Continuous Improvement Toolkit

PDCA
(Plan – Do – Check - Act)
The Continuous Improvement Map

Managing
- Risk
- FMEA
- RAID Log*
- PDPC
- Risk Assessment*
- Fault Tree Analysis
- Traffic Light Assessment
- Lean Measures
- Bottleneck Analysis**
- Process Yield
- Capability Indices
- Gap Analysis*
- Reliability Analysis

Understanding Performance
- Benchmarking**
- Data collection planner*
- Check Sheets
- Interviews
- Questionnaires
- Data
- Collection
- Control Charts
- Sampling
- MSA
- Run Charts
- Control Charts
- Brainstorming
- Focus Groups
- Observations
- Mind Mapping*
- Affinity Diagram
- Suggestion systems
- Creating Ideas

Deciding & Selecting
- Decision Balance Sheet
- Force Field Analysis
- Break-even Analysis
- Decision Tree
- Critical-to Tree
- Kano Analysis
- Cost of Quality*
- Descriptive Statistics
- Probability Distributions
- Histograms & Boxplots
- Graphical Analysis
- MSA
- Run Charts
- Control Charts
- Sampling
- Brainstorming
- Focus Groups
- Observations
- Mind Mapping*
- Affinity Diagram
- Suggestion systems
- Creating Ideas

Understanding Cause & Effect
- Importance-Urgency Mapping
- Cost Benefit Analysis
- Voting
- TPN Analysis
- Four Field Matrix
- Prioritization Matrix
- C&E Matrix
- ANOVA
- Chi-Square
- Hypothesis Testing
- Multi vari Studies
- Scatter Plots
- 5 Whys
- Root Cause Analysis
- Fishbone Diagram
- Tree Diagram*
- SIPOC*
- How-How Diagram**
- Attribute Analysis
- Relationship Mapping*
- Lateral Thinking

Planning & Project Management*
- Daily Planning
- MOST
- RACI Matrix
- Activity Networks
- PDCA
- Policy Deployment
- Gantt Charts
- DMAIC
- Kaizen Events
- Control Planning
- Standard work
- Document control
- Cross Training
- Value Analysis
- Mistake Proofing
- Ergonomics
- Simulation
- TPM
- Automation

Implementing Solutions**
- Improvement Roadmaps
- Stakeholder Analysis
- SWOT Analysis
- Track Changeover
- Pull
- Flow
- Just in Time
- Visual Management
- 5S
- Waste Analysis
- Quick Changeover
- Time Value Map

Designing & Analyzing Processes
- Flow Process Charts
- Spaghetti Diagram
- Value Stream Mapping
- Service Blueprints
- Flowcharting
- IDEFO
- Process Mapping
- Designing & Analyzing Processes

Continuous Improvement Toolkit . www.citoolkit.com
- PDCA

- 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.
- PDCA

- 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.
- **PDCA**

**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.
- PDCA

- 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.
- **PDCA**

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

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.
- **PDCA**

- 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.
- PDCA

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.

- **Plan**
  - Plan for the new product development & production process

- **Do**
  - Create a prototype, test it, & collect data from the customer
  - Analyze the collected data to measure customer satisfaction

- **Act**
  - Fully Implement the new design / act on collected feedback

- **Check**
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 necessarily imply an in-depth study.
- **PDCA**

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.
## PDCA

### Further Information:

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