



Five Why Problem Solving Toolkit

Five Why is a simple and effective problem-solving tool that uses the knowledge and experience of frontline team members to discover the root cause of problems impacting their work. Once the problem and its root cause are understood, a plan can be put in place that improves the work process so the same problem does not happen again.



How to Five Why in 5 easy steps:

1. Assemble a team of people who are familiar with the problem and the process you're trying to improve. Include people who do the work and will have to live with the improvements you've made.
2. Define the problem as simply as possible. Get agreement and buy-in from the team.
3. Ask the first "Why?" by asking the team why the problem defined in step two is occurring. You may get several answers. It is alright to go through the five whys more than once if there isn't agreement at this stage.
4. Ask "Why?" again and again to examine the answer to your previous "Why?" Keep going until you get to the root cause.
5. Develop a corrective action that addresses your root cause and check to make sure your corrective action actually improves the process.

Use the form on the back of this tool to work through your problem, answers, and corrective action.

What is the problem?



Why did this happen?

Root Cause?
No

Why did this happen?

Root Cause?
No

Why did this happen?

Root Cause?
No

Why did this happen?

Root Cause?
No

Why did this happen?

Possible solutions
& countermeasures:

*Continue if needed:

Why?

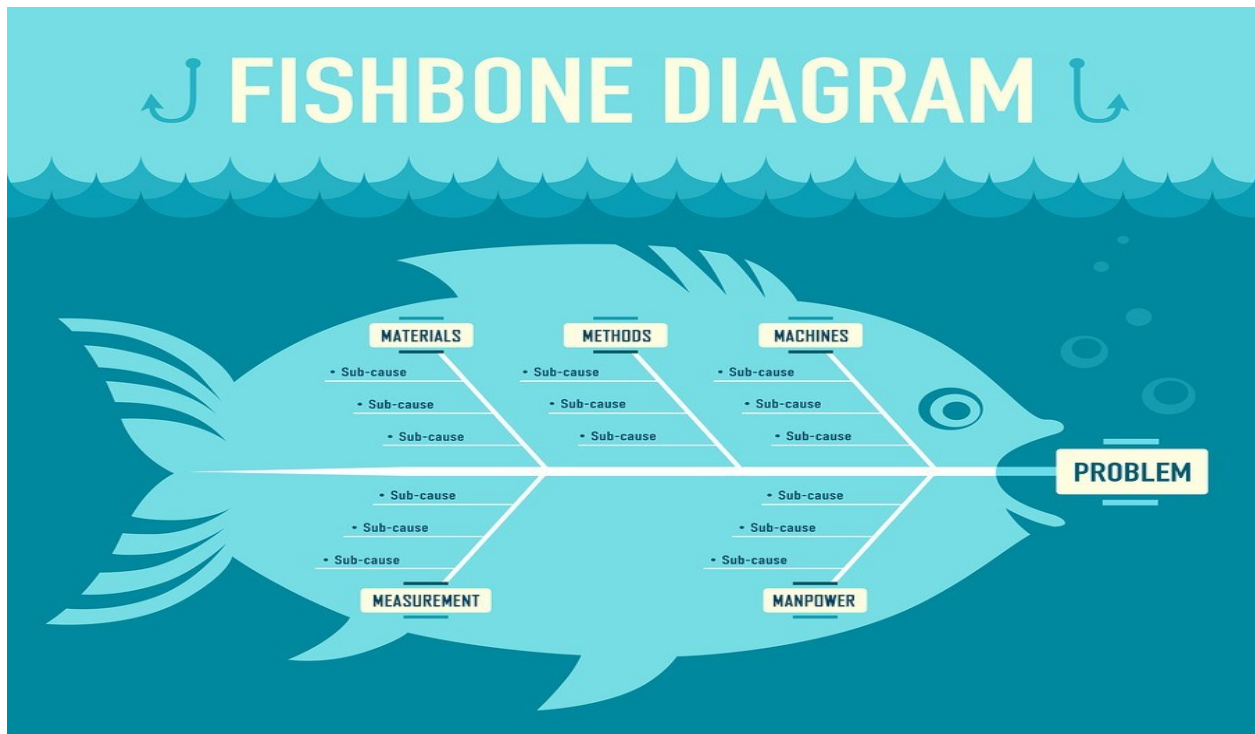
Root Cause?
No

Why?



Fishbone Problem Solving Toolkit

The Fishbone Problem Solving Tool uses the knowledge and experience of frontline team members to discover the root cause of problems impacting their work. Like the Five Why tool, it helps determine root cause, but it allows users to examine different reasons that the problem occurred. Once the problem and its root causes are understood, a plan can be put in place that improves the work process so the same problem does not happen again.



How to use the Fishbone Problem Solving Tool in 5 easy steps:

1. Assemble a team of people who are familiar with the problem and the process you're trying to improve. Include people who do the work and will have to live with the improvements you've made.
2. Define the problem as simply as possible. Get agreement and buy-in from the team. Write the problem at the head of the fish.
3. Select categories for possible causes of the problem. Traditional categories are: Materials, Methods, Machines, Measurement, and Manpower, but you can use whatever works best for you. Write each cause category on one rib of the fish.
4. For each category, ask "Why?" that might be the cause of the problem. Ask, "Why?" again and again to examine the answer to your previous "Why?" Keep going until you get to the root cause.
5. Develop a corrective action that addresses your root cause or causes and check to make sure your corrective action actually improves the process.

Use the form on the back of this tool to work through your problem, answers, and corrective action.

Category 1:
Why?
Why?
Why?

Category 2:
Why?
Why?
Why?

Category 3:
Why?
Why?
Why?

Category 4:
Why?
Why?
Why?

Category 5:
Why?
Why?
Why?

Category 6:
Why?
Why?
Why?

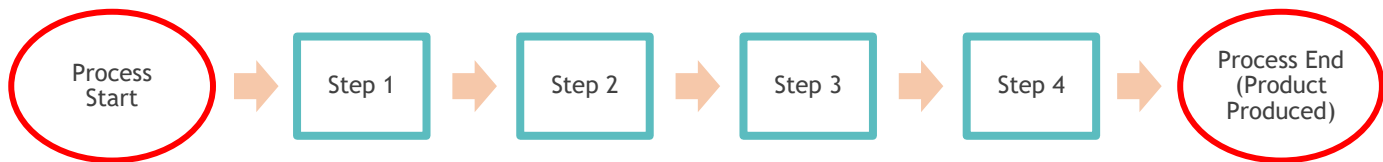
Problem:



Process mapping is a tool that lets you understand the key steps and decisions that make up your current work processes and allows you to identify wasteful steps that don't add value so that they can be removed, resulting in a more efficient process.

How to do process mapping and Waste Reduction in 5 easy steps:

1. Assemble a team of people who are familiar with the process you're trying to improve. Include people who do the work and who will have to live with the improvements you've made.
2. Decide what the beginning and ending points are in your process and then draw out the steps and decision points that connect the beginning and end points like a flowchart. Like this:



3. Identify steps that don't add value to the process by using the 8 wastes of Lean.

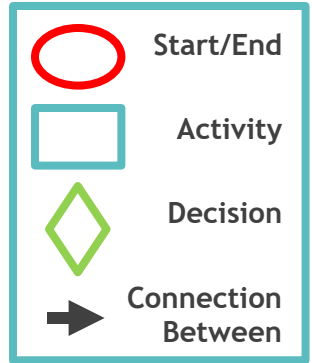


4. Re-write the process without wasteful steps. You may need to modify the steps that remain.
5. Implement the new process and check to make sure that your new process actually improves performance and efficiency.

Use the form on the back of this tool to work through your Process Mapping and Waste Reduction.



Process Start



Start/End



Activity



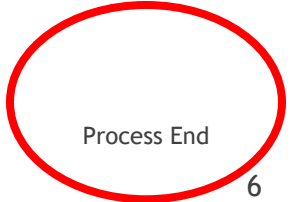
Decision



Connection
Between

8 Wastes of Lean:

- Defects
- Overproduction
- Waiting
- Non-Utilized Talent
- Transportation
- Inventory
- Motion
- Extra-Processing

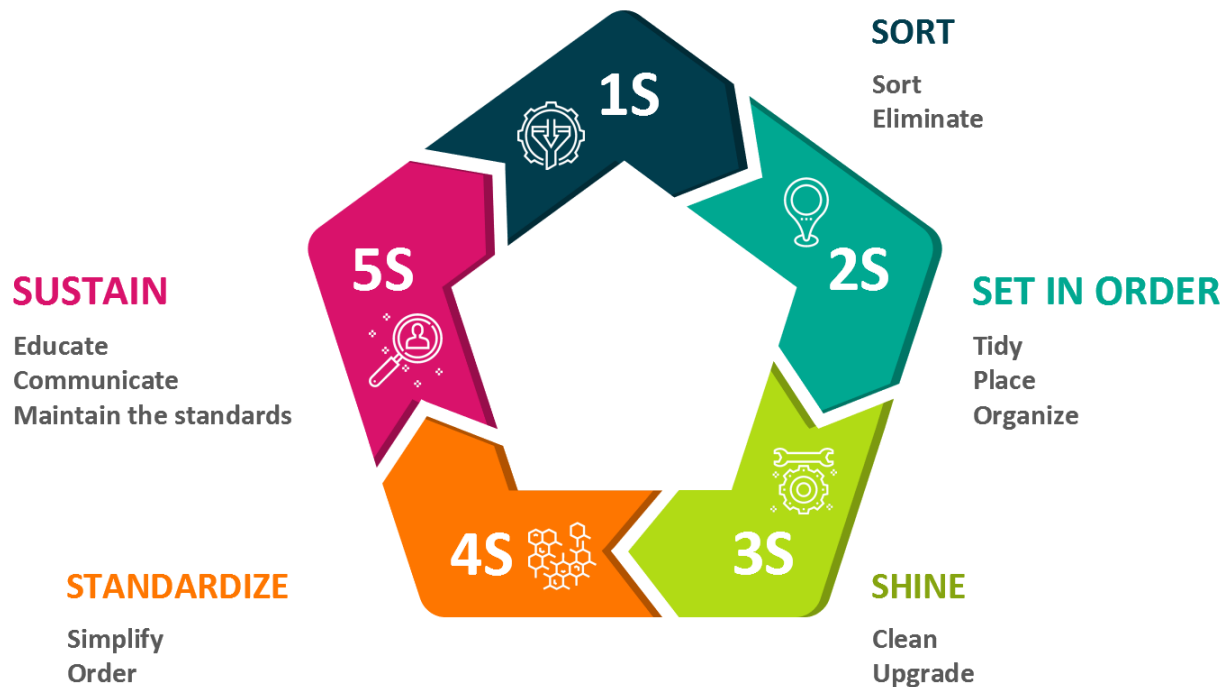


Process End



5 S Problem Solving Toolkit

In a 5 S workplace, there is a place for everything and everything is in its place. Workplaces can be organized so that they are clean, organized, orderly, safe, efficient, and pleasant. This results in improved quality, fewer accidents, and greater efficiency.



How to use 5 S Methodology in 5 easy steps:

1. **Sort** items in the workplace into those that are needed, and those that are not. You should do this with a team of people who use the tools and workspace regularly and will have to live with the improvements you've made.
2. **Set in order** by organizing whatever remains from the previous step. Items should be neatly arranged and identified or labeled.
3. **Shine** by cleaning the workspace and items that were organized in the previous step. As part of this step, you should define and document what clean looks like.
4. **Standardize** the workspace by making a set of rules or procedures to keep 5 S going. This could include a schedule for sorting and cleaning in the future.
5. **Sustain** your 5 S program. Create and implement a plan for communicating how to use the 5 S system, expectations for use, and auditing to ensure things are being sustained.

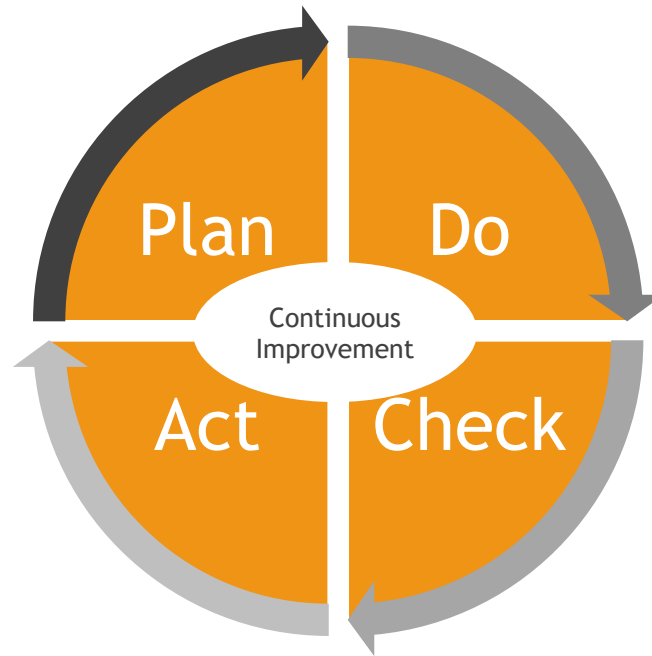
Examples on the back of this page show before and after images of 5 S workspaces





Plan Do Check Act (PDCA) *Problem Solving Toolkit*

The Plan-Do-Check-Act cycle is an easy tool for carrying out change and improving processes. By looking for opportunities for improvement, planning a better way to do things, testing the new plan and measuring and analyzing the outcome of the test, and then putting the improvements in to broad practice, you can improve your work processes to improve efficiency and effectiveness. When repeated as necessary, the PDCA cycle drives continuous improvement.

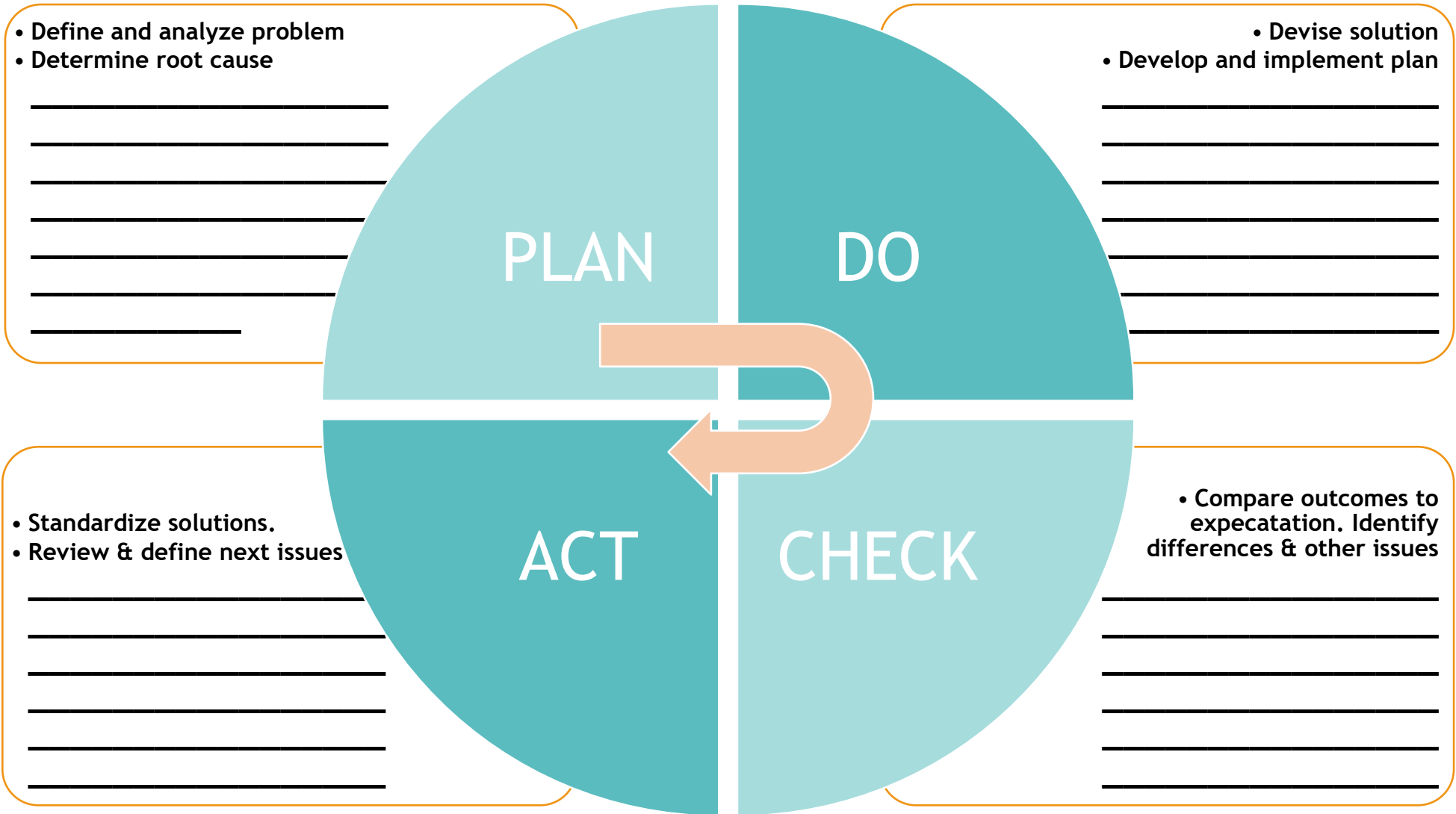


How to use PDCA in 5 easy steps:

1. Assemble a team of people who are familiar with the problem and the process you're trying to improve. Include people who do the work and will have to live with the improvements you've made.
2. **Plan**—Using your own experiences and observations, recognize an opportunity for improvement and plan a change that should improve that process
3. **Do**—Carry out the plan and test the change. This can be done with a small-scale study or for a limited time, so it isn't too disruptive to your normal operations. Measure your performance before and after carrying out the changes.
4. **Check**—Review the data you've collected during your test. Analyze that data to learn if the change you've made has improved your performance. Identify what you've learned.
5. **Act**—Take action based on the results of your test and analysis. If your process has improved, make the changes permanent and consider using them in other processes. Be sure to share your successes with other groups.

PDCA is a cycle. You really aren't done when you get to step 5, you're just ready for the next cycle. Repeat the PDCA cycle as often as necessary.

Use the PDCA template on the back of this page for your next continuous improvement project





ShowMe
EXCELLENCE

Measures and Targets Problem Solving Toolkit

Measures and targets can be used to monitor and control a work process so that quality and efficiency can be improved. Before we can make changes to improve a process, we need to understand how efficiently the process runs before the changes are made so we can see the impacts our changes have made.

Frontline supervisors and staff may find tactical measures and targets particularly useful. They can be used to help teams analyze their own performance by measuring a particular business process in detail. By understanding measures over time, such as how long it takes to get one unit of work done or how much of the work is done correctly the first time, processes and decision making can be improved.

DEFINE THE ACTIVITY, QUALITY, IMPACT, AND EFFICIENCY MEASURES FOR YOUR PROGRAM USING SMART MEASURES



PROBLEM

What specific need is your program addressing?



ACTIVITY

Is the organization doing what it said it would do?



QUALITY

Is the activity done well?



IMPACT

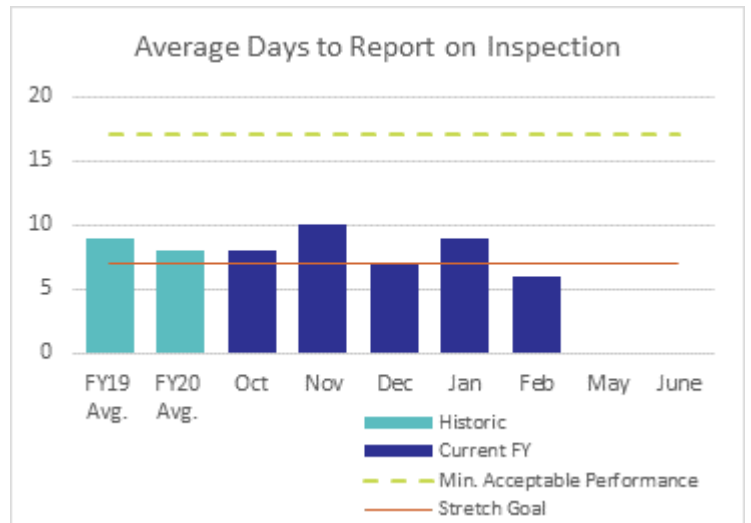
Does it deliver? Is the activity causing meaningful impact?



EFFICIENCY

Is it worth it? How much effort is invested to achieve the impact?

Here's an example of measures and targets being used to measure the cycle time of inspection report writing. The thing being measured, average days to issue inspection reports, goes on the vertical axis. Each data point goes on the horizontal axis and shows changes in performance over time. Targets (or goals) are indicated by the minimum acceptable performance and stretch goal lines.



How to use Measures and Targets in 6 easy steps:

1. Assemble a team of people who are familiar with the problem and the process you're trying to improve. Include people who do the work and will have to live with the improvements you've made.
2. Determine what you're going to measure. This sounds easy, but if you don't measure the right thing, you won't know if your process improvements are really working. Good metrics are easy to measure and simple to understand.

3. Determine a baseline for your metric by either using existing data or by measuring current performance to obtain that data. If you're going to measure the effect of a process change, baseline data will help you determine how the process performed before making any changes. Plot your baseline metrics on a graph and post it somewhere the team can see it.
4. Make a change to your process. It is important that you only make one change at a time so it will be clear what is impacting performance.
5. Measure the performance of the improved process using the same metric you developed in step 2. Add the results to your chart from step 3.
6. Look for trends in your data. Did your change make your performance better or worse? If things are better, keep it in place. Is there no change, or are the changes seemingly random? Keep collecting data to look for trends over time.

S SIMPLE	<ul style="list-style-type: none"> • Does it have a clear definition? • Is it straightforward and easy to understand?
M MEASURABLE	<ul style="list-style-type: none"> • Is it easy to measure? • Can it be benchmarked against other organizations or outside data?
A ACHIEVABLE	<ul style="list-style-type: none"> • Do we understand the drivers that are behind the measure? • Can we take action to deliver impact?
R RELEVANT	<ul style="list-style-type: none"> • Is the measure aligned with the State's and/or the department's strategy and objectives?
T TIMELY	<ul style="list-style-type: none"> • Is the time to impact defined and is it practical? • When will we monitor it? Can the measure move between periods?

Use this form to track your measures and targets:

Measures and Targets Title: _____

Measurement Unit: _____

Time: _____



Vision

Developing a culture of problem solving at all levels of your organization goes beyond just ensuring your teams are aware of problem-solving tools and are equipped with the skills to use them. Confidence and comfort using problem-solving tools and strategies is key, and isn't always gained through a one-time, generic training. **You can work to truly instill a proactive problem-solving culture at your frontlines by cultivating a community of practice for frontline supervisors in your department.** Through the community of practice, frontline supervisors will gain experience and confidence using tools and strategies to address problems that are specific to their frontline teams. In turn, frontline team members will learn-by-doing and gain confidence using the tools themselves in their day-to-day work.

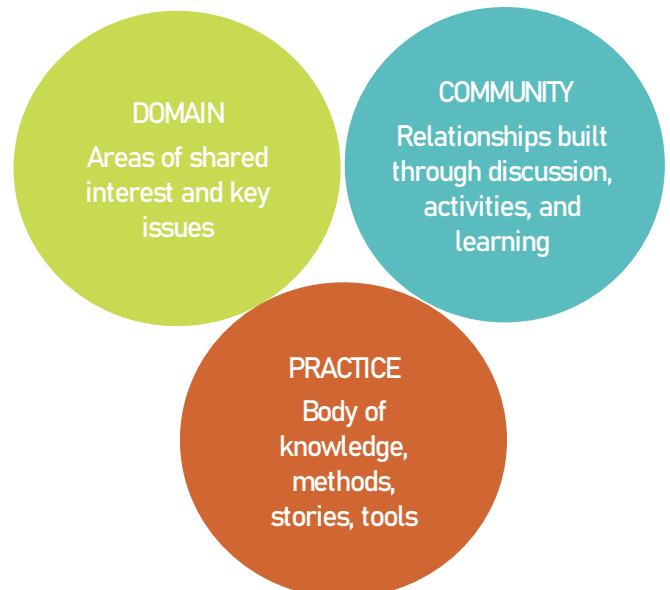
Cultivating a community of practice will look different from department to department. These communities are inherently unique dependent on local context: whether your OpEx program is well-established or nascent, whether your frontline staff are all white-belt certified or are unfamiliar with problem-solving tools. This practical guide will help you cultivate a community of practice that fits the specific needs of your department.

Communities of practice defined

A community of practice is a group of people informally bound together by shared expertise and passion for a joint enterprise - in this case, empowering frontline problem-solving. Communities of practice are focused on building and sharing knowledge among practitioners. This knowledge is built and sustained by action-learning: taking new concepts and ideas, applying it to what's relevant to you and your team, and integrating it into your own experiences. They feature collaborative activities designed to build member skills, which over time will increase the overall capability of the organization. In these communities, practitioners connect to solve problems, share ideas, set standards, build tools, and develop relationships with their peers.

Communities of practice have a few key ingredients:

- Domain
 - Focus on a specific area, such as frontline problem-solving
 - Complement formal institutions by crossing structural boundaries
- Community
 - Members opt-in, united by a shared passion and commitment to growth
 - A variety of gatherings and connection points to build and sustain relationships
- Practice
 - Learn, share, and practice methods, techniques, stories, and tools
 - Institutionalize knowledge and skills



Recommendations for cultivating a community of practice

At the beginning, it's great to focus on building and strengthening relationships to establish psychological safety within the community. After that, sharing stories is a low-cost, high-impact way to accelerate tailored learning and practical application. With time, you'll need to also ensure that you measure value and grow your membership in order to sustain community. The recommendations below are meant to help you incrementally build your frontline supervisor of practice. They aren't prescriptive or exhaustive, just some tips and tools to help you get started.

Phase of development	Objectives and tasks	Examples
Build the foundation	Define domain	<ul style="list-style-type: none"> Increasing proactive problem-solving in frontline teams by empowering frontline supervisors with knowledge and experience
	Fill key roles	<ul style="list-style-type: none"> Sponsor: OpEx leader Champion: Department leader Coordinator: can be OpEx leader to start and then transition to a rotating position
	Grow membership	<ul style="list-style-type: none"> Start small Utilize existing groups (e.g. belt certification, training cohorts, regional teams) Spread via word of mouth and/or existing networks
Establish the community	Community kick-off	<ul style="list-style-type: none"> Convene in-person (ideal) or virtually Utilize break-out groups to forge new relationships and encourage dialogue Collaboratively develop goals for the first year (e.g. learn about common tools, learn how to translate tools to my team's needs, develop a peer support system) Develop a shared learning framework (e.g. work through the Problem Solving Tool Kit)
	Identify modes of connection	<ul style="list-style-type: none"> Email groups: community coordination Quarterly in-person meetings: build trust, foster sense of shared mission, increase productive participation Monthly virtual meetings: interactive problem-solving, on-demand education, expert speakers Digital hubs: share resources, document activities Regional chapters: regular lunch outings to connect and share stories
Steward the community	Share stories	<ul style="list-style-type: none"> Identifying stories to share: start small. You can share examples from your own work. You can solicit stories from community members. You can even "create" stories for community members by facilitating group exercises of real-world problems relevant to your department. Make sure you don't

		<p>just share success stories - we learn just as much from failed efforts and works in progress.</p> <ul style="list-style-type: none"> ○ What to share: the problem, the context, the tool used, how you used the tool (worksheet, whiteboard), what did the conversation sound like (details help!), what challenges and roadblocks you faced, did you encounter any a-ha moments, and of course, what was the result? ○ How to share: Story-sharing can be a part of any or all of your community modes of connection. Make sure your community members have opportunity to engage with the story-tellers (asking questions, seeking advice)
	Other community activities	<ul style="list-style-type: none"> ○ Group problem-solving ○ Community projects (e.g. develop department-specific guides, tools, or templates) ○ Community training sessions ○ Site visits
Sustain the community	Enhance visibility and renew interest	<ul style="list-style-type: none"> ○ Champion a single tool department-wide (e.g. at all-staff meetings, community members can demonstrate the tool and share their on-the-job stories)
	Measure value	<ul style="list-style-type: none"> ○ Document success stories in a simple format (e.g. a spreadsheet containing the team, the problem, the tool, the solution) ○ Conduct community surveys
<p>Sources:</p> <ul style="list-style-type: none"> • Communities of Practice: The Organizational Frontier (hbr.org) • Communities of Practice: A New Tool for Government Managers (Snyder and Briggs 2003) 		

Further recommendations

Before or while you are cultivating a community of practice, you can also foster additional ways for staff to experience the problem-solving tools in action and to learn by doing. You can supplement more generic continuous improvement trainings by strategically incorporating problem-solving into regular interactions. This more tailored approach will allow you to meet individuals and teams where they are and then walk them through solving problems that are relevant to their own work. These learning-by-doing interactions can take many forms, some examples that you can encourage and facilitate are listed below:

- **OpEx lead to team leaders:** Walk through the tool in short one-on-one or small group sessions with problems unique to them or their type of work. Repeat several times with different examples to ensure the team leader is confident using the tool.
- **Team leaders to team:** After building confidence with the tool, team leads should encourage its use among the team. Guide team members to look for problems, think critically when issues arise, and facilitate the use of the tools to identify root causes and solutions.

- When thinking about a problem, supervisors should encourage team members to use a critical thinking mindset:
 - What is the key issues you're trying to solve?
 - What do you already know about it?
 - How do you know that? Be sure to recognize your assumptions, looking extra closely at processes that have "always been done this way"
 - What are you overlooking?
 - How does it relate to the bigger picture?
- **Peer to peer:** Create opportunities for individuals/teams to see the tools in action. Huddles and cross-team meetings can be opportunities for real time problem solving that individuals outside the group can sit in on.