Lean Six Sigma Green Belt Certification Course

simplilearn

Root Cause Analysis

Learning Objectives

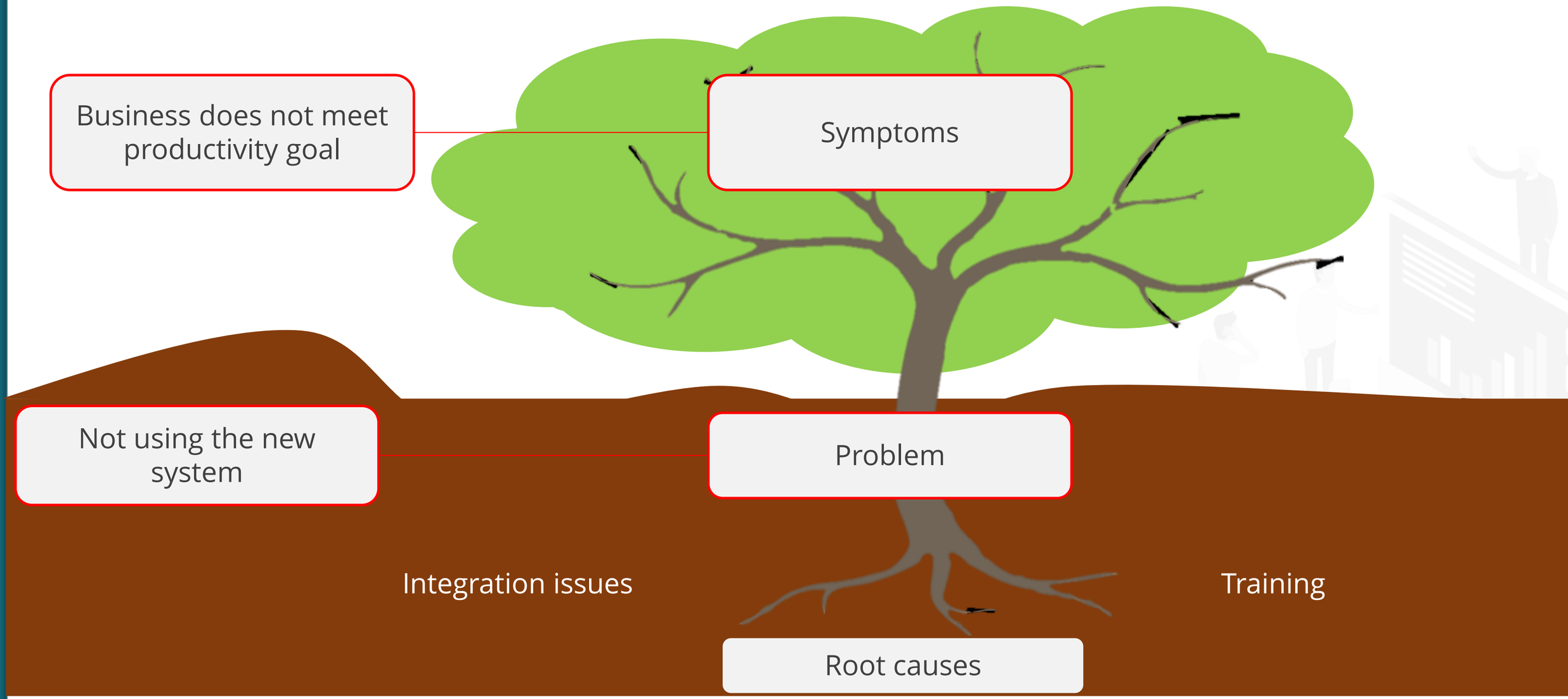
By the end of this lesson, you will be able to:

- Explain the concept of Root Cause Analysis (RCA)
- Create a Cause and Effect Diagram
- Interpret a Cause and Effect Matrix
- Apply the 5 Whys technique for a problem and find a possible solution

Introduction

Business does not meet productivity goal

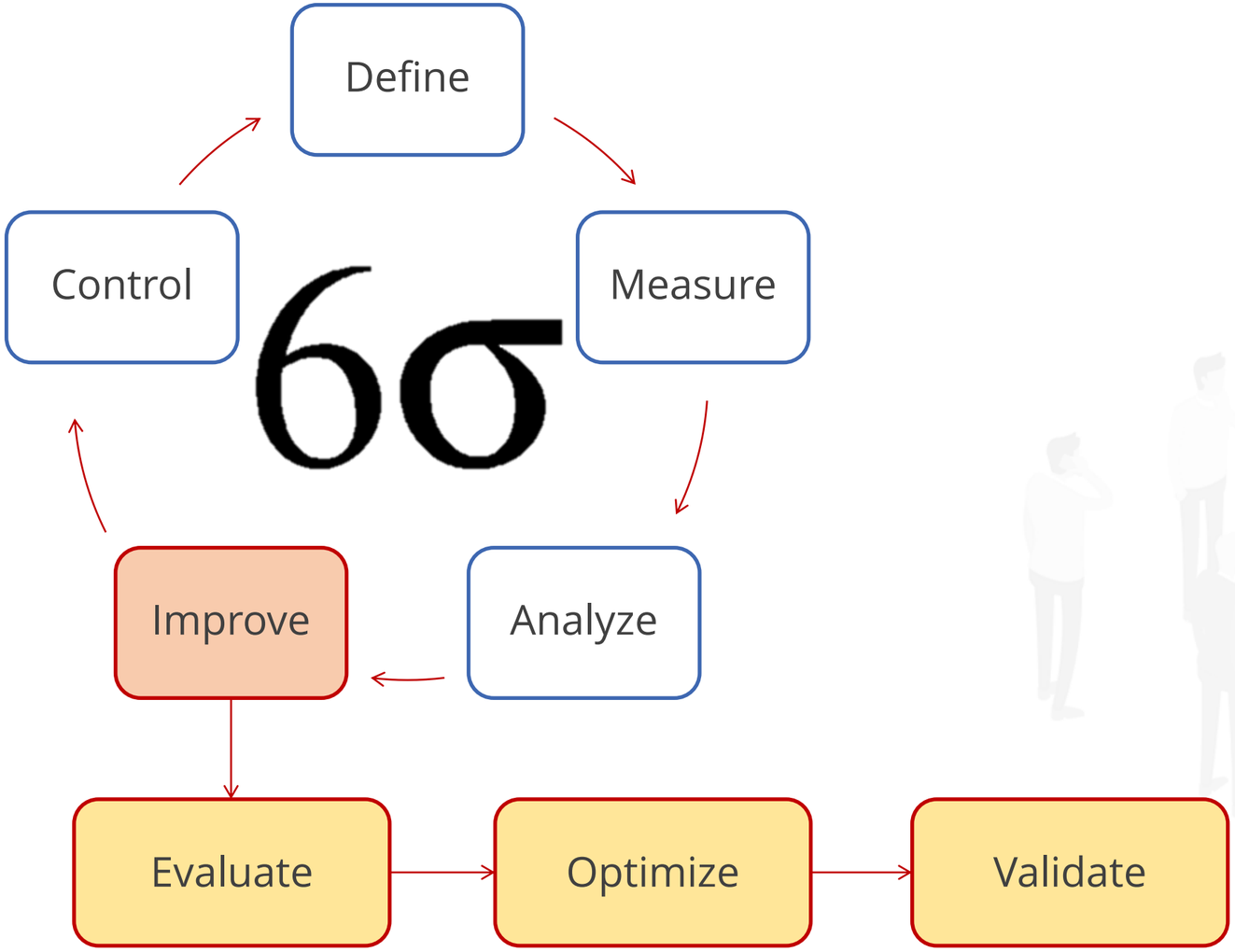
Introduction



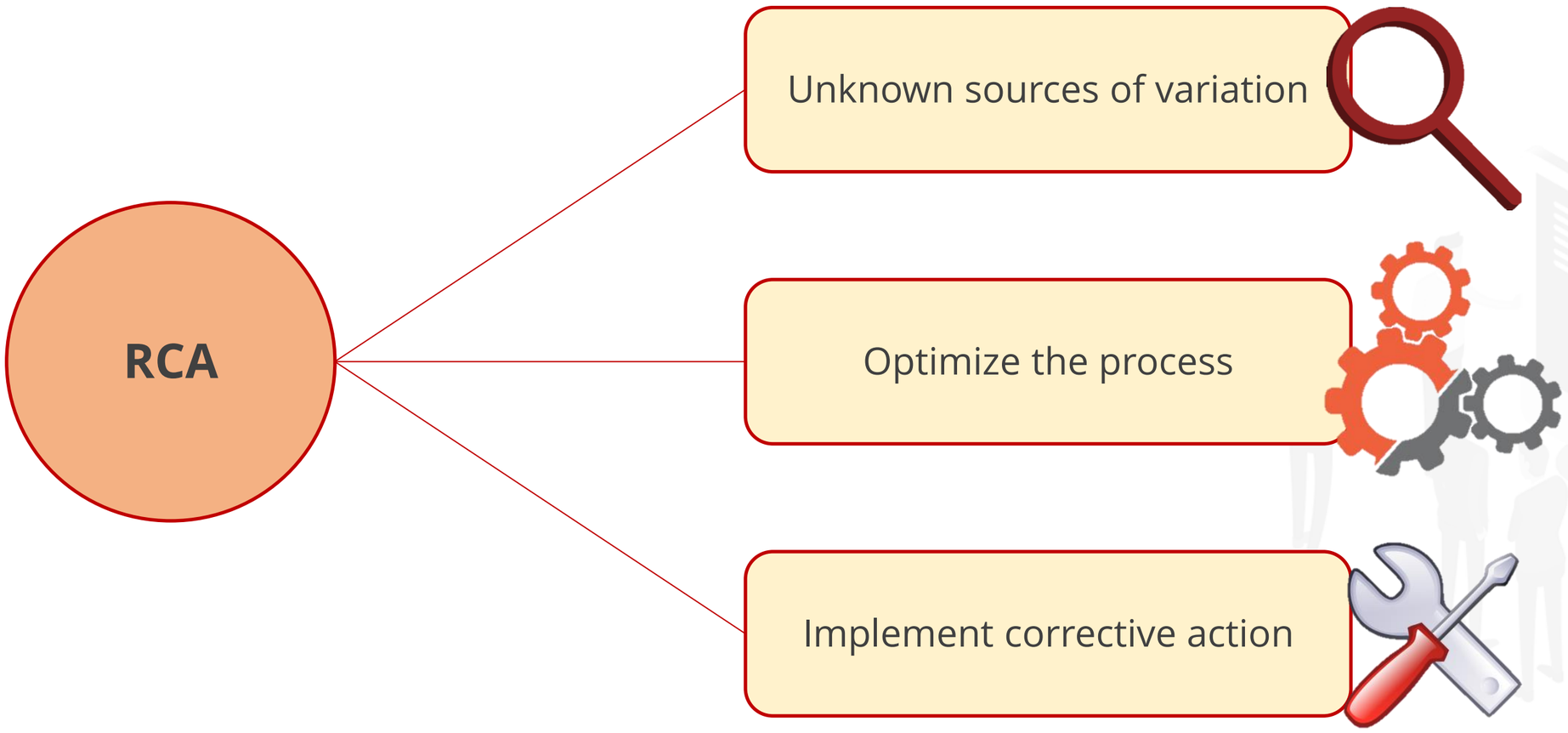
DIGITAL OPERATIONS

Root Cause Analysis

Root Cause Analysis (RCA)



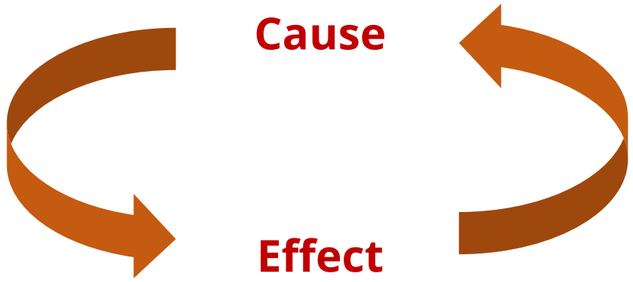
Root Cause Analysis (RCA)



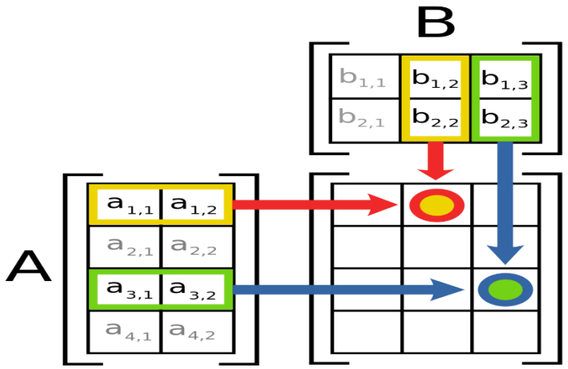
Root Cause Analysis (RCA)

RCA Tools

Cause and Effect Diagram

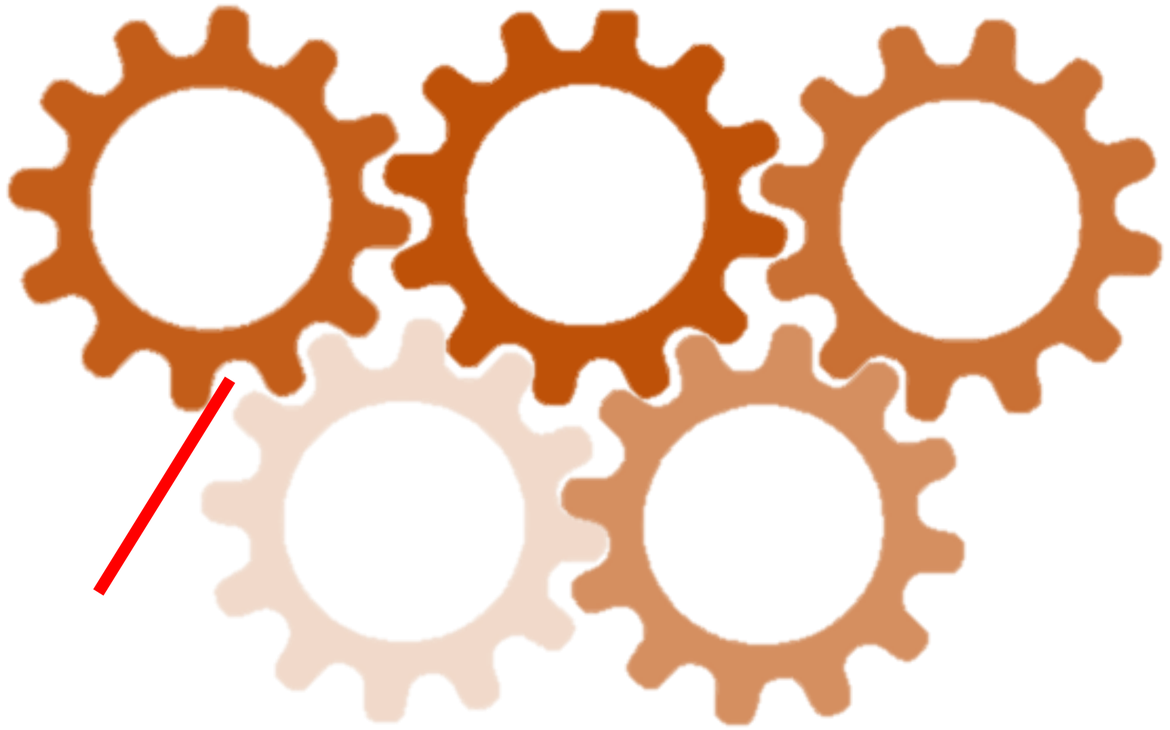


Cause and Effect Matrix



5 Whys Technique

Root Cause Analysis (RCA)

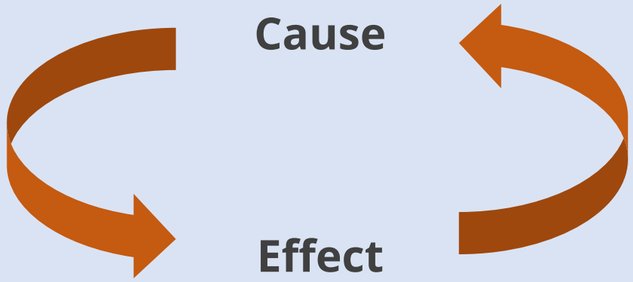


A root cause is a factor that caused the defect or issue. Removing that factor will prevent the re-occurrence of the issue.

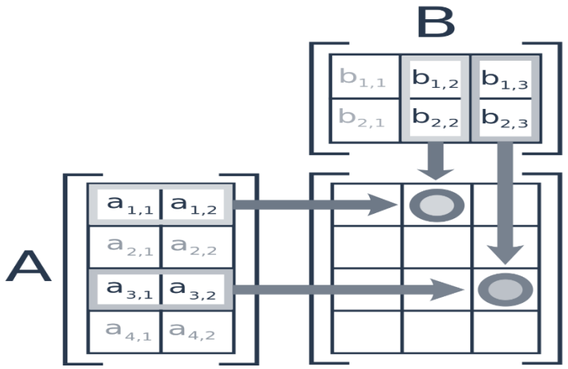
Cause and Effect Diagram

RCA Tools

Cause and Effect Diagram



Cause and Effect Matrix

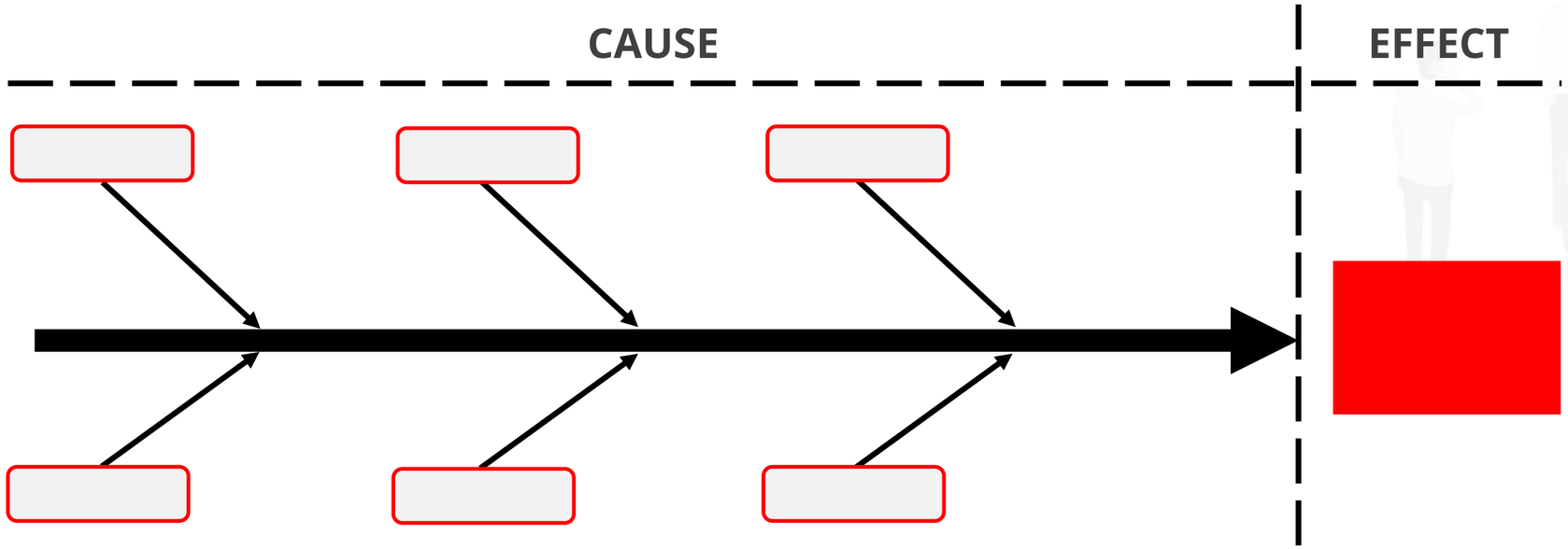


5 Whys Technique

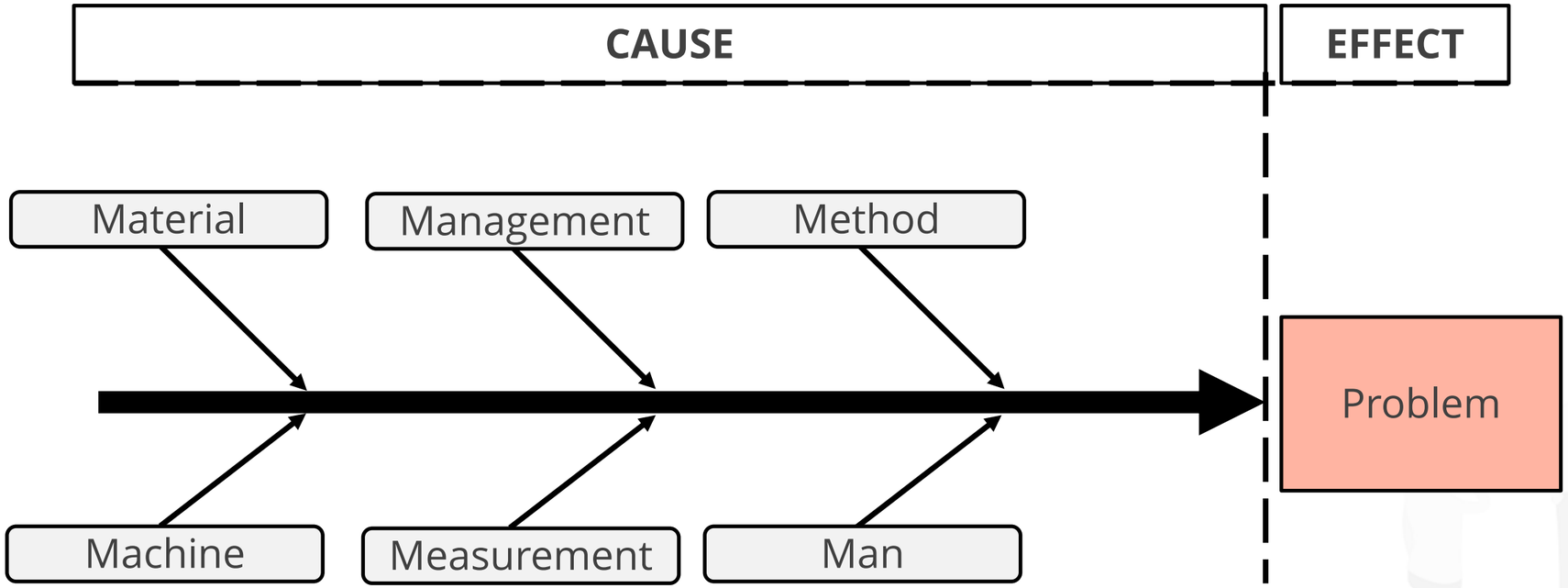
Cause and Effect Diagram

The Cause and Effect diagram is used to find the root cause and the potential solutions to a problem.

It is also known as the Fishbone diagram or Ishikawa diagram.



Cause and Effect Diagram



Determine the main classification or headings to group the causes

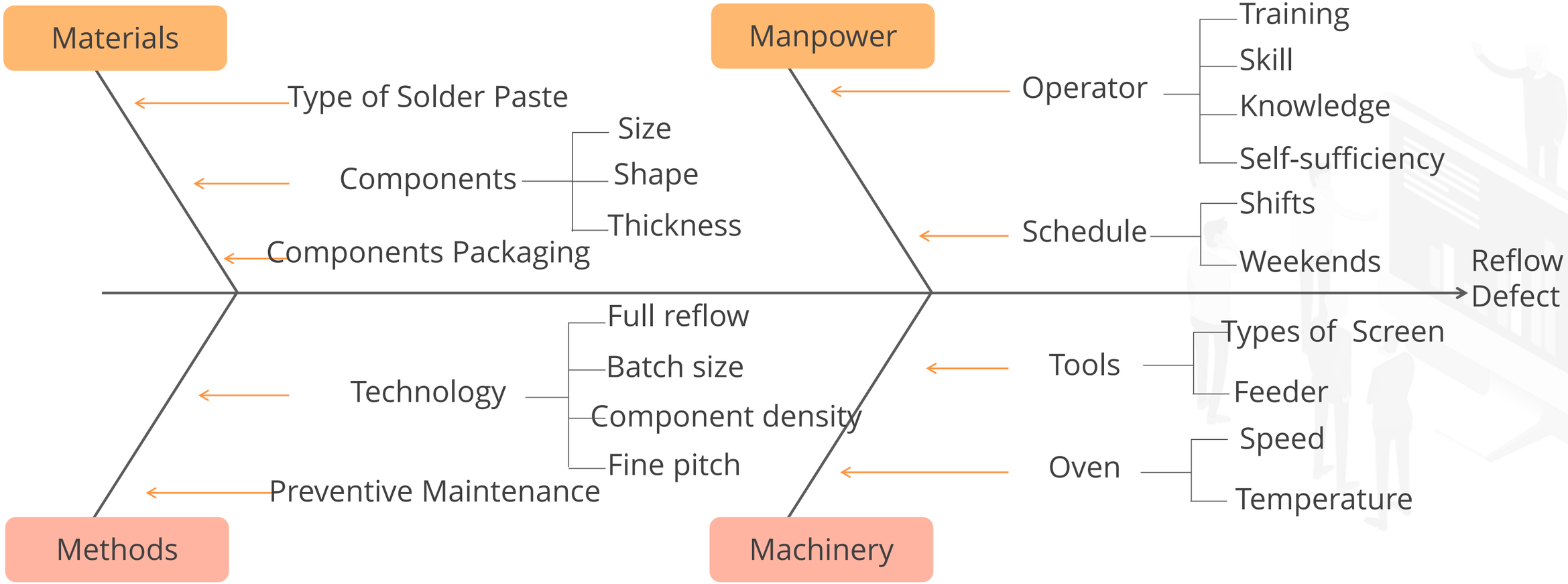
Draw a Cause and Effect diagram with the problem at the point of the central axis line

Brainstorm possible causes of the problem

Write the causes on the diagram under the classifications chosen

Cause and Effect Diagram

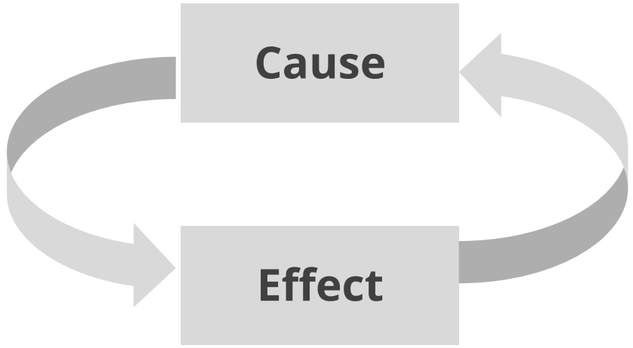
Cause and Effect diagram for solder defects on a reflow soldering line



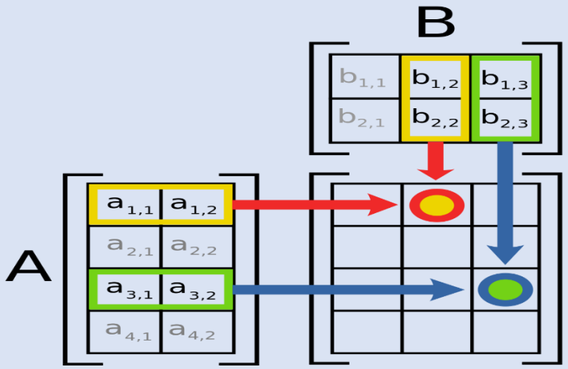
Cause and Effect Matrix

RCA Tools

Cause and Effect Diagram



Cause and Effect Matrix



5 Whys Technique

Cause and Effect Matrix

		Process Output Variables						
		A	B	C	D	E		
Prioritization Number		4	1	7	11	5	Results	%
Process Input Variables	1	3		4	7		117	33
	2		8	5	3	4	96	27
	3	6			2		46	13
	4		7			5	32	9
	5			3	4		65	18
					Totals		356	100

Cause and Effect Matrix

Rating of Importance to Customer																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Process Inputs																	
																	0
1																	0
2																	0
3																	0
4																	0
5																	0
6																	0
7																	0
8																	0
9																	0
10																	0
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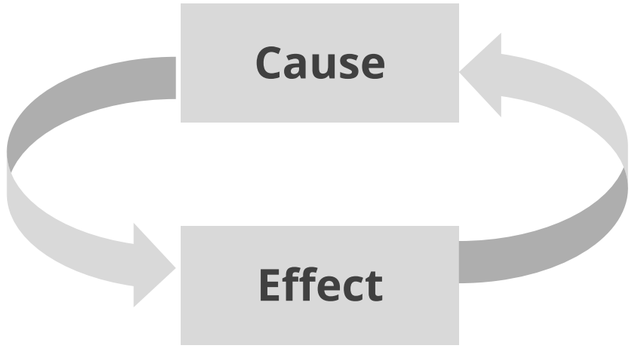
18																	0
19																	0
20																	0
																	0
																	0
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

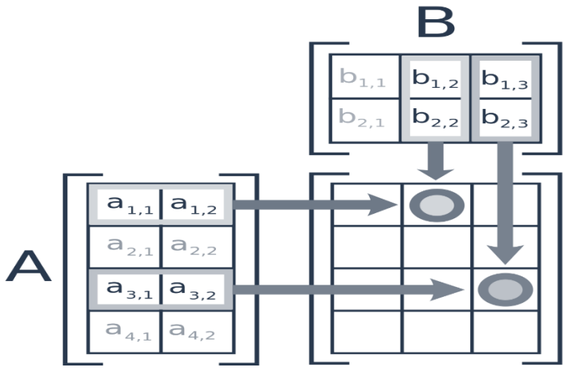
The 5 Whys Technique

RCA Tools

Cause and Effect Diagram



Cause and Effect Matrix



5 Whys Technique

The 5 Whys Technique

Identify the problem and the problem statement

Arrange for a team brainstorming session

Explain the purpose

Analyze the problem and brainstorm backwards

Ask “Why?” for the answers obtained

? ? ?
? ?

If a problem occurs, it is usually due to the process and not because of a person or team.

The 5 Whys Technique

Erroneous product deliveries

The 5 Whys Technique

What is happening?

PROBLEM: Delivery of parcels to incorrect addresses

Why is it happening?

1. Incomplete addresses given on the parcel

Why?

2. Complete addresses were not collected from the customers

Why?

3. The addresses were given to the operators over phone

Why?

4. The operators were unable to gauge if the addresses were incomplete

Why?

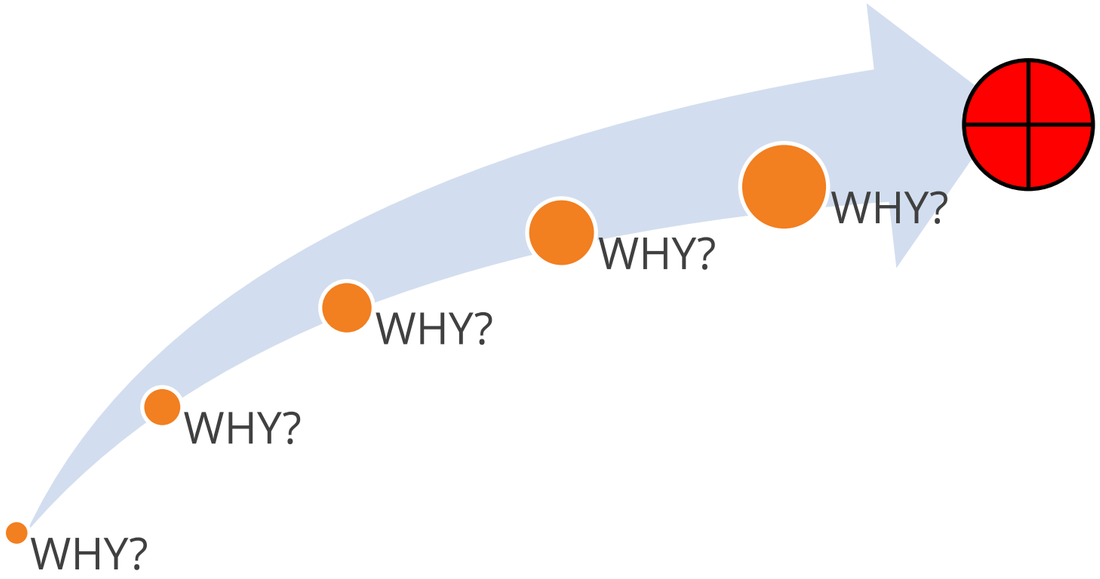
5. An official format for capturing delivery addresses from customers was unavailable

The 5 Whys Technique

Corrective Action

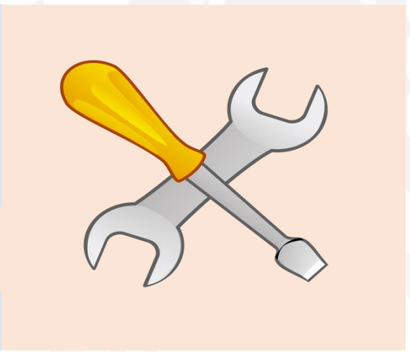
A template for capturing customer delivery information was created.

Points to Remember



Focus on **process** issues and not people

Stay within your team's **control to change**



Key Takeaways

- A root cause is a factor that caused the defect or issue and removing that factor will prevent the re-occurrence of the issue.
- The Cause and Effect diagram is used to find the root cause and the potential solutions to a problem.
- The Cause and Effect matrix consists of key process input and output variables to determine which input variables have the greatest effect on the output variables.
- The 5 Whys technique involves asking iterative questions to find the root cause of the problem.

Knowledge Check

Knowledge Check

1

Which of the following is NOT one of the classical cause and effect diagram categories?

A. Materials

B. Maintenance

C. Methods

D. Machine

Knowledge Check

1

Which of the following is NOT one of the classical cause and effect diagram categories?

A. Materials

B. Maintenance

C. Methods

D. Machine

The correct answer is **B**

Maintenance is considered as an additional category in a classic fishbone diagram. The classical categories are Man, Material, Method, and Machine.

Knowledge Check 2	We have an input factor with impact ratings of 3 and 9 on output variables A and B, respectively. The output variable A has a prioritization value 5 and output B has a prioritization value of 10. What is the score for our input factor?

A. 42

B. 37

C. 105

D. 90

Knowledge Check 2	We have an input factor with impact ratings of 3 and 9 on output variables A and B, respectively. The output variable A has a prioritization value 5 and output B has a prioritization value of 10. What is the score for our input factor?

A. 42

B. 37

C. 105

D. 90

The correct answer is **C**

The score is 3*5 + 9*10 = 105