Kaizen
PDCA (Plan / Do / Check / Act)
Introductions

• Name

• Department

• Current knowledge of Plan Do Check Act
Aims & Objectives

Target Audience: All!

Purpose of Module:
To train the delegates in the Continuous Improvement Cycle

Aims & Objectives:

- Understand the origins of Plan/Do/Check/Act (PDCA)
- To define the 12 step PDCA approach
- Understand when to apply PDCA
Plan Do Check Act (PDCA) is a framework that provides a methodical approach to problem solving and continuous improvement.

It’s not just a 12 step cycle, it’s a way of thinking!
Why use PDCA?

**Human nature**
- Jump straight to solution mode
- Fight the fires every time
- No common understanding of the real problem
- No measure if the solution is a real success

**vs.**

**Process**
- Allow time to plan
- A structured approach to defining the problem
- Involve the right people
- Test and monitor solutions to ensure goals are met
The PDCA Cycle

1. Select Project
2. Explain Reason
3. Set Goals
4. Prepare Action Plan
5. Gather the data
6. Analyse the facts
7. Develop Solutions
8. Test Solutions
9. Ensure Goals are satisfied
10. Implement Solution
11. Monitor Solution
12. Continuous Improvement

Continuous Improvement Cycle

PLAN

ACT

CHECK

DO
1. Select Project

When selecting a project think about how you can identify that an area requires improvement. What inputs help you recognise if an area is not conforming to the required standard?

Others:-
- FMEA’s
- Risk Assessments
- Customer Feedback
  (Int/Ext)

KPI's

Focused Improvement

Teams (FIT)

IPT meetings
2. Explain Reason

Achieve this by producing an agreed, clear problem statement, that uses facts, and does not mention any countermeasures.

Example

After Process X has finished, the operator on the machine is expected to inspect the product, and then certify in SAP that the process has been successfully completed.

However the Team Leader on Process Y complains that half of the time, products arrive without having the correct certifications, which stops his team from doing their job. He has to spend, on average, 2 hours sorting the problem.

He reckons that this has got worse since they changed the version of SAP used 6 months ago (he and his team still hasn't been trained), and they have taken SAP access away some operators. Production has also risen recently, putting strain on resource.
2. Explain Reason

1. Everyone needs to be trained on SAP
2. More SAP certification access is required
3. More people are required on Process X

Pre-empts countermeasures without understanding the problem – based on opinions not facts

“In the last 6 months, 50% of products arriving at Process Y have arrived without the proper SAP certifications, causing on average 2 hours delay per occurrence”.

States the facts, giving frequency, timescale, and impact.
3. Set Goals

Using the previous example of Process X and Y:

To identify and implement the requirements that will ensure that 75% of products arriving at Process Y have completed certifications within 6 months, rising to 100% by the end of this year.

S.M.A.R.T.!!!
4. Action Plan

Specific actions should be highlighted for completion. The key here is that plans should be time-bound and bought-off by the relevant owner.

**Why** are we undertaking the project?

**What** are we going to do? What data is required?

**Who** is responsible for each task? Who should be involved?

**How** must it be accomplished? How do we review?

**Where** can we find relevant data and facts?

**When** must a task be complete?

...do we need to give feedback?
5. Gather the Data

Gathering data enables us to understand the current situation to discover the extent of a problem. Data provides the information required to analyse a problem.

Data can be collected in a number of ways and forms, depending what you problem are trying to define:

- Interviewing
- Visit the shopfloor – “Go and See”
- Machine Histories
- Risk Assessments
- Customer Returns Data
- Scatter Diagrams, Checksheets - 7 Quality Tools
6. Analysing the Facts

It is important to use the correct tools to define the problem. Only then can relevant data be collected in an appropriate form to allow solutions to be generated and their effectiveness reviewed.

- Checksheets
- Histograms
- Scatter Diagrams
- Control Charts
- Flow Charts
- Cause and Effect Analysis
- Pareto Analysis

- Data Collection
- Data Collection & Analysis
- Analysis Techniques
# Tool Deployment

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Planning for Data Collection

*What* question do we need to answer?

*What* data analysis tools are we going to use and *how* to communicate the results?

*Who* in the process can give us the data?

*What* type of data do we need to answer the question?

*Where* in the process can we get the data we need?

*How* can we collect this data from the individuals with minimum effort and error?

*When* is the data to be provided?

*How* much will it cost to collect the data?

*What* additional information do we need for future analysis?
Develop countermeasures by brainstorming all the potential root causes to the problem.

Remember:- the customer protection is a temporary fix that solves the problem today, the countermeasure is the permanent solution that prevents the problem re-appearing.
7. Develop Solutions

*Tips for Brainstorming:*

Have a clear and understood objective

- Requires group participation
- Quantity not Quality
- No criticism is allowed – no idea is a bad idea
- Do not work an idea during the session
- One person to scribe the ideas onto a board or flipchart
- Piggy back off other people’s ideas
- Think “outside of the box”
- Run a session for around 15 minutes
- Have a break before analysing the ideas
5 Why’s Example

1. Q: **WHY** has machine stopped?  A: Overload tripped out!

2. Q: **WHY** overload trip?  A: Insufficient oil on shaft!

3. Q: **WHY** Insufficient oil?  A: Oil pump inefficient!

4. Q: **WHY** is pump not efficient?  A: Pump drive shaft worn!

5. Q: **WHY** is this shaft worn?  A: Oil filter blocked with swarf!

Root-cause
8. Test Solutions

Once the countermeasures have been identified and prioritised, they have to be tested to assess the effectiveness.

Think about how the success of potential solutions could be measured:

Is a trial required? Who needs to know?
- How many communications sessions are needed?
- How will the issues from the trial be captured?

Maybe more more data need to be collected?

Does this data coincide with that collected to define the problem?
- Is it a KPI, one of the 7 Quality Tools?
- If so, will comparisons be possible to assess impact?
9. Ensure Goals are Satisfied

Assess the success of the tested countermeasure by comparison with the goals set in Step 3

• If the goals have been met, the countermeasure can be implemented.

• If the goals have not been met, then the following should be considered:
  
  Develop the existing countermeasure
  Can additional countermeasures be developed?
  How appropriate are the goals?

*Re-evaluating the goals means a return to Step 3!!*
10. Implement Countermeasures

Ensure everything is done to make a successful countermeasure become the new standard

• If it meets the objective set, then it must become the standard way of working.

• All relevant people informed,

• Training needs to be identified and addressed

• Necessary documentation updated

• Use Standard Operating Sheets to document the new standard
11. Monitor Countermeasures

Continuously gather the data and analyse the facts to monitor the effectiveness of implemented countermeasures

• *Repeat Steps 5 & 6 of the PDCA cycle* to establish the before and after situation.

• Individuals involved need constructive feedback after implementing countermeasures to help maintain continuous improvement.

**Celebrate success!!!**
12. Continuous Improvement

By definition the cycle of improving and ever raising the standards never stops!

- Ongoing process control can be used to ensure the performance of the countermeasures consistently meet the objectives set

- Improvement is infinite!
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..........did we succeed?