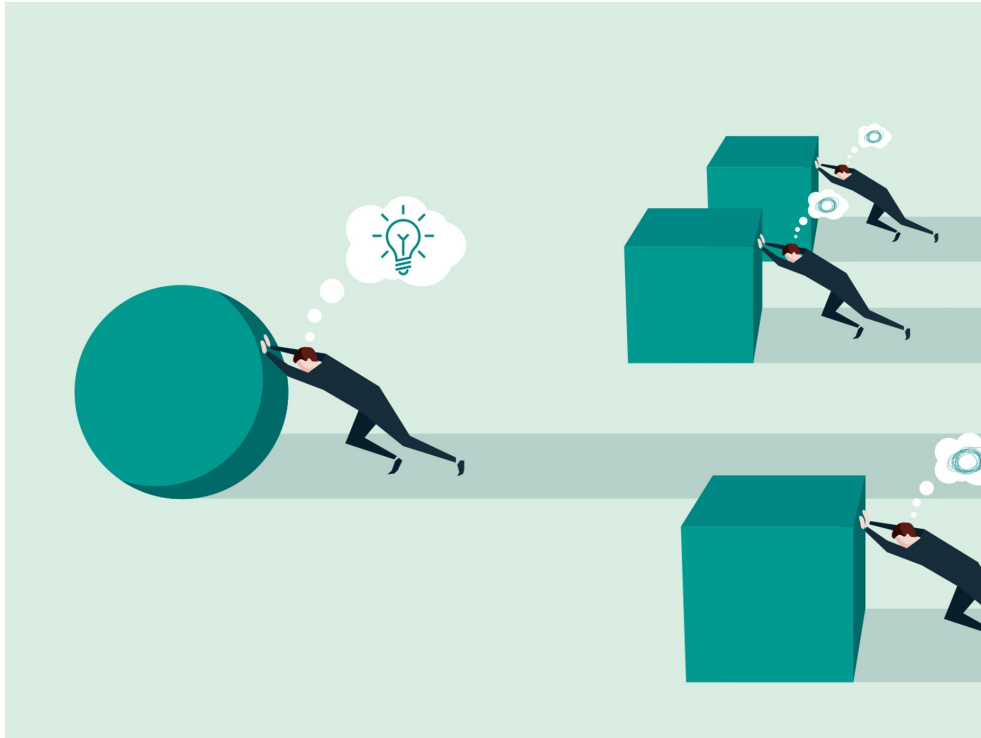




Resilience Building Resource Hub
A Shilp Initiative

TOOLKITS | PROGRAM RESOURCES | ARTICLES | ONLINE LEARNING |
GUIDES | VIDEOS | FRAMEWORKS



WHAT ARE DIFFERENT TOOLS YOU CAN USE FOR PROBLEM SOLVING?

Welcome to the self-paced learning module on tools for problem solving. Solving complex problems may be difficult — but it doesn't have to be unbearable. You just need the right frame of mind and a process for untangling the problem at hand. There are plenty of techniques and tools available to help you and your team solve problems in the workplace. When faced with a complex problem, where do you start? And what problem solving techniques can you use that can help you make good decisions?

This section will help you understand:

- the importance of getting to the root cause of problems
- tools that you can use in problem solving
- additional resources to help you get to an expert level
- self-reflection and action planning
- some DIY tips to get you started on this journey

So, let's get started!

Getting to the root cause

Many problems are defined in terms of symptoms: the effects of some underlying cause. A root cause is a cause which must be eliminated or properly dealt with to prevent the reoccurrence of the problem. The root cause may not be something you can easily deduce from the symptoms. Rather you need to establish the facts, especially since there may be multiple root causes to be dealt with. Then you have to decide which to work on and what to do.

Root cause analysis (RCA) is a process to help people understand the real causes behind a problem in order to learn why that problem arose in the first place. By digging deeper using different analysis

techniques to collect data, you can then form an action plan that will enable you to identify the contributing factors of your problem in order to prevent it from occurring again.

There are three basic types of root causes that can have a potential impact on a problem:

1. **Physical causes:** A tangible item fails for whatever reason, e.g. if an MRI machine at a hospital stops working and prevents a patient from receiving the proper health care.
2. **Human causes:** One person or several team members did something incorrectly. Human error will often lead to a physical cause, e.g. if a hospital's quality management team didn't perform an MRI machine's scheduled inspection, which caused it to fail.
3. **Organizational causes:** When a system or process that an organization uses to do their jobs is faulty, e.g. if a hospital's quality control department mistakenly thought it was the patient safety department's responsibility to inspect the MRI machine and nobody corrected them.

Steps to conduct a root cause analysis

In order to go through the RCA process, you must be familiar with the following five steps:

1. **Define the problem.** Analyze what you see happening, and identify the precise symptoms so that you can form a problem statement.
2. **Gather data.** Before you can move on to identifying the underlying problems, you must collect and evaluate all aspects of the situation. Performing a case study, incident investigation, or accident analysis are a few common ways to accomplish this step.
3. **Identify causal factors.** Now with your data in hand, it's time to look for as many causal factors as possible that could have led to your problem.
4. **Determine the root cause(s).** Use some of the root cause analysis tools in the next section to discover the root causes of each causal factor.
5. **Recommend and implement solutions.** Once you know the root cause, you can recommend a preventative action to ensure the problem never happens again and then develop a timeline and plan for implementing your solution. The tools in the next section can also be used to help you spot potential flaws in your solution before they happen.

Root cause analysis tools

Too often during problem solving, people identify one or two factors and then stop, but that's not sufficient. With root cause analysis, you don't want to simply treat the most obvious causes – you want to dig deeper. Use these tools to help identify causal factors:

Pareto Charts

Pareto Charts are based on the Pareto Principle, which states that “80% of the effects come from 20% of the causes.” In practice, a Pareto chart is a bar chart combined with a line graph to illustrate a frequency distribution in relation to relative significance.

Pareto Charts make it possible to see the most common forms of error at a glance. By displaying the most common sources of defect in descending order, Pareto charts can help teams prioritize improvements for maximum impact.

The 5 Whys

Sakichi Toyoda, father of the Japanese industrial revolution and founder of Toyota Industries, invented the 5-Whys. Popularized by Toyota in the 1970s, this method is now used across the globe for root cause analysis.

5 Whys is an investigative method used to drill down on a particular problem. It's easy: you just ask "Why?" repeatedly until a core problem is identified. This Root Cause Analysis tool is best used when investigating rudimentary problems without the need for quantitative analytical methods.

Fishbone Diagram

This is a tool widely used to analyse complex problems. Also called an "Ishikawa Diagram" or a "Cause and Effect Diagram," this RCA tool is a visual way to map cause and effect. The spine of the fish skeleton in the middle of the diagram represents the specific problem, and then the rib bones of the skeleton that branch out from the spine represent potential causes.

Flowcharts

Flowcharts are great for visual people, because they lay out all the steps of a process in an easy to digest diagram. They're also incredible tools for finding kinks in the process – kinks that are at the root of a process breakdown.

Change analysis: This method meticulously examines all the changes leading up to an event in hopes of discovering risk management strategies. This is particularly useful when there are a large number of possible causes.

Mind map

Mind map creates a tree diagram to breakdown the problem and associated factors into their component parts. The tree diagram that is created radiates out from a centre node rather than going from top to bottom or side to side.

Like the 5 Whys, the process starts with a clear definition of the problem. This is summarized and placed in the centre. Then a visual outline is created, listing and breaking down all important, interrelated aspects. Working in a group, individuals can add ideas anywhere on the mind map, but it is most productive to focus on one aspect, break it down, then move on to another. You can always revisit any area on the map as new thoughts and ideas are triggered. Colours and symbols can be used to enhance the visual effects, allowing you to identify what is most important or to focus in on specific aspects of the mind map.

Additional Resources:

5 Whys Analysis

Go beyond surface-level symptoms and avoid acting on assumptions. Uncover the root cause of a problem as a team.

Duration: 30 mins

Article

<https://www.atlassian.com/team-playbook/plays/5-whys>

Analyzing Root Causes of Problems: The "But Why?" Technique

Learn how to determine genuine solutions to a problem by identifying the root cause using the "But Why?" Technique.

Duration: 30 mins

Article

<https://ctb.ku.edu/en/table-of-contents/analyze/analyze-community-problems-and-solutions/root-causes/main>

Root Vs. Symptom

Mark discusses how we as humans often mistake symptoms of problems for the root causes and makes a call for action for leaders who will question the status quo, and work together to identify problems and try to find solutions.

Duration: 28 mins

Podcast

<https://podcasts.google.com/feed/aHR0cHM6Ly9hbmNob3luZm0vcy9IMTdmNGI4L3BvZGNhc3QvcnNz/episode/Yzk0M2E5ZjktMzQ3NS1iMzRkLTl3MmQtZmZkMDZkNTE0ODgw?sa=X&ved=0CAcQuIEAhgKEwjYpO-x48ftAhUAAAAAHQAAAAAQgQE>

Upstream: How to solve problems before they happen

Dan Heath shows us that we have the capacity to solve some of our thorniest personal, organisational and societal issues. We just need to start to think about the system rather than the symptoms. Drawing on insights from his extensive research, as well as hundreds of new interviews with unconventional problem solvers, Dan delivers practical solutions for preventing problems rather than simply reacting to them.

Duration: 2 -3 days

Book

https://www.amazon.in/Upstream-solve-problems-before-happen/dp/1787632741/ref=tmm_pap_swatch_0?encoding=UTF8&qid=&sr=

Self-reflection and action planning:

1. What is your current level of proficiency in understanding the root cause in problem solving? Identify 2-3 areas that are challenging you and preventing you from becoming a better problem solver.
2. After understanding the cause of the problem, reflect on how you can execute the solutions and prevent them from happening in the future. Ask yourself these questions –
What can you do to prevent the problem from happening again? How will the solution be implemented? Who will be responsible for it? What are the risks of implementing the solution?

Analyse your cause-and-effect process, and identify the changes needed for various systems. It's also important that you plan ahead to predict the effects of your solution. This way, you can spot potential failures before they happen.

DIY Tools:

1. **Document everything.** The best solutions can take refinement, iteration and reflection to come out. Get into a habit of documenting your problem-solving process in order to keep all the learnings from the session and to allow ideas to mature and develop. Many problem-

solving techniques involve the creation of documents or shared resources – be sure to keep and share these so everyone can benefit from the work done.

2. **Bring a facilitator.** Facilitation is all about making group processes easier. With a subject as potentially emotive and important as problem solving, having an impartial third party in the form of a facilitator can make all the difference in finding great solutions and keeping the process moving. Consider bringing a facilitator to your problem-solving session to get better results and generate meaningful solutions.
3. **Drill Down.** Break down a problem into small, detailed parts to better understand the big picture.
4. **Appreciation.** Use the facts and ask, "So what?" to determine all the possible consequences of a fact.
5. As you grow as a leader, the size of your problems will grow too. It's critical to continue to develop your process, ask the right questions, and get all the facts to find the best solutions.