### **Continuous Improvement Toolkit**

### **PDCA** (Plan – Do – Check - Act)



#### The Continuous Improvement Map

Managing	Deciding	g & Selecting	Planning & Project Management*
Risk PDPC	Decision Balance Sheet	Importance-Urgency	Mapping Daily Planning PERT/CPM
FMEA RAID Log*	Force Field Analysis	Cost Benefit Analy <mark>sis</mark>	MOST RACI Matrix Activity Networks
Risk Assessment*	Break-even Analysis Ve	oting TPN Analy <mark>sis</mark>	SWOT Analysis Stakeholder Analysis
Fault Tree Analysis	ecision Tree Pick Chart	Four Field Matri <mark>x</mark>	Project Charter Improvement Roadmaps
Traffic Light Assessment	Critical-to Tree QFD	Portfolio Matrix	PDCA Policy Deployment Gantt Charts
Lean Measures Kar	no Analysis Matrix Diagram	Paired Comparison	DMAIC Kaizen Events Control Planning
Bottleneck Analysis** C	Cost of Quality* Pugh Matrix	Prioritization Matrix	A3 Thinking Standard work Document control
OE Process Yield	E <u>KPIs</u> Pareto Analys	sis C&E Matrix	standing Cross Training Implementing
De	scriptive Statistics ANOVA	Chi-Sauara	& Effect Value Analysis Solutions**
	robability Distributions Hypo	thesis Testing	of Experiment Mistake Proofing Ergonomics
	ograms & Boxplots Multi var	ri Studies Confidence	e Intervals Simulation TPM Automation
	aphical Analysis Scatter Plo	o <mark>ts</mark> Correlation Re	egression Pull Flow Just in Time
Understanding Performance MSA	A Run Charts 5 Whys R	Root Cause Analysis Da	
	ontrol Charts Fishbone		
Data collection planner*	Sampling Morphological A	nalysis How-How Dia	gram** Process Redesign Time Value Map
Check Sheets Interview	ws Brainstorming SCAMP		Value Stream Manning
Questionnaires Focus	Groups Affinity Diagram	Relationship Mapping	g* Flow Process Charts Service Blueprints
Data	Mind Mapping*	Lateral Thinking	Flowcharting IDEF0 Process Mapping
Collection Observ	Suggestion systems	Creating Ideas	Designing & Analyzing Processes

- A framework for problem solving, continuous improvement and change.
- Widely recognized as the basis of continually improving the quality of processes, products, and services.
- □ An easy to remember four logical sequence steps:
  - Plan Do Check Act.
- Provides a simple and structured approach for solving quality-related problems.
- Multiple iterations of the PDCA cycle may be necessary to solve the problem permanently and reach the ultimate goal state.





Used to verify the feasibility of a proposed idea whether it is an incremental or a breakthrough improvement.

#### Often used when:

- Intending to make minor changes to a process.
- The solution to the problem is known.



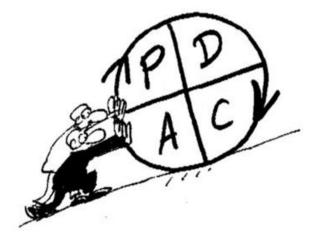
#### **Benefits:**

- Encourages the methodical way of problem solving and implementing solutions.
- Ensures that you plan, test and incorporate feedback before you start full-scale implementation. This brings you closer to your goals as knowledge is increased:
  - From solving problems.
  - From failures.
  - From the feedback received.
- Improves the critical thinking skills of your team.
- Helps to reach towards a more integrated system.

Repeating the PDCA cycle frequently will help implementing
Kaizen and other continuous improvement initiatives.

#### **The following are based around the PDCA philosophy:**

- TQM.
- The ISO standards.
- The A3 thinking process.



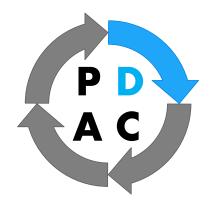
#### Plan:

- The team selects the problem to be solved (or the process to be improved).
- The problem and objectives are clearly identified.
- □ The current situation is analyzed.
- Solution alternatives are identified, selected and scheduled.



#### Do:

- The solution is tested on a small scale basis.
- It involves collecting data for later analysis.
- It also involve measuring progress.
- It ensures the solution is appropriately tested and benefits are validated before committing to full implementation.



#### Continuous Improvement Toolkit . www.citoolkit.com

# - PDCA

#### Check:

- Involves analyzing the collected data and comparing the actual results against the planned objectives.
- □ Allows evaluating how well the solution worked.
- Allows discussing whether further improvements are possible.
- Concerned with identifying the unexpected issues, their causes, and gathering and summarizing the key learnings.

You may need to repeat the **Do** and **Check** a number of times until you get the optimum results



#### Act:

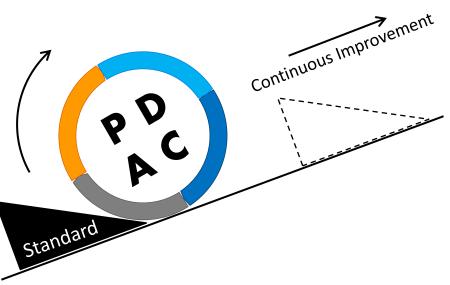
Involves acting on the feedback and lessons learned and implementing the solution fully.

### It is also concerned with:

- Standardizing.
- Documenting.
- Sustaining the improved process.
- Integrating it into the organization's system.



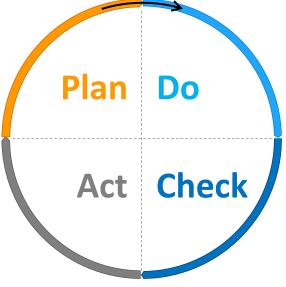
- You may identify the next target and start again at the plan phase.
- The PDCA cycle can be repeatedly applied in a process of continuous improvement where there is no end to it.
- Each cycle will bring you closer to your goals and will extend your knowledge further.



#### **Examples:**

#### **The PDCA cycle can be used in many different situations:**

- When planning to change the supplier of a product or service.
- When trying to implement a new safety program within a facility.
- When planning to conduct a training program to improve certain skills.



#### Example:

 A common example often used is when a design team is planning for a new product development.



### **Further Information:**

- The PDCA cycle is often referred to as the Shewhart Cycle or Deming Wheel as it is defined by Shewhart and modified by Deming.
  - Shewhart and Deming are recognized as pioneers in the quality management movement.
- In 1990, Deming introduced the PDSA cycle (a modified version of the PDCA cycle).
- He believed that data analysis is an essential part of any improvement effort, and checking does not necessary imply an in-depth study.



#### **Further Information:**

- OPDCA is another version of PDCA where "O" stands for observation.
- PDCA relies on trial and error, however, it keeps improving until it achieves excellence.
- □ Maintain documentation for these projects.



#### **Further Information:**

Phase	Useful Tools		
Plan	Gap analysis, fault tree analysis, waste analysis, brainstorming, process mapping, WBS, etc.		
Do	Gantt charts, on-the-job training, conflict resolution, data collection methods, sampling, control charts, etc.		
Check	Graphical analysis, cause and effect analysis, statistics, Pareto analysis, group decision-making technique, etc.		
Act	Gantt charts, check sheets, control charting, control planning, standard work, conflict resolution, etc.		