



# Supplier Quality Management

## Continuous Improvement Training A3 Problem Solving Methodology

Advanced Quality Team



# Agenda

- Review Goals
- Training Objectives
- Review Supplier Performance
- PDCA Model (Grasp the Situation)
- A3 – Introduction
- A3 – The Standard 5-Step Flow
  - Problem & Background
  - Current Condition
  - Root-Cause Analysis
  - Countermeasures & Targets
  - Follow-Up / Check & Act
- Examine effective use of A3 and common pitfalls
- Q&A
- Closing



## **Supplier Performance Review**

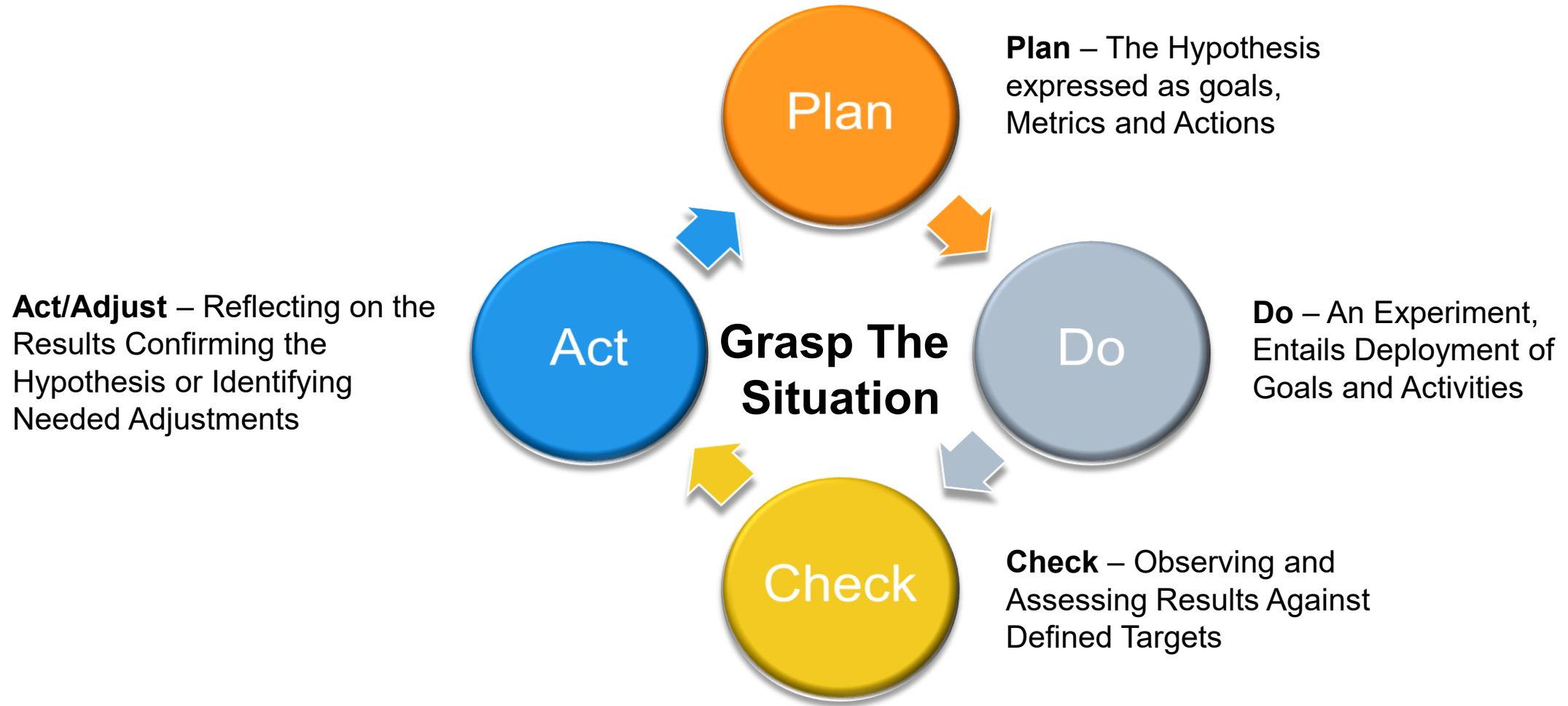
**NOTE: This slide to include “Supplier Performance Specific Data Only”, not LMPI data/information.**

# Training Objectives

After this training, you should be able to:

- Build Foundational Understanding of A3 Thinking
- Define Problems Clearly and Objectively
- Analyze Current State Effectively
- Apply Root Cause Analysis Tools
- Develop Countermeasures Aligned to Root Causes
- Build a Clear Implementation Plan
- Measure Results and Validate Effectiveness
- Sustain Improvements

# The PDCA Model



THE SCIENTIFIC METHOD

# Grasp The Situation

## It all starts with a big vague concern

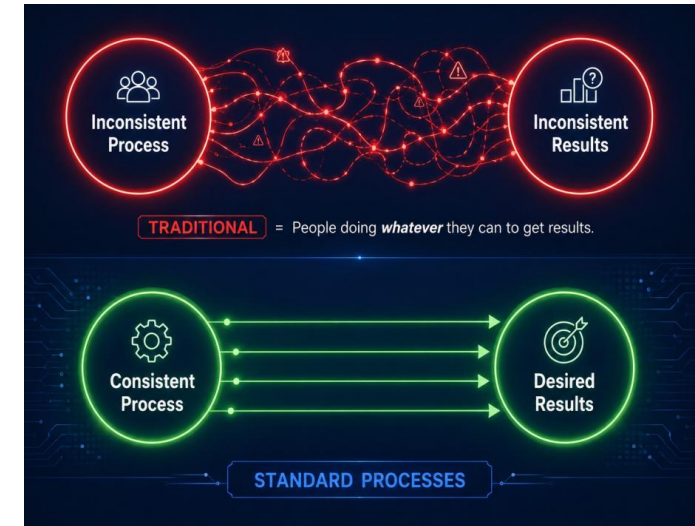
- How do I know I have a problem?
- What is the standard?
- Observe the process?
  - What should be happening?
  - What is actually happening?
- Is there a problem?
- What is the gap?

### Standard:

- Known way
- Same way, every time
- Same outcome

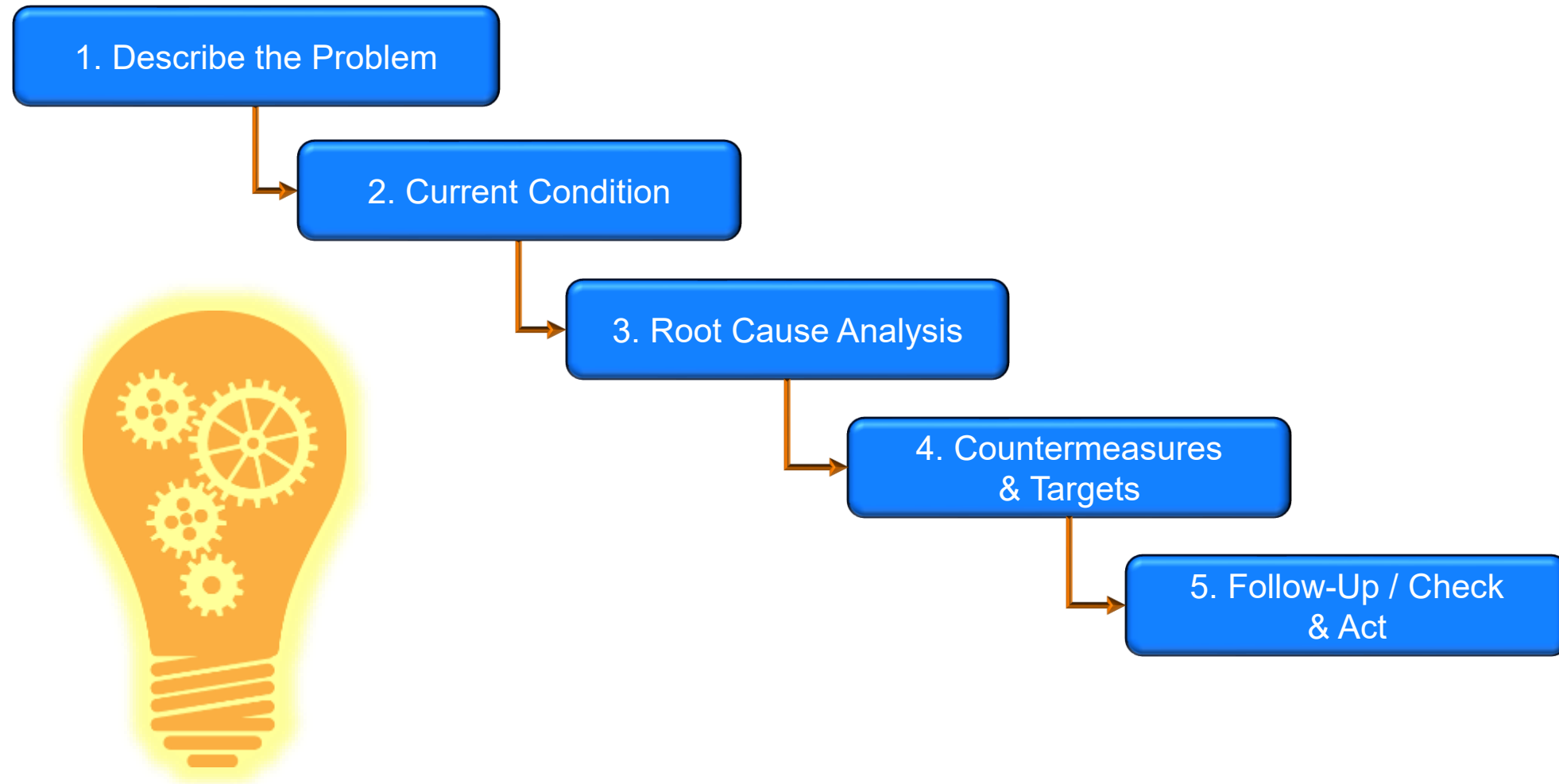
## Investigate the Concern

- Break down the problem
- Determine focus area
- Go to Gemba: Actual Place, Actual Process, Actual People



*Grasping the Situation is Key to Effective Problem Solving*

# The Standard 5-Step Flow



# A3 – Intro

## What is A3 Method / Report?

- A3 is a structured problem-solving and continuous improvement approach that originated at Toyota in the late 1960's.



# A3 – Intro

“A3” carries three intertwined meanings:

- 1. The Paper Size** – A practical constraint that forces clarity.
- 2. The Thinking Process** – A structured, [PDCA](#)-based flow that guides teams through five core sections: *Problem & Background* → *Current Condition* → *Root-Cause Analysis* → *Countermeasures & Targets* → *Follow-Up*.
- 3. The Coaching Storyboard** – A living visual that invites questions from mentors and peers. Leaders review drafts, probe for deeper “Why?” layers, and strengthen the author’s critical-thinking muscles.

# A3 – Intro

## Why Use A3 Thinking

A3 thinking isn't just a template—it's a miniature operating system for continuous improvement, because:

- Cuts Through Noise & Waste
- Builds a Coaching Culture
- Creates a Shared Visual Language
- Accelerates PDCA Loops
- Lock in Organizational Memory

# A3 – Intro

## Different types of A3 = Different Stories



- Communicate business objectives



- Provide status of a project or initiative

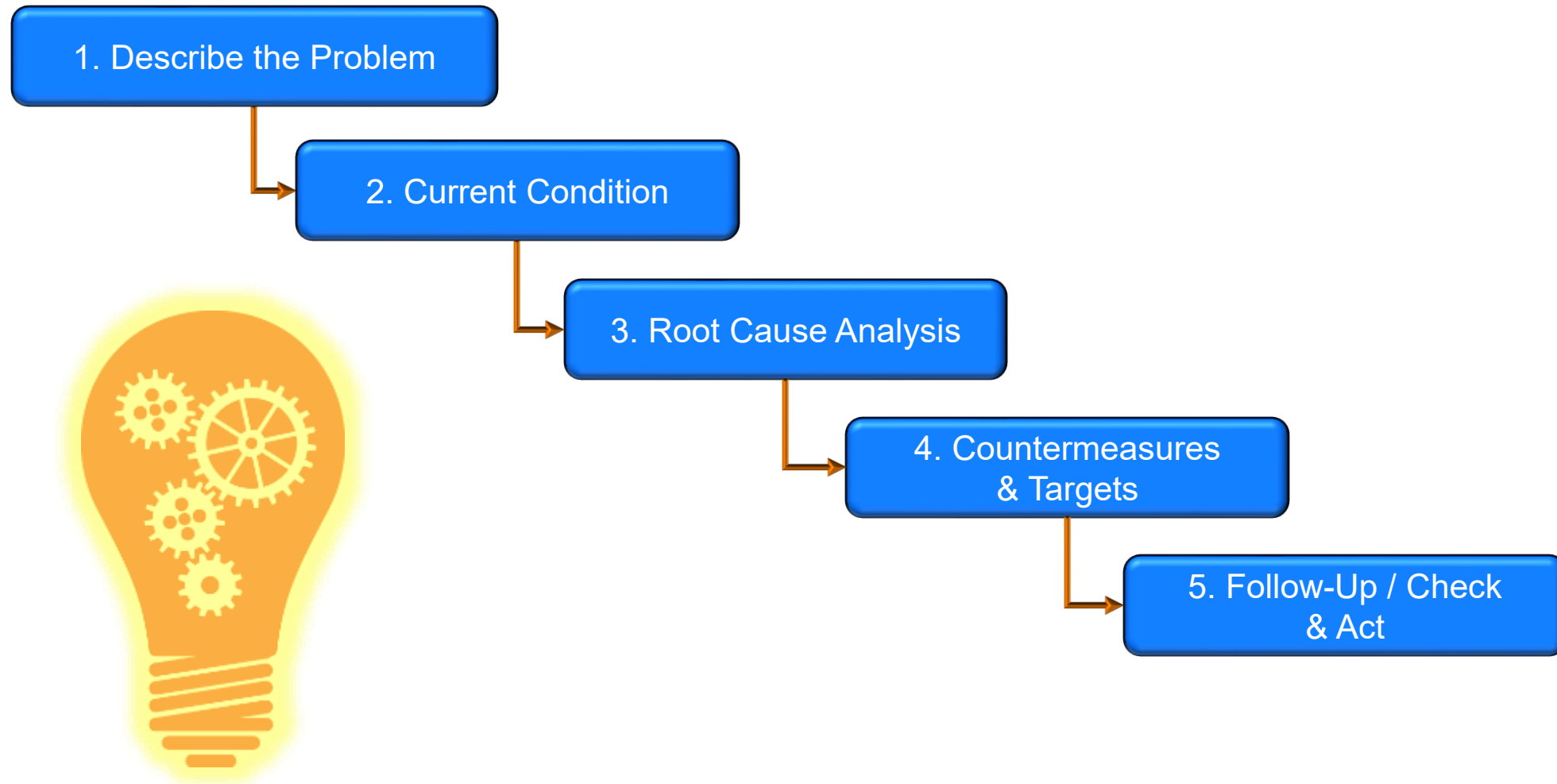


- Request resources, recommend a solution



- Tackle a problem and solve it

# The Standard 5-Step Flow



# A3 – Template

## 1 - Describe the Problem

### Problem Background / Observed Symptoms

Clearly and concisely describe the problem. Be specific about what is wrong or needs improvement.

### Current State

Include relevant data points that show the magnitude of the issue. This could be production rates, defect rates, downtime, customer complaints, or any metrics related to the problem.



### Target State

Clearly describe how the process or situation will function after improvements. This should directly address the issues identified in the "Current State." Outline measurable goals, such as reducing defects, increasing production, improving lead times, or eliminating waste. Be as specific as possible with



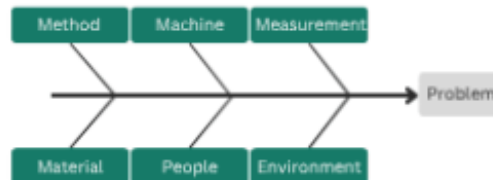
## 2 - Find the Root Cause of the Problem

### Root Cause Analysis

The "Root Cause Analysis" section of an A3 document is critical for identifying the underlying causes of the problem you are trying to solve.

This section can involve using Fishbone diagrams, Pareto Charts, and 5 Why Analysis.

### Fishbone Diagram



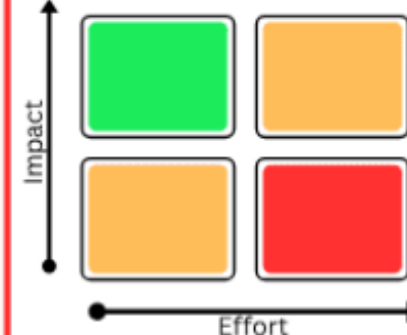
### 5 Whys Analysis



## 3 - Prioritize and Take Action

### Corrective Actions

List and prioritize the countermeasures or solutions that directly address the identified root causes. Each solution should be tied to a specific root cause to ensure it solves the underlying issue.



### Action List

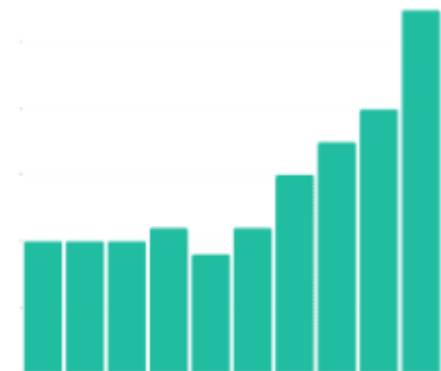
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## 4 - Validate Solution and Apply opportunities to Standardize

### Confirm Effect

Compare the **current** performance against the **target** state and metrics. Did the countermeasures achieve the desired outcomes? Include any data showing improvement.

Capture any key insights or **lessons learned** during the implementation process. This could involve challenges faced, unexpected results, or improvements to the approach for future problem-solving efforts



# A3 – The Standard 5-Step Flow

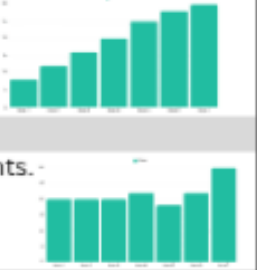
## 1. Describe the Problem

You must **fully understand the problem** to begin the process.

### Describe the Problem:

- Problem Background / Observed Symptoms  
– A summary of the Gap in words
- Current State – “As is” current metric
- Target State – “Should be” goal metric
- Gap – Difference between Target State and Current State

| 1 - Describe the Problem                                                                                                                                                                                                                                                                                                                 |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Problem Background / Observed Symptoms</b><br>Clearly and concisely describe the problem. Be specific about what is wrong or needs improvement.                                                                                                                                                                                       |  |
| <b>Current State</b><br>Include relevant data points that show the magnitude of the issue. This could be production rates, defect rates, downtime, customer complaints, or any metrics related to the problem.                                                                                                                           |  |
| <b>Target State</b><br>Clearly describe how the process or situation will function after improvements. This should directly address the issues identified in the "Current State." Outline measurable goals, such as reducing defects, increasing production, improving lead times, or eliminating waste. Be as specific as possible with |  |



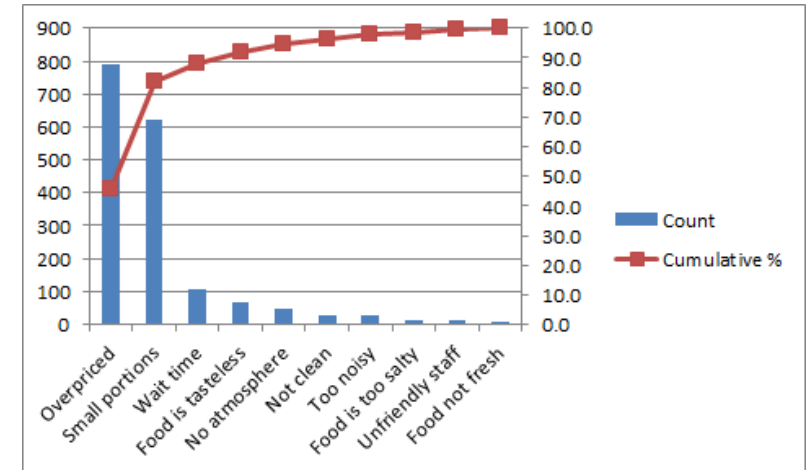
# A3 – The Standard 5-Step Flow

## 2. Current Condition

Paint an evidence-based snapshot of reality.  
No guessing allowed

### Breaking down the Problem:

- Use one or more of the following tools:
  - Pareto
  - Observers check sheet
  - Process observation form
  - Process mapping – linear process maps
  - Spaghetti Diagram – physical process maps



### Observers check sheet

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TOOLS/EQUIPMENT</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Tools not located near point of operation</li><li><input type="checkbox"/> Tools stored in numerous locations</li><li><input type="checkbox"/> Insufficient tools, SE quantities</li><li><input type="checkbox"/> Support Equipment not at or near the point of operation</li><li><input type="checkbox"/> Cal/PM stickers expired</li><li><input type="checkbox"/> Safety equipment available</li><li><input type="checkbox"/> <u>Most commonly used</u> tools located nearest to POU</li></ul>                                        | <b>FLOW</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Idle workers</li><li><input type="checkbox"/> Over-inspection</li><li><input type="checkbox"/> MHE/Crane not available</li><li><input type="checkbox"/> Excessive interruptions</li><li><input type="checkbox"/> Equipment or material travels too far</li><li><input type="checkbox"/> Batch processing of hardware or paper</li><li><input type="checkbox"/> Waiting for transportation equipment or people</li><li><input type="checkbox"/> Over processing – too many touches/retouches</li><li><input type="checkbox"/> Bottlenecks – craftsmen, SE, material, engineering....</li></ul> |
| <b>MATERIAL</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Parts not available, at point of operation when needed.</li><li><input type="checkbox"/> Parts defective</li><li><input type="checkbox"/> Supply shortages, or delays</li><li><input type="checkbox"/> Consumables not readily available</li><li><input type="checkbox"/> Consumables not located near point of operation</li><li><input type="checkbox"/> Consumables have expired use dates</li></ul>                                                                                                                                        | <b>WORKSTATION/DESIGN OF WORK</b> <ul style="list-style-type: none"><li><input type="checkbox"/> <u>Work station</u> flow</li><li><input type="checkbox"/> Material stacked up at any location</li><li><input type="checkbox"/> Height, depth, width of operational space (ergonomics)</li><li><input type="checkbox"/> Unsafe conditions</li><li><input type="checkbox"/> Work area disorganized</li></ul>                                                                                                                                                                                                                                                              |
| <b>PAPERWORK/PROCEDURAL ISSUES</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Processing paper not accurate</li><li><input type="checkbox"/> Processing paper not clearly understood</li><li><input type="checkbox"/> Paper in queue waiting for inspection or management approvals</li><li><input type="checkbox"/> No documentation for standardized processes</li><li><input type="checkbox"/> Discrepant conditions not well defined</li><li><input type="checkbox"/> Acceptance conditions not well defined</li><li><input type="checkbox"/> Expectations for tasks not clearly understood</li></ul> | <b>REWORK</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Absenteeism (critical skills)</li><li><input type="checkbox"/> Material waiting in queue for next operation</li><li><input type="checkbox"/> Waiting for repair/rework</li><li><input type="checkbox"/> Rework/excessive rework</li></ul><br><b>OTHER</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Too much training</li><li><input type="checkbox"/> Insufficient training – quantity or type of training</li><li><input type="checkbox"/> Workers not on site when required</li><li><input type="checkbox"/> Excessive interruption by "priority work"</li></ul>    |

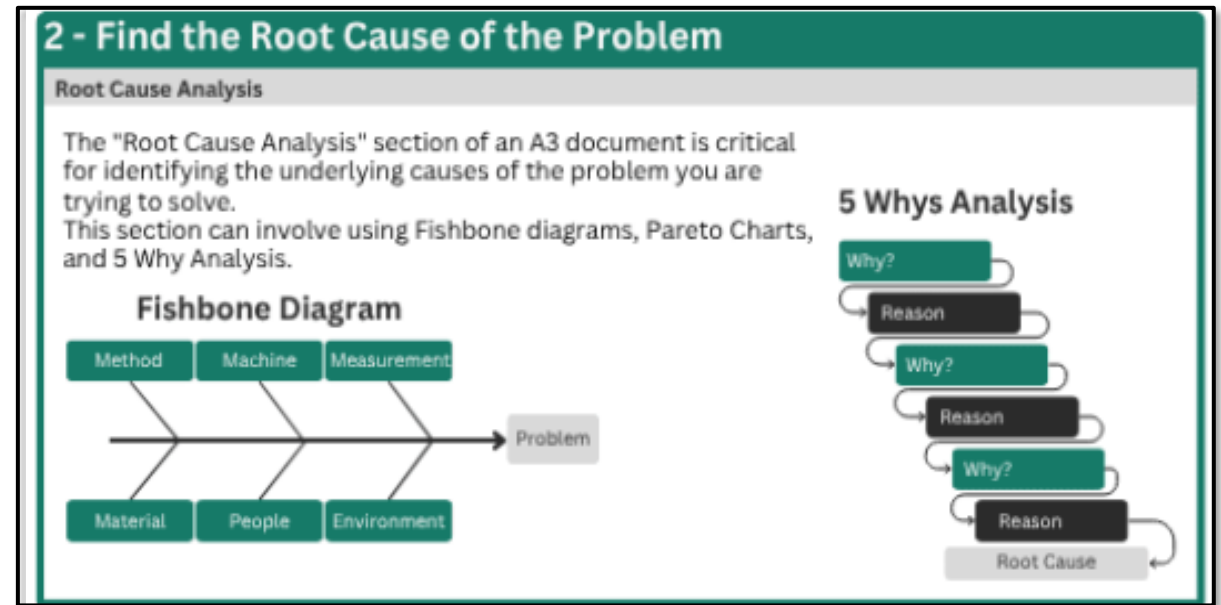
# A3 – The Standard 5-Step Flow

## 3. Find the Root Cause of the Problem

Expose the real mechanism driving the gap – not just the first-order symptom.

### Causal Analysis:

- Included appropriate Stakeholders in root cause analysis (RCA)
- Identified multiple potential root causes
- Use one or more of the RCA tools such as:
  - Fishbone – Brainstorm potential causes and identify as Controllable / Noise
  - 5 Whys – Drill down for root causes
  - Pareto Chart – Separate out the “vital few from the trivial many”
- Validated potential causes by observing the work (“Go to Gemba”)



# A3 – The Standard 5-Step Flow

## 3. Find the Root Cause of the Problem

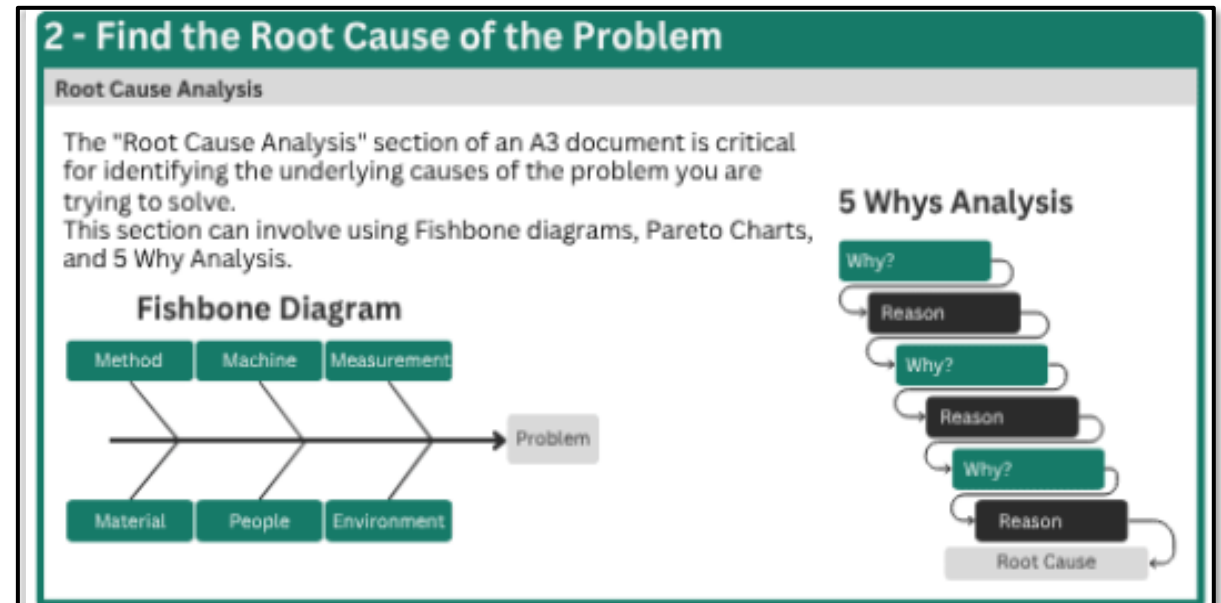
Expose the real mechanism driving the gap – not just the first-order symptom.

### Do I know the cause?

- I observed the process, asked questions, got the facts
- I now how the process flows
- I know how long the process takes
- Now I need to understand the root cause of the problem!

### Three Root Causes

- No standard
- Standard not being followed
- Ineffective standard



**Red flag:** If your RCA result is “operator makes mistake,” you have not reached root cause – keep going until you find a systemic factor you can change.

# A3 – The Standard 5-Step Flow

## 4. Countermeasures & Targets

Translate causes into concrete, testable actions and desired future metrics.

### Develop Countermeasures:

- **Multiple Ideas** – Considered a wide variety of potential countermeasures
- **Breakthrough Thinking** – Considered bold, creative, out of the box countermeasures
- **Lean Thinking** – Incorporated basic lean principles (6S, Visual, Simple, etc.)
- **Prioritization** – Prioritized potential countermeasures (PICK Chart)

### 3 - Prioritize and Take Action

**Corrective Actions**

List and prioritize the countermeasures or solutions that directly address the identified root causes. Each solution should be tied to a specific root cause to ensure it solves the underlying issue.

Impact ↑

Effort →

| Action List |       |          |        |
|-------------|-------|----------|--------|
| Action      | Owner | Due Date | Status |
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|             |       |          |        |

**Countermeasure** – An action aimed at a root cause of the problem so as to prevent recurrence

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# A3 – The Standard 5-Step Flow

## 4. Countermeasures & Targets

Translate causes into concrete, testable actions and desired future metrics.

### Countermeasure Criteria:

- Involves the right people?
- Prevents recurrence?
- Inexpensive?
- Made with wisdom and ingenuity?
- Simple to use?
- Easy to implement?
- Durable?
- Easy to maintain?
- Does not hinder operator?
- Reliable?
- Safe?

### 3 - Prioritize and Take Action

#### Corrective Actions

List and prioritize the countermeasures or solutions that directly address the identified root causes. Each solution should be tied to a specific root cause to ensure it solves the underlying issue.

Impact ↑

Effort →

| Action | Owner | Due Date | Status |
|--------|-------|----------|--------|
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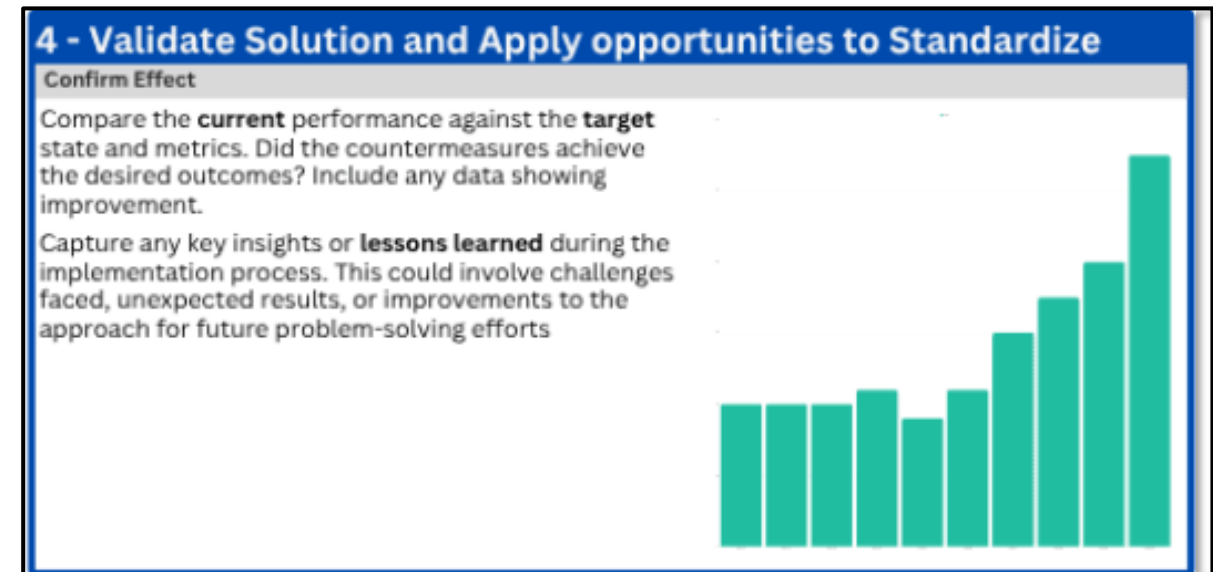
# A3 – The Standard 5-Step Flow

## 5. Follow-Up / Check & Act

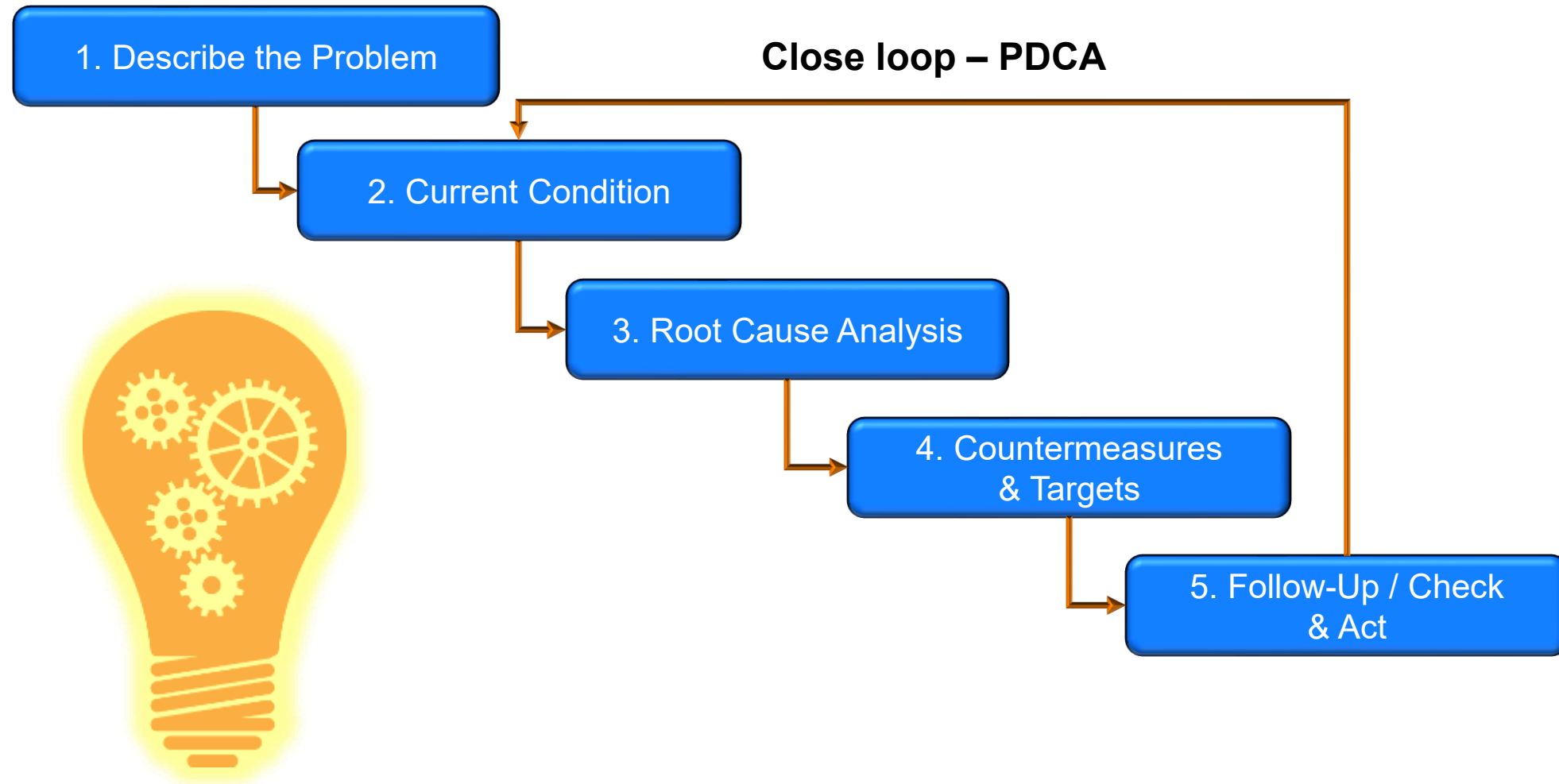
Close the PDCA loop, prove effectiveness, and hard-wire the learning.

### Impact on the Gap, Standardize, Share:

- **Learn from Failure** – If target was not met, used P-D-C-A to redo Steps 2-4
- **Impact on Gap** – Described how the achieved results impacted the Gap
- **Sustainment** – Verified the results can be sustained over time
- **Standardization** – Established the new process as the new way of doing business
- **Training** – Updated Standard Operating Procedures and training
- **Reflection** – Documented lessons learned throughout the process
- **Share** – Communicated improvements and lessons learned with owners of other similar processes



# A3 – The Standard 5-Step Flow



# A3 – The Standard 5-Step Flow

## 5. Follow-Up / Check & Act

Close the PDCA loop, prove effectiveness, and hard-wire the learning.

### Impact on the Gap, Standardize, Share:

- **Standardization**
  - Known way
  - Same way, every time
  - Same outcome, every time
- **Goal**
  - Meet customer expectations every time



# Conclusion

- A3 problem-solving is a disciplined habit that combines data, discussion, and concrete actions on one shareable page.
- By going to the Gemba, visualizing root causes, and tying each counter-measure to a measurable target, vague “issues” become clear experiments that boost team capability and confidence.
- The completed A3 sheet serves as corporate memory—usable on an Obeya wall, in audits, or for onboarding—demonstrating daily learning.
- The approach shows that speed and rigor can coexist: an A3 can be drafted in a morning while still satisfying ISO or customer requirements, eliminating the need for bulky slide decks.
- Recommended start: select a recurring nuisance, download the template, and run the six-step A3 session; within a week you’ll have hard data, stronger teamwork, and momentum for the next problem.

# Problem Solving A3

## Project Title: Receiving File Documentation

NOT SO GOOD EXAMPLE

### 1. Define the Problem:

#### Ultimate Goal:

Create a process avoiding the high costs of buying folders for packing sheet-filing.

#### Target State:

Reduce space and cost of filing processes. This will allow files to be easily stored, traced, and located, expediting the audit process.

#### Current State:

Warehouse employees have to manually document receiving paperwork and place on filing shelves. This creates an expense of \$100+ a day on folders filled with packing sheets.

#### Gap:

~\$23,000 after first year,  
\$25,000 annually after =

Estimated 90% decrease

#### Problem Statement:

Currently in the warehouse, all receiving files are being manually filed and stored on filing shelves.

### 2. Break down the problem

\*\*\*See breakdown on next slides\*\*\*

### 3. Target Setting Describes the projected impact on the Gap in Step 1 above

|                    |                                                 |         |                                    |
|--------------------|-------------------------------------------------|---------|------------------------------------|
| Do What            | Increase organization, mitigate costs           | To What | The warehouse receiving department |
| How Much           | To reduce filing costs of \$100+ a day          | By When | 06/15/2023                         |
| Impact on Main Gap | By reducing filing costs annually of ~\$25,000. |         |                                    |

### 4. Causal Analysis:

\*\*\*See enlarged Fishbone Diagram on slide 6\*\*\*



### 5a. Countermeasures / 5b. Trystorm:

- Process centered on the digitization of files through scanning to a centralized SharePoint
  - Purchased new document feeder scanners and barcode scanners
  - Eliminates need for folders, shelves
  - Training program with warehouse employees to learn new process
- ~~Method to re-use folders~~
  - ~~Labels with removable adhesive on folders~~
  - ~~Save purchase costs~~

### 6. Action Plan: (Who, What, When)

#### Who:

Warehouse in receiving office and related stakeholders, including managers and HLG team members

#### What:

Process whereby the warehouse employees in receiving scan documents and upload to a centralized SharePoint, skipping the filing process and allowing packing slips to be organized automatically by filters and stored over a longer duration.

#### When:

Request scanners for employees: 3/6 Complete

Test effectiveness of scanning process: 3/20 Complete

Request SharePoint: 3/6 Complete

Identify potential cost and time savings from old process, gathering data for SharePoint storage needs: 3/10 Complete

Map out new process: 3/27 Complete

Build SharePoint: 4/1 Complete

Run trial of new process with team: In Work – Estimated ECD 5/22

Measure effectiveness and used storage, requesting more as needed: In Work – Estimated ECD 6/9

### 7. Impact on the Gap, Standardize, Share:

- Only expenses revolving around scanners/sustainment and SharePoint storage space
- Intuitive training course for warehouse employees with scanning and uploading instructions

#### Calculations

##### Folders

1 box w/ 50 folders = \$51.50, 2 boxes daily = \$103, ~\$25,750 annually, \$257,500 after 10 years = 90.76% decrease

##### Labor

Average 4 hours x 3 warehouse employees to purge = 72 hours saved annually

# Problem Solving A3

## Project Title: Optimization of Buyer Training

GOOD EXAMPLE

### 1. Define the Problem:

#### Ultimate Goal:

Within the macro, have an average of 2.5 or higher for each topic that a buyer should be familiar with.

#### Target State:

Buyers are able to complete all the necessary tasks in their job due to training program that is implemented.

#### Current State:

Buyers have knowledge gaps due to insufficient training.

#### Gap:

100% of SMEs are not formally identified.

#### Problem Statement:

Currently in Supply Chain, more than 50% of employees have not received all the training necessary to be successful in their jobs and have all completed different trainings.

### 2. Break down the problem

- There are certain topics that buyers aren't knowledgeable on or there is only a single SI
- Certain topics have very low competency across all buyers
- Some buyers do not know who to reach out to about certain topics/competencies
- There are a lack of job-aids available to the team and buyers aren't aware of which top

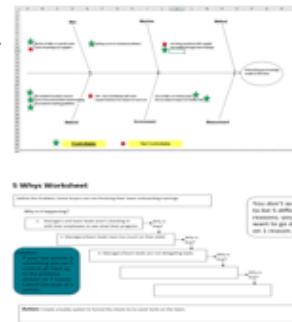


### 3. Target Setting Describes the projected impact on the Gap in Step 1 above

|                    |                                                                                          |         |                     |
|--------------------|------------------------------------------------------------------------------------------|---------|---------------------|
| Do What            | Fill the training gap                                                                    | To What | Training curriculum |
| How Much           | 100% compliance in training curriculum                                                   | By When | 07/2023             |
| Impact on Main Gap | By Achieving the Objective Above, improve the training process and onboarding of buyers. |         |                     |

### 4. Causal Analysis:

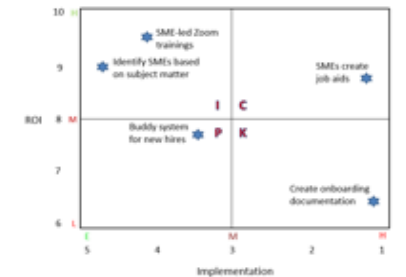
- We identified the controllable problems by using the fishbone diagram to the right
  - We were able to determine which problems were uncontrollable/controllable
  - Identified what we can use in our PICK Chart
- Through the 5WHY template, we were able to determine the root causes
  - There is no list of SMEs for buyers out-reach out to on specific tasks
  - Buyers do not have meetings often enough with suppliers
  - Some buyers have difficulty accessing necessary software
  - Some buyers are not finishing their team onboarding trainings



### 5a. Countermeasures / 5b. Trystorm:

#### Countermeasures

- We identified the following from the PICK Chart
  - Possible: Having a buddy for new hires for each topic group
  - Implement: SME-led Zoom trainings on weak subjects from the list of SMEs identified for the topic and identifying SMEs based on subject matter that is updated quarterly
  - Challenge: Have SMEs create job aids on their subject of expertise
  - Kill: Create detailed onboarding documentation
- We chose to move forward with:
  - SME-led Zoom trainings for low-competency topics
  - Creating job aids (w/ transition to next OLDP)
  - Utilizing a macro to identify overall low competency topics and SMEs for the low competency topics that can train the team



### 6. Action Plan: (Who, What, When)

| Action                                            | Owner       | ECD     |
|---------------------------------------------------|-------------|---------|
| Created and organized SME teams using Macro       | John/Denise | 4/1/23  |
| Organizing SME-led trainings                      | John/Denise | 5/24/23 |
| Created job-aids for OLDP taking over this effort | John/Denise | 6/14/23 |
| Future OLDP hosting SME-led trainings             | Future OLDP | 7/17/23 |
| Analyze and evaluate results of SME-led trainings | Future OLDP | 7/19/23 |

### 7. Impact on the Gap, Standardize, Share:

#### Next steps:

- Currently, the average competency rating of the team on IWTAs is 1.9/5, and the forecasted results after the training with the SME would improve to at least 2.5/5 competency
- Creating transition documents to hand this off to the next project-owner (the future OLDP) to guide them on hosting trainings and check/adjust any improvements. The project-owner can also take action on analysis of results.

red = 1-2/5  
yellow = 2-2.5/5  
green = 2.5+/5



# Resources

## **Book:**

Understanding A3 Thinking by Durward K. Sobek II and Art Smalley

A3 Guide - <https://www.learnleansigma.com/guides/a3-problem-solving/>

A3 Problem Solving Webinar: Learn the 8 Step Approach  
Lean Enterprise Academy (YouTube video)

