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## Turning PDCA into a Routine for Learning



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## **Abstract:**

Mistakenly, many people think plan-do-check-act (PDCA) is a continuous improvement cycle, even if they neglect the human part. PDCA does aim to improve the process, but if you have only improved the process without developing and teaching your people, you have put the process at risk of slipping back. People must be trained in the culture of continuous improvement so they can keep managing the process with the new method.

PDCA is actually a remarkable learning cycle because people learn by doing. The best thing is to pick up a real project and start improving a process (Soliman, 2016). You don't learn to play football by watching a game or golf by watching the coach. You have to practice under the watchful eye of the mentor to develop new habits and change the bad ones. An attentive coach is critical to helping you make a new method become routine.

Toyota has several steps in its problem-solving process, steps that cycle through the famous PDCA wheel (Liker, 2012):

1. Define the problem relative to the ideal (plan).
2. Grasp the current situation (plan).
3. Break down the problem into manageable pieces (plan).
4. Find the root cause of the problem (plan).
5. Develop countermeasures (plan).
6. Implement the solution (do).
7. Examine what the actual outcomes are (check).
8. Adapt, adjust, standardize and scale the solutions to other areas (act).

**The plan phase** is invoked five times before proceeding to the do phase. This is to ensure both the quality of the implementation and that the selected countermeasure will solve the problem. Lean emphasizes the plan. And the plan phase cannot be created without a daily observation at the gemba to find the root causes, gather facts, discuss things with the process operators and develop the best countermeasure from different alternatives.

Unfortunately, many leaders jump into the do phase without spending enough time observing the situation to find the real problem (Liker, 2015). The most enjoyable part for the leader is the "do," but jumping to the do usually results in a quick fix that not only might not solve the real problem, it could create wastes in other linked areas.

Jumping to the do phase can escalate the problem and make the solution very costly. Imagine the example of electrical problems in automobiles. In this case, the technician decided that the problem was in the spark plug coils pack. Changing that costs \$350 dollar. Unfortunately, that wasn't the problem – a faulty engine control unit (ECU) was. Replacing the ECU cost \$1,500. The waste in time, effort and resources led to a total cost of more than \$1,850 (Soliman, 2014).

**Define the problem relative to the ideal** to find the current and ideal states. You might consider your quality ratio of 97 percent good, but any gap between the current state and what could be reached is an opportunity for your competitors. One of the main failures in this step is how people hide their problems because they fear blame. There is no culture of visualizing problems and surfacing issues. This always makes it difficult to define the problem and discover the gap between the current state and the ideal state.

**Grasping the current situation** is critical. Management decisions should be based on facts, not simply metrics or computerized reports. This is why it's so important for managers to go the gemba to see what reality is. Watch the process and look to solve the problem, and remember not to blame the people (Ahmed, 2014).

**Break down the problem into manageable pieces.** We have seen many companies set targets and cascade them down to the bottom levels. The leaders below are responsible for achieving this target in a timely manner. Top management may blame leaders if this target has not been achieved on time. Upper management also often sets too big of a target, such as an 80 percent improvement in quality improvement this year instead of 20 percent improvement for four years.

This is another example of poor management habits. Psychological experiments have proved that people tend to make progress on concrete, small goals rather than complex, large ones. Seeking large improvements at once will cause a system failure, especially when people are new to process improvement. Leaders have to be patient. Breaking down the target into small increments will encourage people to participate and act.

**Finding the root cause of the problem.** Remember that at first glance the problem can appear to be a person. But leaders have to dig deeper to find the true root cause. Overconfidence is one of the biggest barriers to problem-solving. Leaders think they know how to fix things and will follow the problem-solving process at a superficial level. Without the true root cause, you probably will build a plan and invest in resources for something that is not going to work.

**Select the suitable solution from different countermeasures** that you have received from people involved in the process and from different perspectives. Lean encourages selecting a solution from different alternatives. Prioritize your options and select the countermeasure that has the highest chance of success. Perhaps you can choose one that is easier to try and relatively inexpensive. Then you have to develop your plan on who, when and where.

However, it is possible that spending time in the plan phase will not reveal the proper solution. At this point, a small pilot project might be necessary in an attempt to reveal the appropriate countermeasures.

**Do:** Only then can you go to the “do” phase and implement the countermeasures. Be careful, as many managers think that this phase is the end of the issue, and once they pushed the button the system will go live and run forever. Keeping the process monitored is necessary. Continue coaching and supporting people to avoid slipping back (Soliman, 2015).

You should also use metrics and post them in the workplace. This helps align people to common targets (Ahmed, 2013). Those metrics should be visualized in the workplace using visual boards. Later, the progress should be updated and discussed regularly. Use colors for in-progress targets and for the achieved targets. The metrics give a starting point to your workforce. What is our measurable target? Where are we? Where do we want to be?

**In the “check” phase,** remember that after implementing the solution, people will not always continue in the same way as you wished. They won't follow the standard all the time. Supporting people, continuously monitoring them, coaching them and developing them until the new way becomes a routine is the key to a perfect solution. You may not achieve this in the first PDCA

cycle. So you have to repeat it continuously and keep supporting people until the new standardized process becomes a routine.

**The “act” phase** is where the start of the next cycle begins. Your next plan will be based on the feedback you received from the “check” stage. In this phase you should figure out what did work, what didn’t and standardize what worked.

### **PDCA and the New Routine for Learning**

The key success of Toyota’s continuous improvement process is the effort that managers or leaders put in people development through the PDCA cycle (Liker, 2012). It is a remarkable learning cycle. As you go through each PDCA, you will learn different and higher levels of skills. This should be done under the eye of the mentor. Practicing new behaviors will shift the employees out of their existing routine and, over time, influence people’s thoughts and actions. In the long term, repeated new habits can lead to a culture of continuous improvement. People should follow plan-do-check-act so often that it becomes a natural way of thinking.

If a problem crops up that you thought had been solved, the proper question would be have you rotated the PDCA wheels enough times? PDCA needs to spin a lot before you reach your target, achieve a stable process and form new habits.

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