

AI-04579 PDSA Cycle

#problem, #cmp

Explain the PDSA Cycle

The **PDSA Cycle (Plan-Do-Study-Act)** is a four-stage, iterative scientific model used for continuous process improvement and organizational learning. Developed originally by Walter Shewhart and popularized by W. Edwards Deming, it functions as a practical framework to test changes on a small scale, evaluate the outcomes, and refine process parameters before full-scale implementation.

The Four Phases Breakdown

1.Plan:Establish objectives and operational hypotheses.

Define the core problem, establish concrete performance metrics, and formulate the hypothesis.

- Identify the expected outcomes (**predictions**).
- Determine what data needs to be collected.
- Design the test procedure on a controlled, small scale to minimize systemic risk.

2.Do:Execute the pilot run and observe.

Carry out the experiment or process modification on a limited scale.

- Document unpredicted occurrences, operational roadblocks, and anomalies.
- Gather qualitative and quantitative observational data as defined in the **Plan** step.

3.Study:Analyze results against initial predictions.

Compare the empirical data gathered during execution against the baseline measurements and original predictions.

- Evaluate whether the change resulted in measurable, statistically valid improvement.

- Determine what root causes led to unexpected gaps or variations.

4.Act:Implement standardized adjustments.

Based on the analysis, select one of three operational pathways:

- **Adopt:** Standardize the change across systems if the trial succeeded.

- **Adapt:** Modify specific variables and rerun the PDSA cycle if partial improvement occurred.

- **Abandon:** Discard the test model if it failed to yield viable results, retaining learned failure data for future cycles.

PDSA vs. PDCA: A Key Distinction

While often used interchangeably, there is a fundamental philosophical distinction between **PDSA** and **PDCA** (Plan-Do-Check-Act):

Parameter	PDCA (Check)	PDSA (Study)
Primary Focus	Quality control and inspection	Systemic learning and hypothesis testing
Analytical Approach	Binary compliance (Pass/Fail relative to targets)	Deep analysis of why results matched or deviated from predictions
Originator	Walter Shewhart / Japanese Quality Movement	W. Edwards Deming

The emphasis in **Study** is placed on gaining deeper system insight rather than simply auditing performance against static standards.

