

# Root Cause Analysis



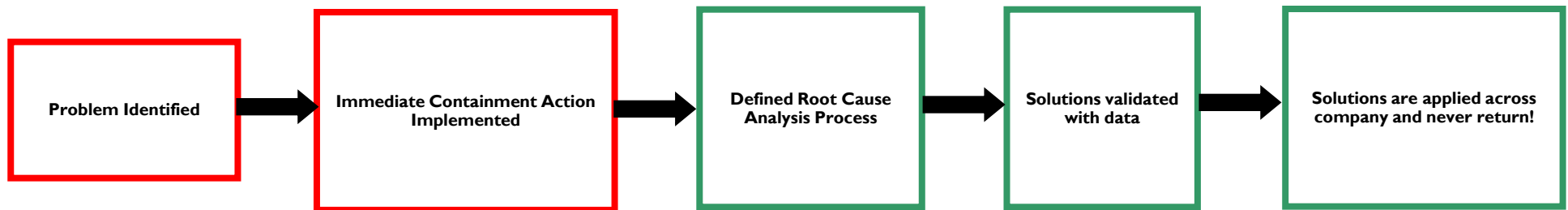
# Agenda



- What is a Root Cause?
- What are the benefits to using a Root Cause Analysis?
- When should we use a Root Cause Analysis?
- Improving actions – 3 types
- Problem solving process – the 8 steps
- Example
- Demand specification on the input - Discussion
- Reflections?

# What is a Root Cause?

- The true reason why a problem occur.
- The causing factor, if that one will be eliminated, the problem will be solved.



# Why Root Cause analysis?

▶ By eliminate the root cause...

- **Save both time and money!**

▶ Problem should not be repeated

- ▶ Less rework, less scrap in production, retesting in less amount , less need of adjustments, lower claim cost, etc...

▶ Prevent the problem

▶ Improved communication

▶ Decreased lead time

▶ Satisfied customers

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**Less rework=Increased profit!**

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# When to use the Root cause analysis?



**When problem appears!!!**

**Warehouse in unbalance**

**Supplier faults**

**IT-problem**

**Processes outside control**

**Big waste in production**

**Human factors**

**Audit Finding**

**Long lead times**

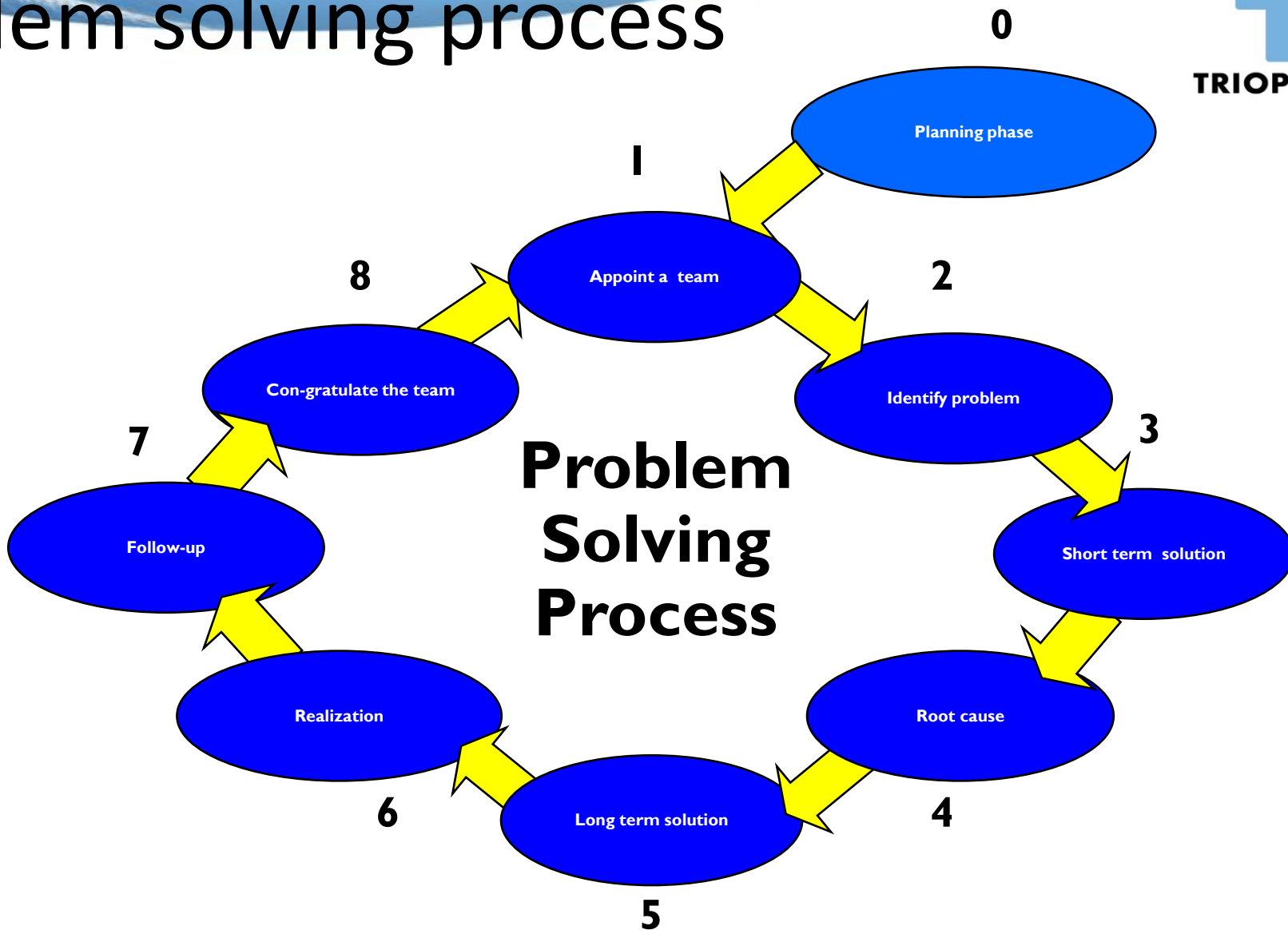
**Missing deliveries**

**Security related problems**

**Complex problems**

**Over transaction of budget**

# Problem solving process



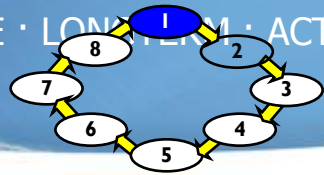
# 8D formula



**8D :: Problem Solving Worksheet**

<b>Tracking Number:</b>		<b>Customer Number:</b>		<b>Response Due Date:</b>					
<p>8-D is a quality management tool and is a vehicle for a cross-functional team to articulate thoughts and provide scientific determination to details of problems and <del>provide</del> solutions. Organizations can benefit from the 8-D approach by applying it to all areas in the company. The 8D provides excellent guidelines allowing us to get to the root of a problem and ways to check that the solution actually works. Rather than treating the symptom, the illness is cured. Thus, the same problem is unlikely to recur.</p>									
<b>Step</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>Action</b>	The Planning Stage	Establishing the Team	Problem Definition / Statement & Description	Developing Interim Containment Action	Identifying & Verifying Root Cause	Identifying Permanent Corrective Action (PCA)	Implementing & Validating PCA	Preventing Recurrence	Recognizing Team Efforts
<b>0</b>	<p><b>The Planning Stage:</b> The 8-D method of problem solving is appropriate in "cause unknown" situations and is not the right tool if concerns center solely on decision-making or problem prevention. 8-D is especially useful as it results in not just a problem-solving process, but also a standard and a reporting format. Does this problem warrant an 8D? If so comment why and proceed.</p>			<p><b>Is an Emergency Response Action Needed?</b> (If needed document actions in Action Item Table)</p>					
<b>1</b>	<p><b>Establishing the Team:</b> Establish a small group of people with the process/product <del>knowledge</del> allocated time, authority and skill in the required technical disciplines to solve the problem and implement corrective actions.</p>			<p><b>Team Goals:</b> <b>Team Objectives:</b></p>					
<b>Department</b>		<b>Name</b>		<b>Skills</b>		<b>Responsibility</b>			
<b>2A</b>				<b>Sketch / Photo of Problem</b>					
<p><b>Problem Definition</b> Provides the starting point for solving the problem or <del>provide</del> issue. Need to have "correct" problem description to identify causes. Need to use terms that are understood by all.</p>									
Part Number(s):									
Customer(s):									
Literal of the data and documents that might help you to define the problem more exactly?									
Action Plan to collect additional information:									
<p><b>Prepare Process Flow Diagram</b> for problem use a separate sheet if needed</p>									

# Step 1

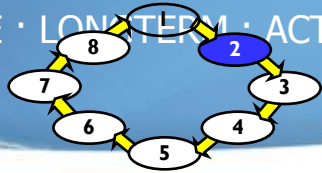


# Appoint a team



- **When the problem can't be solved by one single individual, use a team!**
- Be composed of:
  - Persons with different areas of expertise
  - Small groups with 4 to 10 persons
  - Persons that own process-/product knowledge
  - Persons with dedicated time to work with problem solving
- The team shall have authority to implement improvements!
- The team members can be changed between the different phases.



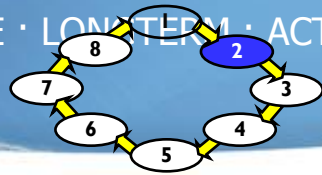


## Step 2

# Identify the problem

**Very important step!**

- ▶ Accurate problem formulation
  - ▶ This will work as a help for the group to be able to go back if the team lose the main thread.
- ▶ Use a 5W2H as a working method
  - ▶ Who? What? Why? When? Where? How? How Many?



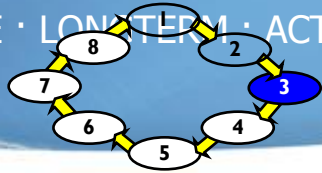
## Step 2

## Identify the problem



### •5W2H

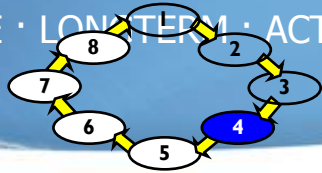
- Who?** Individuals /Customers that have a relation to the problem
- What?** Problem description
- When?** Time and date when the problem have happened / will arise
- Where?** Where is the problem found (market, customer, segment)
- Why?** Already known reasons?
- How?** How could the problem arise (root cause) and how to prevent the problem (preventive actions)?
- How Many?** Number of pieces and frequency?



## Step 3

# Short term solution

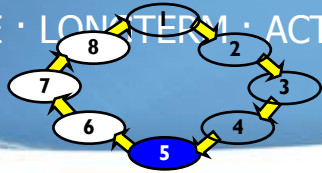
- Isolate the problem and introduce a quick solution to decrease the impact for the customer
- Quick-“fix”
  - Change damaged parts
  - Check of delivered units
  - Re-inspection before the delivery
  - Re-work
  - Recall of parts / documents from customer and warehouse
- Only one short term solution
- Verify the effect of the short term solution



# Step 4

# Identify root cause

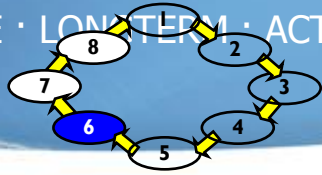
- Identify possible reasons
- Structure thinkable reasons
- Identify the most thinkable reasons
- Identify real root cause
- Identify the causing processes
- Brainstorming
- Cause - and effect diagram
- Pareto diagram
- 5 Why



# Step 5

# Long term solution

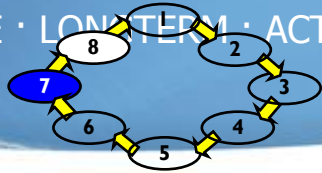
- Define the actions:
  - What actions should be implemented to eliminate the problem
  - Who is responsible
  - Time table
- Secure that the customer is satisfied with the actions that will be implemented
- Define how the effect of the actions should be measured and followed-up - Validation
- Verify that the implemented solution will eliminate the problem



# Implementation

## Step 6

- Secure that all identified steps will be implemented and closed according to the time table.
- If one single action is still open the errand could neither be validated nor verified.

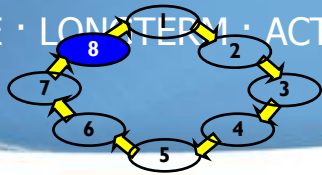


## Step 7

## Follow-up



- What measurements should be carried out in the future to secure that the root cause is eliminated by the long term solution?
- **Who** will supervise what kind of data?
- **When** will the follow-up be done?
- **What** kind of criteria determines that the problem haven't returned?



# Step 8 Validation & congratulate the team

- What was the result of the follow-up?
- If the problem returns, go back to step 4 and start with a new evaluation of the root causes.
- If the problem don't returns – Congratulate the team for the success.