

PDCA



DEFINITION

- An acronym meaning Plan, Do, Check, Act
- A systemic, structured, methodical approach to problem-solving and managing change/continuous improvement
- An iterative **problem-solving*** cycle of plan, do, check, act where input is weighed, tested, and translated into performance-enhancing solutions

Essential to improving performance, PDCA helps you organize data in a way that allows you to explore remedial actions and create standards for new best practices. Following a period of trial and incubation, the cycle is then repeated to find the next best way. Remember to keep experimentation cycles short and apply your learning in the next cycle. These short learning cycles will keep you moving forward.

SCIENTIFIC METHOD

PDCA is sometimes thought to be “shorthand for The Scientific Method,” the universal method used for all scientific experiments. While the specific steps may vary, it provides a process for acquiring knowledge through observation, questioning, translation, testing/experimentation, analysis, and standardization.

6-Step Scientific Method:

- Observe/Form theory
- Question/Research
- Hypothesize/Predict
- Experiment/Test hypothesis
- Analyze data/Draw conclusions
- Share results

[*Click on links provided for words featured in previous Words of the Month \(WoM\)](#)

PDCA – A CLOSER LOOK

The PDCA Cycle is straightforward and tracks the Scientific Method. Each stage in the PDCA Cycle is designed to build off the previous step to provide a cohesive, analytical, problem-solving process:

Plan – Stage 1

- Identify and understand the current state situation
 - What are you looking to accomplish? Targets to improve? Aspirations?
 - What's the scope? Impact of not solving the situation?
- Evaluate, collect data, cause and effect analysis, consider solutions

Consider this: Einstein summarizes the importance of planning and preparation best when he said if given six hours to chop down a tree, he would spend the first four sharpening the axes!

Do – Stage 2

Experiment to test the hypothesis (using small, simple steps), make observations, implement a solution

- Consider what data you need to solidify the solution
- Where, when, who, what, how to experiment
- Define experiment success criteria

Check – Stage 3

Check results of experiment

- What did you learn?
- Did you achieve target results/success criteria?
- What worked? / What didn't work? / What would you do differently?

Act – Stage 4

Draw conclusions, is there a solution?

- Yes — create new ideal standard, diffuse. Then circle back and start the process again to find the next best way.
- No — use results to create new hypotheses... revisit Stages 2-4

PDCA IN ACTION

PDCA is at the core of all foundational continuous improvement tools and practices. *To name just a few:*

- DMAIC (Define, Measure, Analyze, Improve, Control)
 - DMAIC is at the heart of Six Sigma; a 5-step process aimed at solving problems

- A3* (a 7-step process of managing improvement and building capabilities)
- CEDAC (9 Steps of Cause & Effect Diagraming with the Addition of Cards)
- 8D (the 8 disciplines of problem-solving)
- 7 Basic Quality Tools
 - Cause and effect diagraming
 - Check sheets
 - Control charts
 - Histograms
 - Pareto chart
 - Scatter diagram
 - Stratification
- Hoshin Kanri* (7-phases of strategy deployment)
- FMEA (8 steps of pre/post Failure Mode Effect Analysis)

APPLICATION OF PDCA

PDCA is everywhere; it is at the core of our decision-making processes 24-7, in and out of the workplace, in business, healthcare, education, law enforcement, sports, finance, military, home life, etc. As you consider these examples, think about how PDCA is currently ingrained in your daily life, often without your even realizing it, and how it can be more frequently applied:

- **Military:** In the 1960's, Colonel John Boyd (the "father of the F16" fighter jet), developed a concept called The OODA Loop (Observation, Orientation, Decision, Action) based on the PDCA cycle where Planning, Doing, Deciding, and Acting, gave pilots competitive advantage by allowing them to make rapid, quality decisions to quickly adapt in complex, changing environments.
- **EH&S:** this brief article from the ProErgonomics newsletter, "[Improve the Workplace One ACT at a Time,](#)" illustrates the use of PDCA in applying ergonomics in the workplace.
- **Healthcare:** check out this quick-read article from the [National Library of Medicine](#) which reports on how PDCA was successfully used to help with hand hygiene compliance in a private hospital.
- **At home:** plan daily activities, set goals, plan family trips, make a household budget, etc.

BENEFITS OF PDCA IN THE WORKPLACE

Adopting a PDCA methodology is foundational to creating a culture of problem-solvers and systems-thinkers, where continuous improvement is part of daily work.

Benefits include:

- Faster recognition of and correction of errors
- Elimination of waste and reduction in costs
- Increased end-to-end process performance
- Embracing and sustaining a problem-solving culture
- Embedding a cycle of continuous improvement in standard work routines
- Improved clarity and translation of company's vision into action
- Improved team work, morale, and decreased turnover
- Increased customer satisfaction

HEADS UP - A WORD OF CAUTION

Be aware of these common oversights and/or mistakes when applying the PDCA methodology:

- The PDCA cycle is not a one-off iteration; rather, it must be repeated, on an ongoing basis, to continually test, modify, and update processes. Do not overlook making PDCA part of SOP development.
- The PDCA cycle may require a longer-term solution requiring time, commitment, and patience.
- The overriding PDCA objective is improvement, not necessarily big wins.
- PDCA has 4-stages; there is a tendency to skip Check and Act. The power of PDCA lies in the aggregate of doing all 4 stages; doing all 4-stages will enhance sustainment.
- Be sure to gather input/data from a broad breadth of relevant resources.
- The PDCA approach to CI can be especially useful to help keep you on course and engaged in improvement activities that are linked to strategic objectives.
- PDCA is a structured approach that does not adapt well to short-cuts.
- Remember, when revisiting the PDCA cycle for an existing project, the starting point of each new iteration is with the data from the previous PDCA cycle.

PLAN—DO—CHECK—ACT or...?

Production Delayed, Chaos Ahead. Mike and his team spend their days conversing in "Lean speak" – the common language shared by those in the manufacturing world punctuated by an endless stream of acronyms, abbreviations, and industry-specific jargon. Over time, they've come up with their own sub language, complete with creative interpretations of commonly used acronyms:

- KPI (Keep Pretending It's Working)
- OEE (Often Exaggerating Efficiency)
- SMED (Seriously, More Extended Delays?)
- MTBF (Minimal Time Before Frustration)
- MTTR (Moments til Technicians Respond)
- FIFO (Find It, Forget Others)
- JIT (Juggling Inventory Thoroughly)
- LOL (Lots of Leaking)
- OMG (Overstated Measurable Gains)
- WTF (Where's the Forklift?)
- ROFL (Running Out of Finished Products)
- GTG (Got to Grease)
- BTW (Busted the Weld)

All was good until a recent hire mistakenly asked the supervisor, "WTF?" OMG, no one's ROFL now. Looks like it's back to the old school way of communicating...

FAMOUS QUOTES ON PDCA

"Eighty-five percent of the reasons for failure are deficiencies in the systems and process rather than the employee."

W. Edward Deming

"PDCA is all about learning and building capabilities."

Productivity Inc.

They used a scientific method to decide which new product idea to use.

