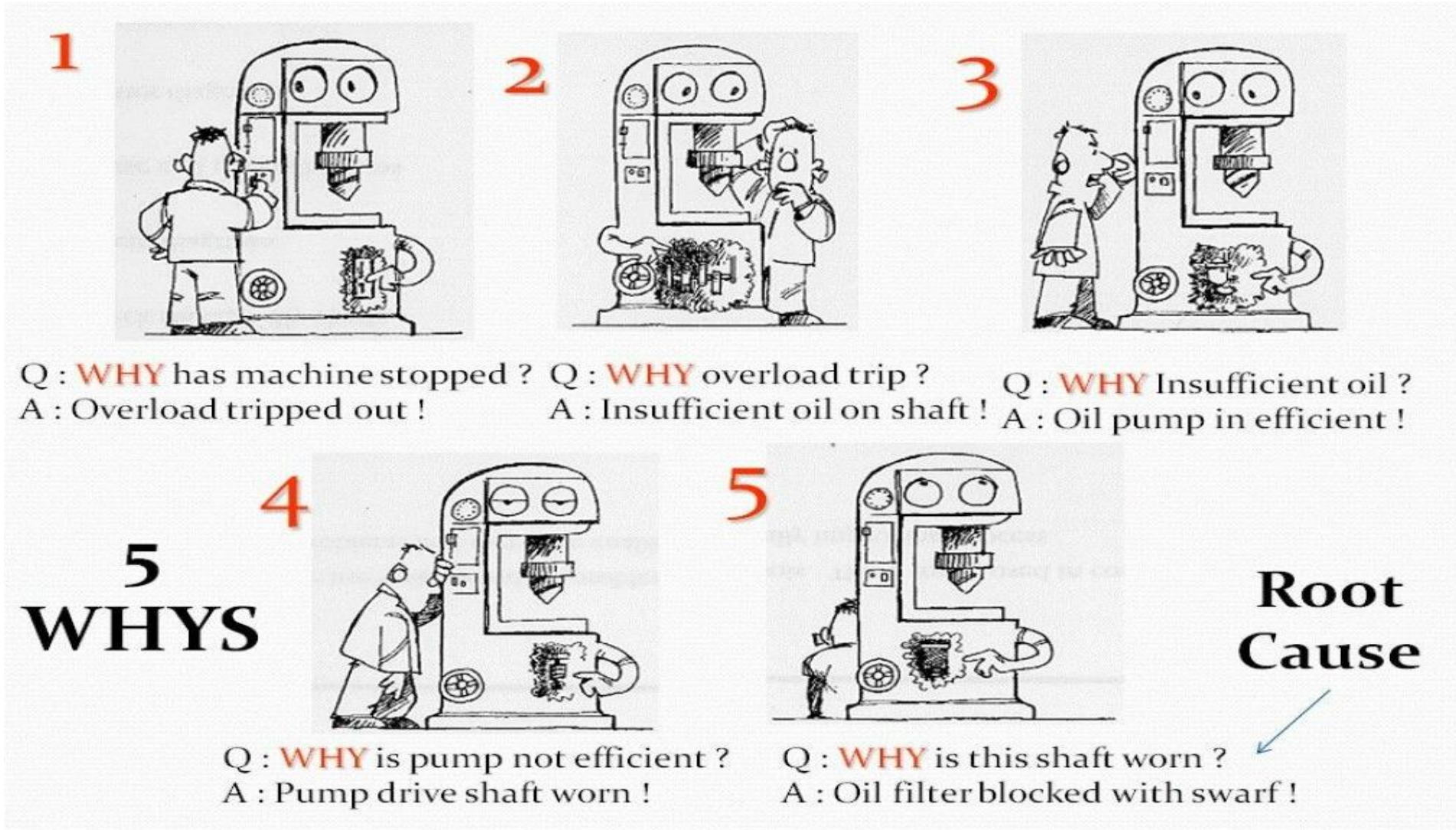


3

5 WHY ANALYSIS

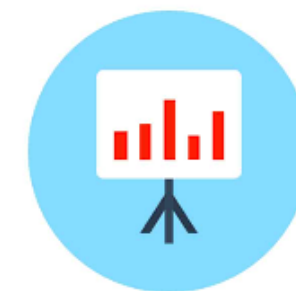
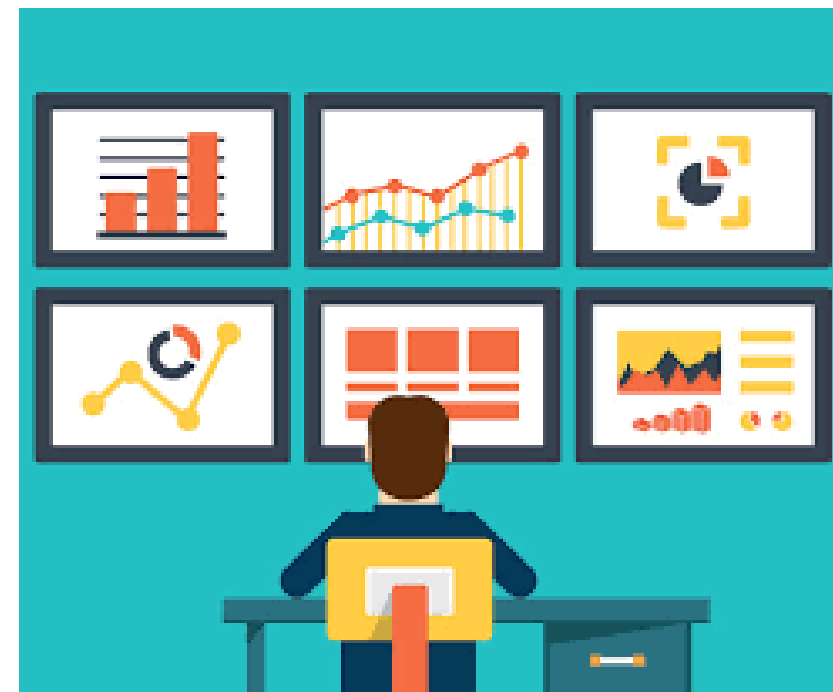


5 WHY ANALYSIS



Group Workshop 3

- Work in your team
- Brainstorm on Fishbone
- Reduce causes by N/3
- Perform 5 Why on one of causes
- Report out



4 Steps of Systematic Problem Solving

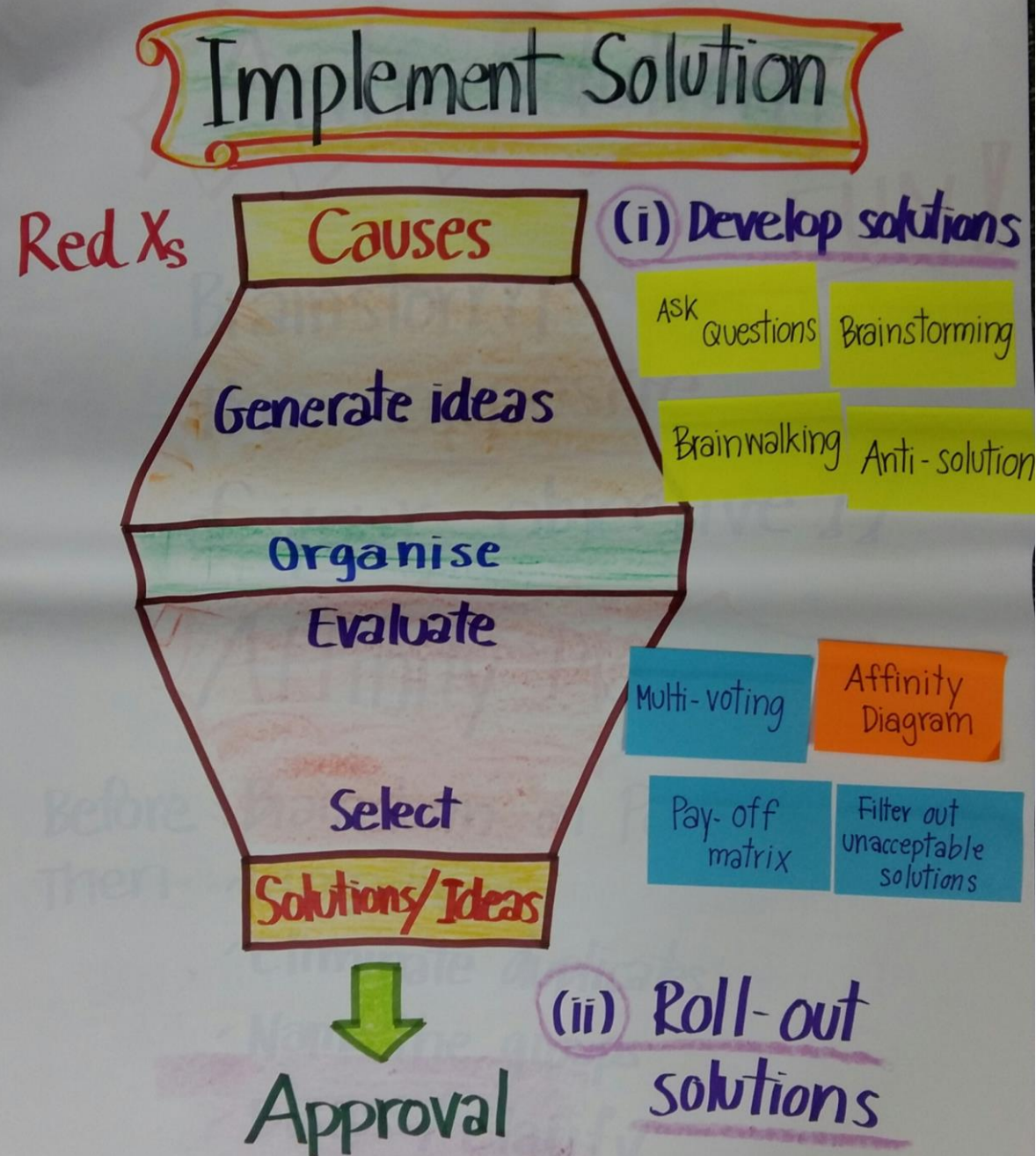


Implement Solution

Using tools to screen out solution

- Develop Solution
- Roll-out Solution

Implement Solution



Anti - Solution

FUN!

Brainstorm

the opposite

of your objective!!

Affinity Diagram

Before: Brainstorm on Post-its

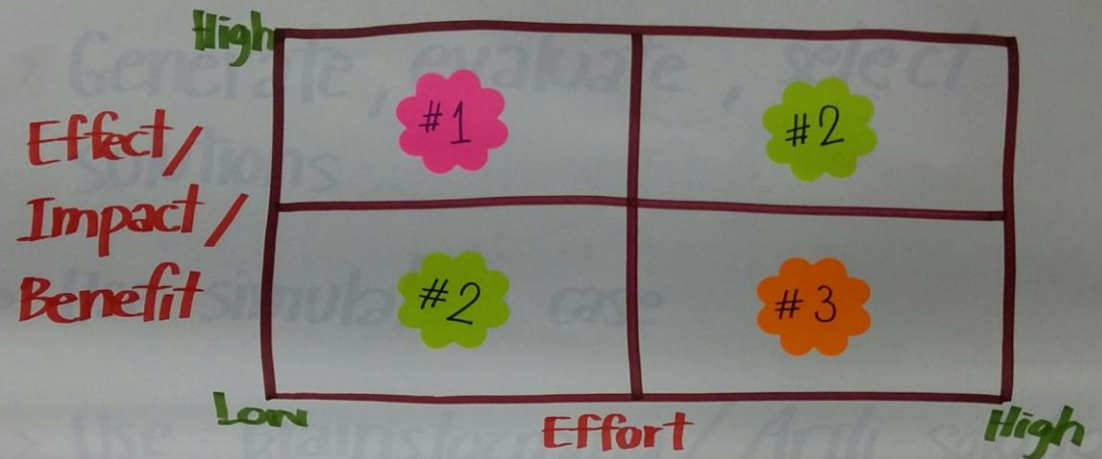
Then: - Group them

- Eliminate duplicates

- Name the groups

- Discuss / Clarify

Pay-off matrix



Cost vs Benefit

Effort vs Risk

Benefit vs Risk

Ease of implement vs Benefit

▷ Filter out Lower priority / Unwanted solution / Unacceptable solution

Wow that's a great solution, but what is the problem?

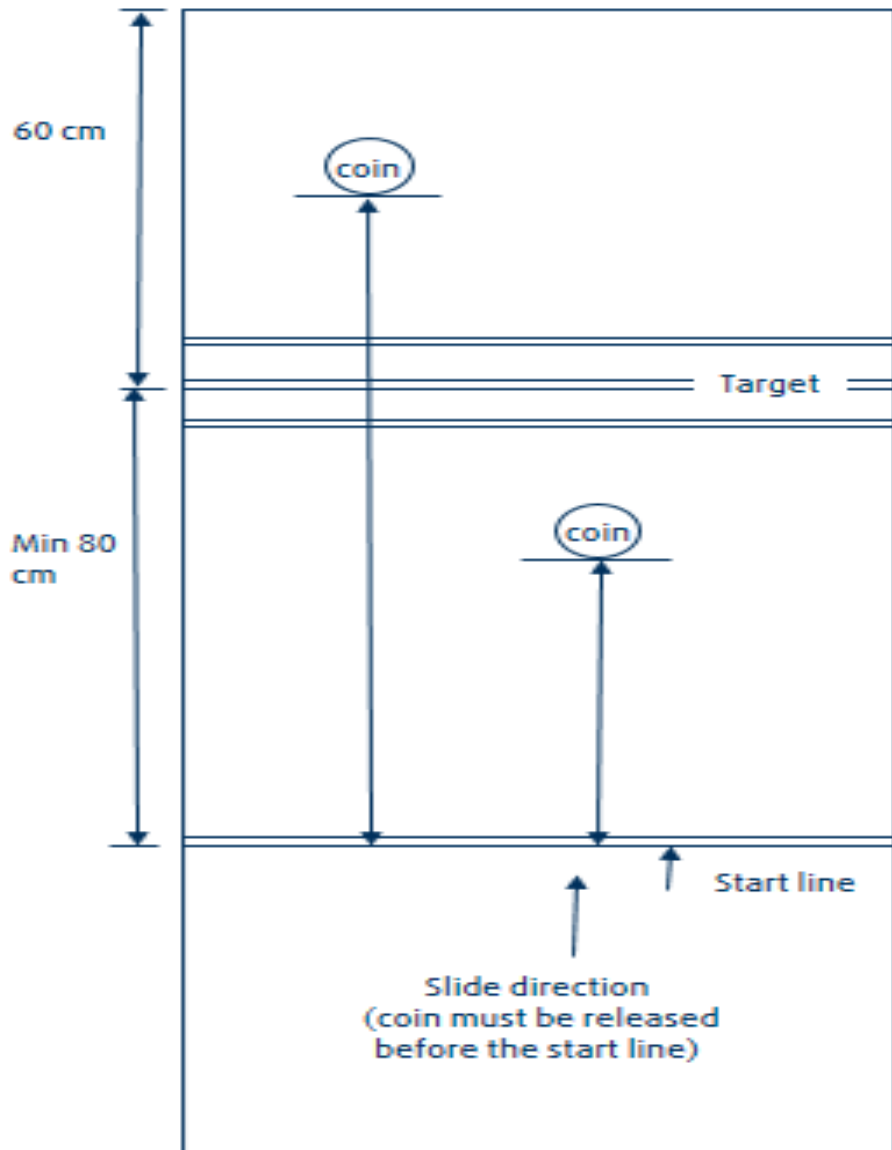


PROBLEM

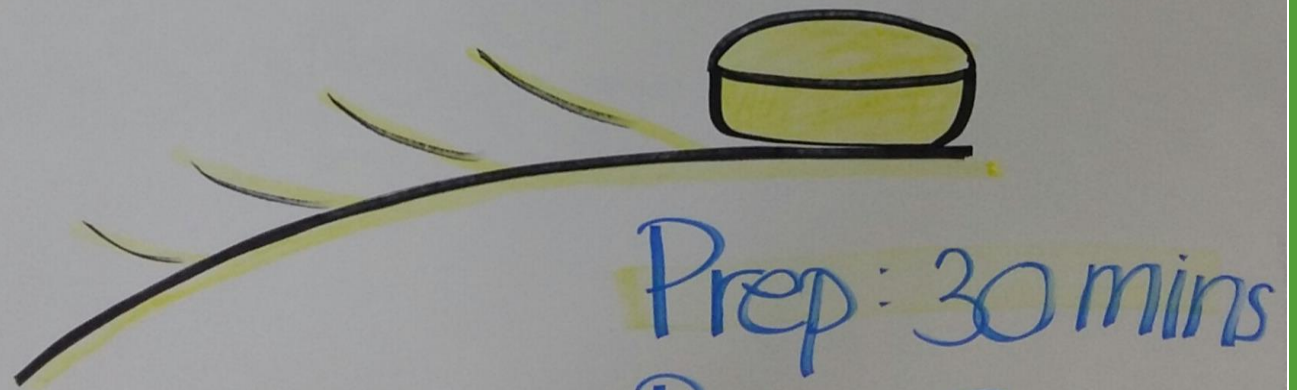


SOLVED

Simulation Round II



Simulation
Round
II











Roll-Out Solution

$$E = Q \times A$$

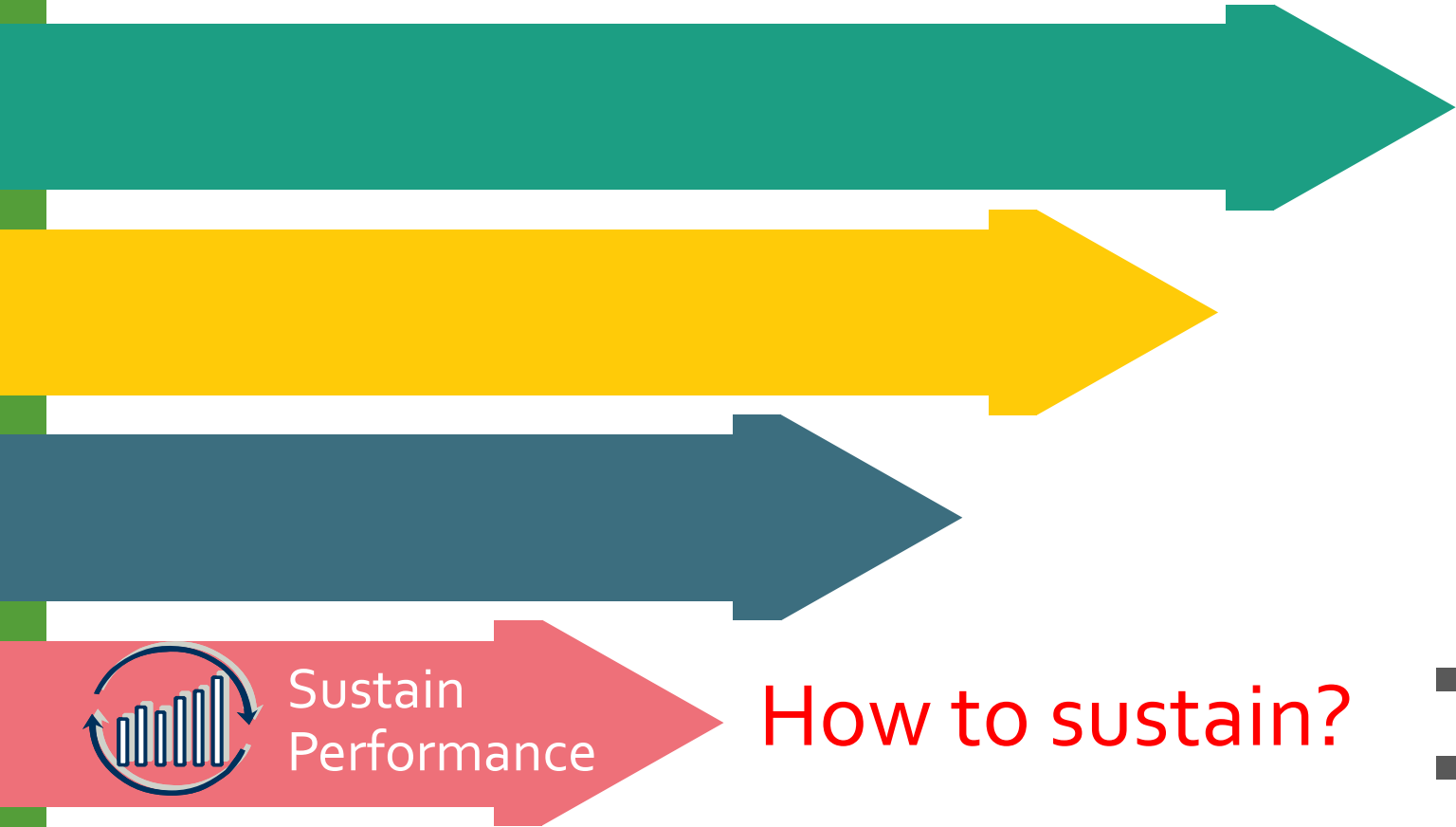
Effectiveness = Quality x Acceptance



	Topics consider
	Action plan
	Communication plan
	Training plan
	Pilot?
	Required resources
	Approval for budget
	Define measures of success
	Role & responsibility of team



4 Steps of Systematic Problem Solving



How to sustain?

- Sustain Performance
- Visualize Improvements

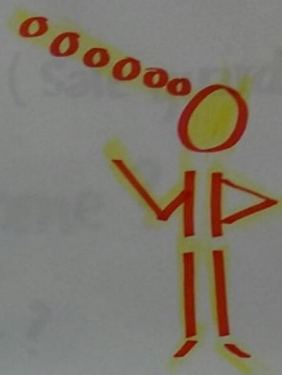
Sustain Performance

Why is it **IMPORTANT?** Why is it so **DIFFICULT?**

- Not waste time
- Make future changes easier
- We all hate changes
- People fall back to old habits
- Keep our customers happy 😊
- Reliability
- New employee joining
- Lose long term visibility or reason for Δ
- Employee think we follow through
- Sustainable saving \$
- Not being held accountable
- No motivation

So... How to sustain?

Poka-Yoke



- A method to
 - Eliminate causes of problems at sources
 - Let you know an error is occurring
 - Detect / prevent error before the next operation is carried out

"Fail-safe" or "Mistake-proofing"

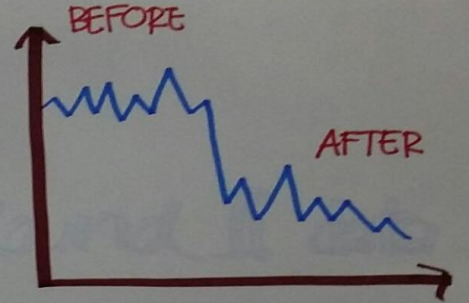
How to see sustain performance



Visualize Improvement



Visualise Improvement



- Why?**
- Show improvement made
 - Sustain
 - Measure goals met
 - Paint picture that new process work

What → Compare the problem before vs What it happening 'New'

- How**
- Collect data
 - Check sheet
 - Distribution c/s
 - Concentration diagram
 - Download data
 - Display data
 - Pareto / Bar / Pie
 - Trends / Time series

“If I had **60** minutes to solve a problem,
I’d spend **55** minutes defining it,
and **5** minutes solving it.”

- **Albert Einstein.**



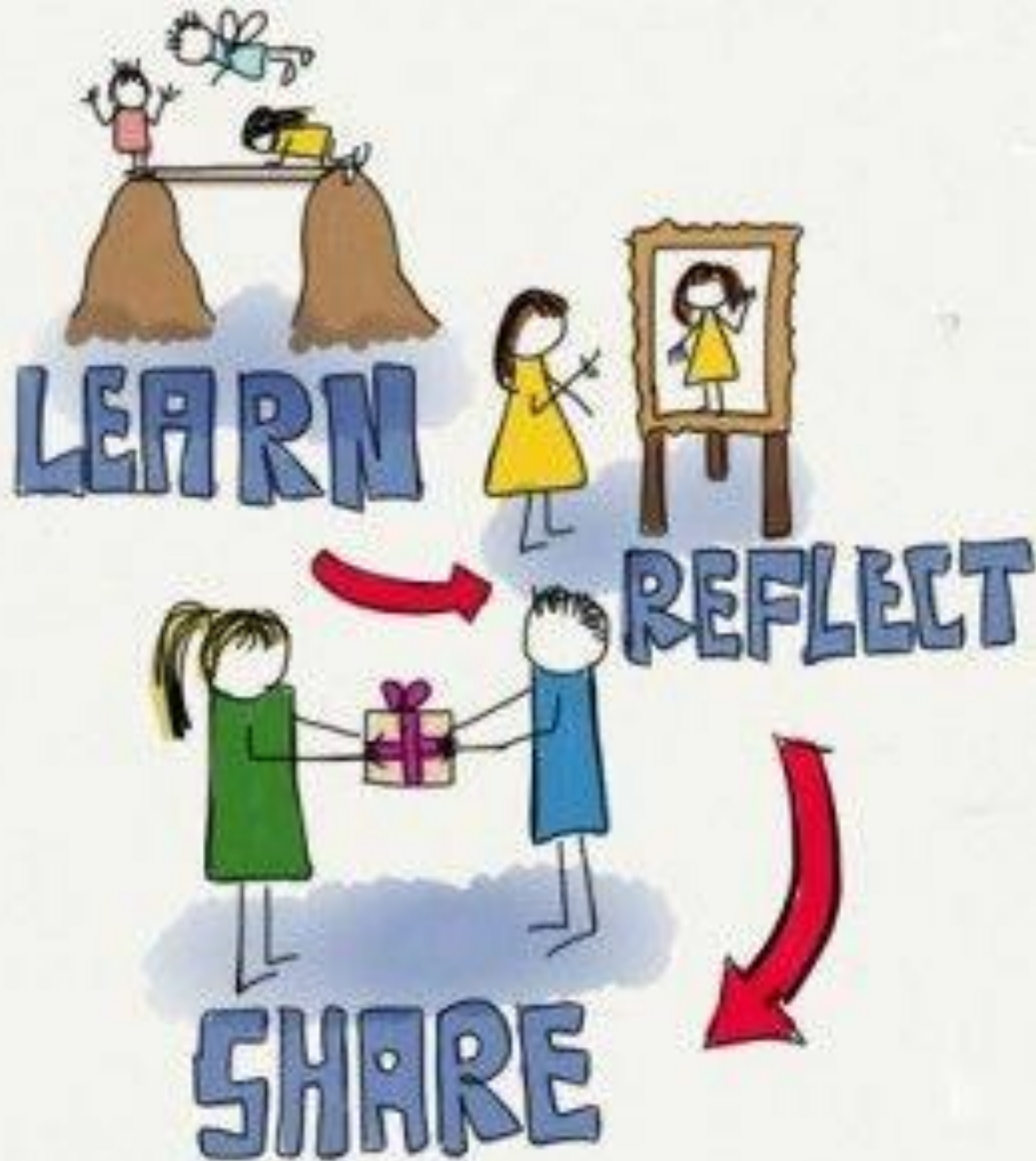
Teach them the Problem Solving



HOW TO APPLY INDIVIDUALLY AS A PROBLEM SOLVER?



การนำไปปรับใช้ในงานของตนเอง



Share Key Learning & How to Apply to Org?

สรุปการเรียนรู้และการนำไปปรับใช้ในงาน

FEEDBACK
please