

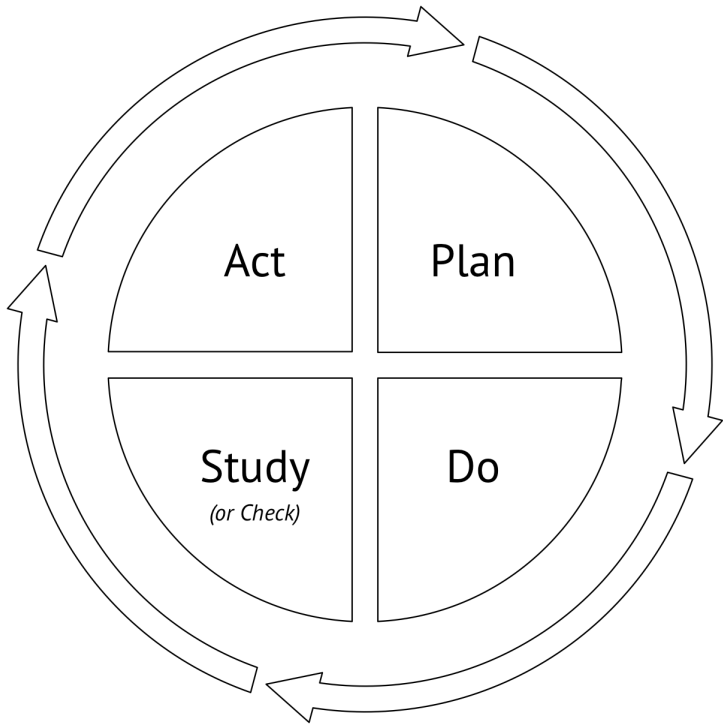
A3 8-step problem solving worksheet

Problem



Responsible person	People involved	Date			
1 Clarify the problem (Plan)			5 Develop countermeasures (Plan)	6 Run experiments to validate countermeasures (Do)	
Current situation					
Desired situation					
2 Break down the problem (Plan)					
3 Set the target (Plan)			7 Monitor results from experiments (Check)		
4 Root cause analysis (Plan)			8 Standardize successful countermeasures (Act)		

PDSA cycle



PDSA in action

Identify the problem you want to solve (*Plan*)

Develop a countermeasure to remove the problem (*Plan*)

Develop an experiment to test your countermeasure (*Plan*)

Run the experiment and notice the results (*Do*)

Analyze and learn from the results (*Study*)

Confirm or reject the theory (*Act*)

- a. If the experiment was successful... standardize adoption of what you learned.
- b. If the experiment was not successful... no problem! Create a new experiment to try.

Getting started

Fill in the names of the responsible person, everyone who has been involved in the A3, and date(s) when work has happened.

The responsible person is someone who can answer questions about the A3, and who will handle coordination, communication, and scheduling.

1. Clarify the problem

Express the gap in a quantitative way: how many? how much of the time? Connect the problem to the organizational purpose or to the customer value created by the work.

Can you draw a picture to help people see the ideal situation and how it's different from how things are today?

2. Break down the problem

At this time, don't ask why, and don't look for root causes. Instead, look for the point of occurrence:

- a. Where does the problem actually happen?
- b. Can you go to the place where work gets done and validate what you've found?

End when you can explain specifically where the problem occurs, and put the explanation in this box. Consider using a tree diagram.

3. Set the target

The target should address whatever is happening at the point of occurrence you identified in step 2.

If you're stuck, write a sentence beginning with a words like "reduce", "increase", or "maintain". Avoid words like "develop", "create", or "implement".

4. Root cause analysis

Determine the root cause of the problem. Begin by identifying many possible root causes (possibly using a fishbone diagram).

If you see something that seems like the "real" root cause, use the 5 whys to validate your thinking.

5. Develop countermeasures

Identify as many countermeasures as you can. Explain the A3 to people and ask them what they think or for their ideas.

Ensure that countermeasures actually address the root cause, and not a symptom or some other problem entirely.

Go to the place where the work gets done!

After you have a list of countermeasures, prioritize them and choose just one to design an experiment around. If it is difficult to prioritize, consider using a PICK chart.

Keep the other countermeasures on the A3 — they are valuable ideas for what else might be done to close the gap in step 1. Clearly label or mark the countermeasure you would like to validate using an experiment.

6. Run experiments to validate countermeasures

Create a specific, direct, and clear action plan for what you will do to try out the countermeasure and see whether it moves you towards the target in step 3.

Seek the smallest possible demonstration of the countermeasure. What's the smallest number of people or shortest period of time needed to see if this approach works?

Write up a sequence of steps for trying it out, identifying:

- a. What needs to happen,
- b. Who needs to be involved,
- c. Who will be responsible, and
- d. Information about timing or dates.

How will you know whether the experiment is successful? Build in any data collection and specific times for review.

Final reality checks:

- a. Consider whether this might cause a new problem.
- b. Consider whether this might get in the way of creating value for customers, or be disrespectful to people inside or outside your organization.

7. Monitor results from experiments

The plan in step 6 should identify where and when to look for results. Record these, along with any other observations or discoveries, over the course of the experiment.

8. Standardize successful countermeasures

Complete this after the experiment is done.

What can you do to standardize what you have learned?

What results or discoveries could you share with others?

Make a recommendation for the next step towards closing the gap identified in step 1. Should we...

- a. Go back to the point of occurrence from step 2?
- b. Revisit or adjust the target set in step 3?
- c. Look for a different root cause in step 4?
- d. Experiment on another countermeasure from step 5?