

## **Planning and Implementing Solutions**

Chapter 5 of a book-in-progress on problem solving

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One of my favorite courses to teach is my 1-day problem solving workshop. It's a great course, all except for 1 thing: around 2 PM in the afternoon—after everyone is kind of tired—we begin step 5 of problem solving: Planning and Implementing Solutions. Everybody stares at me glassy-eyed as I begin this critical step of the process. If I were to say, “Guess what? The course is over!” everybody would happily get up and leave. Never mind that we hadn't actually made any improvement yet, people would be thrilled to go back to answering emails, typing on their blackberries, or chatting around the water cooler. They'd be happy that problem solving is over.

This is exactly the way it is in real life. By the time we get around to taking action, the fun has worn off the problem solving process. Heck, we've already drawn flow charts, brainstormed causes, used some neat tools, and had some fun. Isn't it over yet? No. Not even close.

We are now entering a critical phase of problem solving. If we drop the ball now, it will be a fumble of the worst kind. Our problem will run it all the way back for a touchdown. This is why we need to re-energize our team prior to planning actions. This could mean taking a short break of a day or two before embarking on this step, or even engaging in a team building exercise of some sort. We've laid the perfect groundwork for taking effective action, and we want to be fully energized when we plan our solutions.

This step of problem solving is supported by six important principles:

1. Match each top problem cause with an action
2. Get creative with solutions
3. Avoid solutions that are rarely effective
4. Develop a clear plan for implementation
5. Sell your solutions like you believe in them
6. Review progress regularly

These principles will work hand in hand. While your improvement actions could possibly be effective with just four or five principles fulfilled, you're virtually guaranteed success if all 7 are applied. Let's discuss each one of these in more detail.

### **Match each top cause with action**

I've always disliked the term “corrective action.” That's because it can logically mean one action or multiple actions. In the spirit of expediency, most people interpret it as a single action. Wrong answer! Effective corrective action is nearly always multiple actions. In fact, each of our top causes identified in the previous step of problem solving must be matched with action.

The problems we have selected rose to the top of the heap because of their complexity, cost, and impact. These problems have multiple causes, and these must be matched with multiple actions. This fact will disappoint many people who are simply looking to “pencil whip” a corrective action form and be done with it. We will build a

corrective action plan in the same way we'd develop a project plan for building a house: specific actions, clear responsibilities, defined time frames.

When faced with team members or stakeholders who want to take a single action and move on, remind them how they defined the process, scrutinized each activity, and identified causes. Then—using a rationale and quantitative approach—we rated the most significant causes that require action. If everybody agrees with the work that has happened so far, they must agree that multiple actions are necessary.

Ideally, the actions we take will remove the causes. Bang, they're gone! The causes simply won't exist anymore. That sort of perfect solution doesn't always exist in the real world, so we may have to settle for reducing the causes to an acceptable level. Both of these outcomes require that we take actions directly related to the causes of our problem. Of course, this seems obvious, but I often frequently see causes and corrective actions that really have nothing to do with one another. There must be a logical and undeniable connection between the cause and the action we take to address it. Any disconnect means that we're really not fixing our problem. We may be doing something, but what we're doing has little value from a problem solving standpoint.

### **Get creative with solutions**

Planning and implementing solutions is the most creative step of problem solving. We exercised creativity in the previous steps, but now we can apply limitless creativity. After all, we're now deciding what to change. Effective change requires innovation and imagination. The tired old solutions of the past are not going to help us now.

Fresh ideas can come from many sources. For the sake of convenience, start with the people closest to the process. They are intimately familiar with the process variables and can probably suggest a wide range of actions to address the identified causes. From that as a starting point, you can expand the range of participants. Besides people working directly inside the process, here are some other people and functions that might be able to propose solutions:

- Maintenance
- Engineering
- R&D
- Information Technology
- Planning and Logistics
- Procurement
- Quality Assurance / Improvement

Solicit inputs as broadly as it makes sense to do so. What if you miss somebody who has a good idea? Don't worry about it. You *will* miss somebody. We're striving for improvement, not perfection. If you get ideas from every single person who has an opinion on the subject, you'll end up with a thousand possible remedies and you'll never do anything.

The process you use to generate solutions will be the same as the one we used to identify problem causes: brainstorming. We discussed brainstorming in the previous chapter. It's a creative, free-flowing process for generating a large number of ideas. It seems to work best in groups of 5-10 people. One of the strengths of brainstorming is

that's a dynamic process that builds on itself. So, an idea put forth by one person might spur another idea in someone else. Even unusual or impractical ideas are welcome, as they might trigger a brilliant idea in someone else. Here are the guidelines for brainstorming:

- It should take place in a relaxed, fun environment
- Everybody gets an equal opportunity to participate
- Creativity is strongly encouraged
- No criticism of ideas
- A facilitator writes down all ideas, typically on a large flip chart
- Ideas are displayed prominently for all to see
- Everybody should scan previous ideas to see if they trigger fresh thinking
- The process continues until all ideas are exhausted

People generally fall into the rhythm of brainstorming without too much problem. The true value of it comes with the generation of truly unique ideas that would not have been offered in a less dynamic environment. One thing leads to another thing, and some really innovative solutions end up sprouting.

It can sometimes be helpful to prompt the group with a few questions as they brainstorm. These encourage the group to think in new directions and abandon any paradigms they have about solutions. Here are some of those questions, though you could easily develop more:

<b>Questions to aid brainstorming</b>
• Can a machine be added to the process?
• Can a human take the place of a machine?
• Is a different tool needed?
• How could we save time in the process?
• How could costs be reduced?
• What skill is lacked here?
• What information is lacked here?
• How can decision making be made simpler?
• How can a periodic task be made automatic?
• What should we stop doing?
• If we were forced to remove half the process, what should we do?
• What measurements should we start taking?
• What measurements should we stop taking?

During brainstorming, tackle each of the causes one at a time. Continue the brainstorming process until all ideas run out, then move onto the next cause. Whoever is facilitating the session should clearly indicate which ideas relate to which causes to avoid any confusion.

Now that you have a big list of ideas, what should you do? The best results I have had come from simply discussing the ideas for each cause. Most groups come to consensus fairly quickly on what is the best path to take. In the event that the group

doesn't naturally gravitate toward one or two solutions for each cause, remaining far apart on the way to proceed, multi-voting can be used to gain consensus.

Multi-voting is a democratic process for narrowing a large number of choices and coming to agreement. There's nothing quantitative about it, but there's nothing quantitative about brainstorming either. Multi-voting leverages the collective wisdom of the group to arrive at a solution (or solutions) that everyone can support. Each person is assigned a fixed number of votes. Five votes per person works well for a typical brainstorming session. Each team member votes on what he or she believes to be the most promising solutions for each cause. Team members can cast their votes anyway they wish: placing one vote on each of five separate solutions, placing two votes on one solution and three votes on another, whatever they decide. Colored stickers work very well as votes, and a round of multi-voting is conducted for each set of brainstormed solutions. So, if there were five top problem causes, we would conduct a multi-voting round for each of the five sets of brainstormed solutions.

After all votes are cast, the facilitator will tally up the number of votes. Under each cause, the top solutions are listed and discussed. Team members are given a chance to talk about solutions they feel strongly about. The team will then attempt to rally around the top solutions as indicated by the multi-voting. It's possible that not everybody will be entirely satisfied by the multi-voting results, but everybody will have had an equal chance to participate and equal weight in the decision process. This democratic equality often helps push the team past any disagreements and toward a mutually satisfactory decision.

### **Avoid solutions that are rarely effective**

Through many years of studying problem solving, I've collected a number of corrective actions that are frequently offered but which are rarely effective. I'll respectfully refer to them as suspicious actions. Avoid them at all costs! All of them share a few things in common:

- They're quick and easy to write (i.e., pencil whip). Why spend a lot of time thinking about robust solutions when you can simply scribble a few words and be finished?
- They sound legitimate, especially if you don't think too much about too much about them
- They don't actually change anything about the way the process operates or the work gets done. As such, the causes of our problem remain in place. This is the most critical failure of the three.

Let's examine each of the suspicious corrective actions that you will do well to avoid.

### **Re-training**

This is possibly the most popular corrective action in the history of problem solving. I've lost count of the times I've seen re-training proposed as the fix for a problem. This remedy has some serious problems, though. My big question is this: What exactly are we re-training people on? If we're training people on a flawed method, then

we're not accomplishing anything except to guarantee future problems. After all, the implication is that the method is perfect, we just need people to be better trained on it. Is that a realistic assumption? More often than not, the process has complexity, waste, and errors built right into it. We need to improve the process first, then train people. Re-training people on an ineffective process is a waste of time.

Occasionally, re-training may be a legitimate solution for a problem. Maybe there is some isolated confusion on how the process should be carried out, and in this case re-training would be a reasonable fix. Here's the quandary: How is the re-training any different from the original training? After all, if the original training didn't work, the retraining probably won't work either. So, if the ineffective training was watching a video, then the re-training might need to be intensive classroom instruction. Or maybe the ineffective training was classroom based, so now you need to focus on practical on-the-job training. The point is that we don't want to mindlessly do the same ineffective things we done in the past. If we're going to re-train people, we must consider how to modify the learning process so it produces better results.

### Revise procedures

This is another very popular corrective action. It implies that we're actually making improvements, but we have little more than implications. When I see this solution being offered, I feel a strong need to dig a little deeper. What exactly about the procedure is being revised? Have the responsibilities, tools, or sequence of tasks changed? Simply revising a procedure is an administrative process, not an improvement.

When faced with a promise to revise procedures, you need to start asking questions. Find out what is being changed. More likely than not, this was just a quick way to respond to a request for action. "Hey, we'll revise our procedures. Now leave is alone!" There's a strong chance that you will need to offer some facilitation in corrective action.

### Discipline employee

It's the employee's fault! This can only result in one thing: discipline. The discipline can take the form of verbal reprimand, written warning, letter to the employee's personnel file, suspension, or even dismissal. The bottom line is that somebody messed up and the only remedy is discipline.

Discipline is the crudest and least-sophisticated form of corrective action. It is founded on the belief that our only weakness is our people. If it weren't for our employee's, everything would be just fine. Disciplining someone does nothing to change our process or methods. Everything remains the same, except that now we've inserted some fear and humiliation into the mix.

There are occasions when discipline might be appropriate. These include the following, among others:

- Willful negligence
- Violation of laws
- Violation of company policies or codes of conduct
- Sabotage

- Misuse or destruction of company property
- Insubordination

The majority of problems do not involve these kinds of issues, though. Most problems are built into the way we do things. It doesn't matter who is working within the process, the outcomes will have a certain predetermined level of defects. That's why discipline is usually counterproductive. It will only create a culture of paranoia and problem avoidance, which is exactly the opposite of what you're trying to develop.

### Try harder

A close cousin to discipline is the timeless urging to "Try harder." Variations of this include "pay more attention," "stay focused on the work," and "Get with the program," among countless others. Asking employees to try harder means that they weren't trying hard enough to begin with. Why weren't they trying hard? Is it because the process is flawed and the work environment chaotic? Is it because management has created disincentives to trying hard? No matter what the cause, simply saying "Try harder" changes nothing. The words are empty and our process remains exactly the same. No improvement. You might as well say, "Cast a magic spell" or "Ask leprechauns to help us." You will get the same results.

### Closer supervision

When in doubt, just tighten the screws. That's what closer supervision amounts to. Leave everything the same, *except* more eyes on the workers. Do you really think this will drive improvements? It will drive people to hate their work and definitely not take pride in their output. Closer supervision assumes that everybody is trying to do the work in the sloppiest manner possible.

Closer supervision creates a cat and mouse environment. When somebody is watching, everybody rigidly adheres to procedures. When somebody is not watching, employees do what they want. Nobody does a hair more than the bare minimum and certainly nobody is going to think about ways to improve. Employees are just going to watch the clock and pray for the time that they can go home where their every move is not being scrutinized.

### Tighter inspection

Inspection can be an effective remedy for some problems. The problem is that it's rarely the best remedy. Why? Because the damage is already done; inspection just sorts the good from the bad. Yes, the customer may not receive the defective good or service, but we're already invested time and money in creating the nonconforming product. Inspection is a detection process, not a prevention process.

All corrective actions should strive to prevent the problem from happening in the future, not just detect the problem. On top of that, inspection is not even a very effective detection process, especially when we're relying on humans to carry it out. In general, the more inspection that humans perform, the less accurate it becomes. Automated inspection

is more reliable, but it still doesn't prevent the production of defects. Only improving the process will do that.

### **Develop a clear plan for implementation**

Corrective actions don't just happen. They must be carefully planned and executed. For each solution selected by the team, we must develop a clear plan for implementation. This plan typically involves the following elements:

- **Action:** What exactly must be done? The action should be spelled out in clear terms that anybody can understand and which can be verified. Innuendo and vagueness are our enemies; we must be as specific as possible in order to guide those people charged with taking action. Keep in mind that this may be multiple actions.
- **Responsibility:** Who is responsible for taking action? Make sure one person is responsible, not a committee or team. The responsible person can assemble a team or committee, but we need the accountability of one responsible person. As W. Edwards Deming famously said, "Shared responsibility means nobody is responsible." Responsibility does not equate to being the culprit, of course.
- **Resources:** What tools, equipment, supplies, personnel, or capital are necessary to carry out the actions? Don't assume that resources will magically appear. They only appear because someone made them available. By defining the necessary resources, it forces us to think about who will *provide* the resources. In fact, for actions that are resource intensive, we should define exactly where the resources will come from.
- **Due date:** When exactly do we expect the action to be completed? This date is typically defined by the person taking the action, as they will be the best prepared to know when the action can be completed. If the due date is not clearly defined and agreed to by all stakeholders, there's a strong chance that the action will never be completed. It may be necessary to define multiple due dates to drive incremental progress on our action.
- **Measure of effectiveness:** During the planning of our actions, we should determine what will indicate whether we are successful or not. If possible, define a quantitative measure that can be supported by data. This will make it easier to verify effectiveness in the next step of problem solving.

During the planning of our solutions, we should also commit to progress reviews. These are meetings of key stakeholders to review where we stand in relation to actions being implemented. The purpose is to remove obstacles and motivate action. We'll talk more about the progress reviews a little later.

The table below shows an example action plan for our problem of late orders. Each of the action is directly related to the top causes we identified in the previous chapter.

### Action Plan - Late Order project

Progress review is scheduled for June 1. Please come prepared to discuss the status of your actions.

Cause	Solution	Responsibility	Resources	Due date	Measure of effectiveness
Actual product quantities in inventory not adjusted; manual process	Investigate barcode scanning systems; make recommendation	Engineering Manager	Computer, internet	June 1	Written recommendation submitted to GM
	Consider recommendation & make decision	General Manager	Written recommendation	June 7	Decision made on barcode system
	Implement barcode system	Engineering Manager	\$20,000-\$40,000 (TBD)	August 1	Barcode system implemented
Maintenance schedule not factored into planning; Schedule not shared	Maintenance schedule to be published weekly via email and posted on bulletin board	Maintenance Manager	Computer	May 15	Schedule posted
	Maintenance schedule to be reviewed during weekly production meeting	Maintenance Manager	Participants in production meeting	May 15	Minutes of production meeting indicate that schedule was covered
Suppliers often late with deliveries; no formal tracking or accountabilities	Adjust purchasing software to allow tracking of promise dates versus actual delivery dates	Engineering Manager	Time to make changes	June 15	Software working and de-bugged
	Develop and implement supplier rating system	Purchasing Manager	Computer, internet, purchasing software	August 1	New rating system implemented and communicated to suppliers
	Begin tracking delivery performance of	Warehouse Coordinator	Computer, supplier rating system,	August 15	Report of supplier performance provided to



	suppliers		purchasing software		weekly production meeting
Orders don't get scheduled; emails lost	Stop using emails to book orders. Provide ability for all office personnel to enter orders directly into system	Engineering Manager	Order entry system	July 1	All office personnel trained on order entry
Emails never sent requesting	(see above)				
Orders get bumped; customers call to adjust priority	Institute new policy that only the General Manager can change promise dates; review all proposed changes in the weekly production meeting	General Manager	Computer, weekly production meeting	May 15	No unauthorized adjustments to schedule
Underestimation of lead times; Lead time sheet not inclusive of all parts and not maintained up to date	Put the Sales Manager in charge of the Lead Time sheet	Sales Manager	none	May 15	Updating of Lead Time Sheet
	Review the Lead Time Sheet once per quarter during a weekly production meeting	Sales Manager	Weekly production meeting	August 1	Minutes of production meeting indicate that lead time sheet was covered
<b>Overall measure of effectiveness =</b>					<b>20% fewer late orders by September 1</b>

## **Sell your solutions like you believe in them**

Corrective action always involves change. The change might be large or small, but any change puts people on edge. You are taking the familiar and making it unfamiliar. Large corrective actions, in particular, are threatening. We're potentially talking about people's activities, tools, behaviors, and habits. This kind of change can be offensive to many people, so we have to sell the benefits of making the change. All the way up and down the food chain the sales pitch must be made.

You may be thinking, "Why do I need to SELL my solutions? Anybody can see the solutions are brilliant!" No they can't. The only thing they see is that you're trying to change their nice comfortable routine and makes things difficult. You've studied the problem from front to back and are fully confident in your planned actions. Most people have not studied the problem in this depth, though. They don't have the benefit of having gone through the previous steps of problem solving, so they simply don't know what you know. You must convince them that the actions to be taken are absolutely necessary. If you fail to do this, you run the risk of someone sabotaging the action. You don't think someone would sabotage it? If they see the solution as threatening and don't understand the benefits, then I promise they will. They will throw a wrench into your brilliant little machine and you'll be left with a mess that can't be cleaned up.

Sell your solutions in a 3-part format:

1. The actions that must be taken. Be as specific as possible. Be clear about that changes that will result and how they might affect people.
2. Why the actions are necessary. Tie the necessity back to the causes that were identified. It should be clear to everyone listening that the actions were not chosen arbitrarily, but were selected for the express purpose of addressing problem causes.
3. The benefits we expect to gain. Illustrate the expected pay-offs in clear, no-nonsense terms. Yes, we're going to make changes, but the expected improvements will greatly outweigh the pain.

Many solutions are not only threatening to the status quo, they're also expensive. Somebody will have to bear the expense, to the improvements had better be worth it. Problem solvers become so immersed in the problem solving process that they often forget this fact. The perfection of their solution begins to seem obvious. When it comes to spending money, however, every improvement must pay for itself.

The justification of expense is usually made to top management, as they are the ones with access to capital. You will follow the same 3 part sales pitch shown above, but you'll need to add the aspect of money to each part:

1. The actions to be taken and their costs.
2. Why the actions are necessary and the expenses they will remove.
3. Benefits of actions, including long term cost reductions and/or profit increases.

Top management speaks the language of money, so that's the language you will need to speak fluently. Sell them the solution straight-up: here's what it will cost and

here's the money we'll get back. If you estimate expenses or savings, be prepared to explain how you arrived at the estimates.

It is often helpful to prepare a document of some to help sell your solution. The document could be a white paper, memo, detailed project plan, or presentation, or it could be a combination of all these. When you are asking people to change their methods or spend money, they usually want to think about it. Even if they have no choice, they still want to think about it. A document enables stakeholders to go away and consider your proposal in the time and place that suits them. It also demonstrates that you have given the subject a lot of thought and consideration; the solution isn't just something that you dreamed up last night. It's the product of careful investigation and planning. Solutions of this sort are always more likely to be accepted.

You should always anticipate questions that could be asked as you present your sales pitch. Anticipate questions and come up with some answers. I recommend having the answers tucked in your back pocket (figuratively), ready to be pulled out at the appropriate time. Rest assured, there will be questions. Your problem solving team may want to brainstorm questions that could come from top management or the organization as a whole. One of the most awkward feelings in life is to be thrown a question that you have absolutely no answer for. Come prepared with answers.

Finally, remember that enthusiasm sells. Given two equally virtuous sales pitches, the one that is delivered with more enthusiasm will always win in the end. Enthusiasm shows that you really believe in the solution and are excited about the benefits that will result. Your enthusiasm will be contagious. Smile, speak in an animated manner, and make eye contact with your audience. Enthusiasm is simply the icing on the cake, and it can make a huge difference.

### **Review progress regularly**

Once we have begun implementing our actions, we'll need to review progress. Team members and stakeholders are usually included in progress reviews. The progress reviews are given by the people responsible for taking action, and the purpose is three-fold:

1. Reinforce accountability for actions
2. Identify and remove roadblocks
3. Developing your people

The communication of progress creates accountability for the actions being taken. Knowing that you're going to have to provide progress reviews in front of peers and superiors helps to motivate action. Few people have been known to utter, "My actions are all behind schedule and I've really lost interest in fixing this problem." No, they find a way to stay engaged and complete their actions. Transparency and communication drive accountability, and that's a key outcome of a progress review.

The implementation of our actions will rarely be without obstacles. Even with the best planning, unexpected roadblocks will appear and prevent implementation as planned. If top management is involved in progress reviews, they have the power to remove obstacles and motivate action. Sometimes just the understanding that top management will learn about obstacles is enough to make them go away.

Progress reviews also serve as a way of developing communication skills. Face it, communicating in front of a group is a key competency within any organization. The fact that most people are uncomfortable doing it doesn't matter. Communication is the oil that flows through the engine of the organization. We need to develop communication skills any chance we get. Progress reviews are an excellent forum for developing communication skills and increasing confidence, especially when top management is present. As more and more people refine their communication skills, the flow of information throughout the organization increases and a greater understanding of problem solving is established.

### Failure Modes

Planning and implementing action is fraught with potential failures. All steps of problem solving can fail, but this step in particular carries with it a lot of risk. Why? Because now we're actually changing things. When change happens, many things can go wrong. Here are some of the most common failure modes and what can be done to remedy them:

<b>Failure related to problem solving process</b>	<b>Remedy</b>
Team fatigue	Re-energize team through a team building activity or take a break of 1-2 days. Don't tackle the planning and implementation of solutions if the problem solving team is out of gas.
Employees oppose changes	Educate everybody on the reason for changes. Tell exactly what will change and explain the benefits
Slow progress / little accountability for actions	Establish progress reviews for reviewing status of actions. Include top management in progress reviews to raise the profile of actions and to ensure that obstacles are removed.
Top management not supportive	Explain benefits in the language they understand: the language of money. Be very clear about the actions necessary and their costs. Sell the business case for your proposed solutions.
Ineffective solutions are proposed (e.g., discipline employees, re-training, etc)	Brainstorm solutions with a diverse group of stakeholders. Match the solutions directly to the identified causes. Explain why certain solutions tend to be ineffective.
Team can't agree on what solutions to pursue	Use multi-voting to arrive at consensus. Agree in advance to abide by the results of the selection process

Now we have developed an action plan and put it into practice. The wheels of progress are moving. Does this mean we're done? No, not quite. The next step is verifying the effectiveness of our solutions. As with all the late-term problem solving steps, it's an activity that often gets neglected.