Problem Solving Skills

The Art of Problem Solving

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1 WHY IS PROBLEM-SOLVING IMPORTANT AND JUST HOW DOES IT IMPROVE YOUR LIFE?

"Problems are only opportunities in work clothes."

– Henry Kaiser, American Industrialist

Well, sure, problem-solving is important. We have to solve issues every day; some problems are big, most are small, and occasionally there may be a life-and-death problem that comes along. Problem-solving seems to be one of those necessities of life for everyone.

So, don't we all know how to do it? How come we need a book about solving problems – what's the big deal?

Well, although problem-solving is something we've all done since we were tiny (even infants have to learn how to sit up, crawl, stand, walk, and talk), it can be only too easy, since it's so familiar, to take it for granted.

It can become like second nature, something we reflexively just *do*, and *that's* exactly the problem. The human brain is wired to work as fast and efficiently as possible, which means it looks for short-cuts wherever possible. Therefore, when solving problems, this means using what's tried-and-true: those habits that are most familiar to us.

Or, as Abraham Maslow suggested, "I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail."

In other words, though it may be tempting to rely on familiar habits to guide you through when you're problem-solving, that doesn't necessarily mean it's the best or most creative solution possible.

Problem-solving, it turns out, is an art, and we humans can either bumble along doing what we've always done, which means receiving the same results, or we can learn some more about the process of problem-solving and learn to see it as a new habit, an attitude or a mind-set, rather than just a tool.

When we take this step forward into more creative problem-solving, it becomes a series of ongoing possibilities or opportunities for us in which we can flex our problem-solving muscles.

This process, in turn, helps us develop a proactive way of living, wherein problems are identified more as challenges to be engaged creatively in order to deepen our personal learning.

That's when the other benefits of problem-solving also become evident.

If, for example, you think about renowned world leaders – those who've excelled at solving massive human problems – such as Martin Luther King, Steve Jobs, Gandhi, and Nelson Mandela, you'll inevitably find people who've developed their creativity, leadership, persistence, and collaborative cooperation *as a result of engaging more deeply in the problem-solving process.*

In his book, *Steve Jobs*, for example, author Walter Isaacson interviewed those who worked closely with Jobs, including Fodell, who reported that "There would be times when we'd rack our brains on a user-interface problem, and think we'd considered every option, and [Steve Jobs] would go, 'Did you think of this?' And then we'd all go, 'Holy S…'. He'd redefine the problem, and our little problem would go away."

There are numerous other benefits, as well. Solving problems encourages groups of people to learn to cooperate with each other for the common goal of discovering the best possible solution, which in turn necessitates developing and utilizing good communication skills.

It also teaches flexibility and creativity, which can produce a more positive attitude towards learning in general. Thus, the process of learning something new becomes more interesting and enjoyable.

Solving problems effectively can also stimulate curiosity and trigger active participation in the learning process. This can bring subjects being studied 'alive', and result in increasing personal insights, and lateral, creative thinking.

It can similarly produce increased feelings of personal competency once we've connected to the problem and successfully completed our detective work, finding a new and novel solution. It just *feels* good to master something successfully.

Of course, what is discovered in one situation from problem-solving, can often be generalized to other areas in life.

With repetition of generalizing solutions to other problems, patterns can then begin to emerge, which allows for greater understanding and leads to more effective problem-solving.

However, *this* kind of problem-solving depends on a thorough examination and understanding of the problem, rather than just using a tried-and-true, previously applied solution.

In other words, to quote another brilliant problem-solver Albert Eiinstein, "If I had an hour to solve a problem, I'd spend 55 minutes thinking about the problem, and five minutes thinking about the solution."

In this book then, like Einstein, we're going to deeply examine the nature of, and the many different ways of, solving problems.

First, let's have a look at defining what a problem actually is, what this term "problem-solving" actually means, and what the term 'solution' means.

2 WHAT IS A PROBLEM?

> *"One thing is for sure. We have to do something. We have to do the best we know how at the moment…If it doesn't turn out right, we can modify as we go along."*
>
> – Franklin D. Roosevelt

First, let's look at the definitions of these terms from a dictionary point of view.

Problem –

The Merriam-Webster dictionary defines a 'problem' as –

1. a: a question raised for inquiry, consideration, or solution
   b: a proposition in mathematics or physics stating something to be done
2. a: an intricate unsettled question
   b: a source of perplexity, distress, or vexation
   c: difficulty in understanding or accepting. For example, "I have a *problem* with your saying that."

These definitions seem pretty straightforward. How about 'problem-solving'?

Problem-solving –

The problem-solving process (according to Merriam-Webster) involves finding a solution to a problem. The dictionary goes on to describe that lots of animals quite commonly solve daily problems related to their need for food and shelter and getting around through trial and error. Some higher species of animals, like dolphins and apes, have even shown the capacity for more complex ways of solving problems, such as their ability to learn rules, discriminate between abstract stimuli, and apply the rules of language.

As humans, we not only use trial and error, but we also uniquely have the capacity for insight and both deductive and inductive reasoning. So, with humans, we see considerable variations in styles and abilities, depending on the individual.

In summarizing the nature of problems and problem-solving, we may say, „Al problems have two features in common: goals and barriers…Problems involve setting out to achieve some objective or desired state of affairs. [This] can include avoiding a situation or event…[And] If there were no barriers in the way of achieving a goal, then there would be no problem. Problem-solving involves overcoming the barriers or obstacles that prevent the immediate achievement of goals."[1]

Well, if that's what a problem means, and what the process of problem-solving entails, what's "solution"? This is where it gets interesting.

As it turns out, there are many possible ways to answer this question.

Solution –

> The Merriam Webster version says that a solution is „something that is used or done to deal with and end a problem: something that solves a problem. Or, the act of solving something; a correct answer to a problem, puzzle etc."

However, most often, problems have more than one right answer or solution, which means it's important to have a logical process to clearly identify the various components of a problem, which the varying possible solutions can address. In this way, the likelihood of finding the most successful answer is heightened.

Different viewing points/attitudes about the problem yield differing results.

Maybe you're familiar with the saying by baseball great, Yogi Berra, who said, „If you don't know where you're going, you'll end up someplace else." Well, another way you may define a problem is by looking at the preferred outcome, or your goal. If you know where you want to get to, you have a likelier chance of ending up there. Evaluating all the possibilities can be an exciting, fun, and creative part of the problem-solving journey.

So, another way of defining a 'solution' is to say that it's about managing the problem in a way that can successfully meet the goal you created for treating it, for treating it with an understanding that that success can sometimes mean eliminating the problem entirely or just minimizing the effects of the problem until the situation feels more tolerable.

A problem can also be an opportunity for improvement. Perhaps that'll happen by happenstance or an unexpected stroke of good luck. Or you may have a chance to leave behind the rut within which you usually consider your problem. Although sometimes this

can happen based on some factor external to you, or upon an outer event (perhaps one you consider to be "bad"), this can also happen based on a new internal awareness, something you've discovered - an inner 'a-ha' moment.

While your new awareness or solution may create further "problems" for you to solve, if you're a creative type who enjoys facing challenges and the puzzles life affords all of us, you're likely going to feel inspired to seek out the solutions to the new problems, too, rather than trying to avoid them.

Another variation on this theme is found with John Foster Dulles, a former US Secretary of State, who once said, "The measure of success is not whether you have a tough problem to deal with, but whether it is the same problem you had last year."

Sometimes, a problem can be defined by a sense of imperfection in the way things are and an intuition for a better outcome or possibility in the future. And how great is that - to have hope for a better future, which challenges you to find a new solution!

This means your attitude about the problems you encounter in life can make a massive difference to the quality of your life, and to your enjoyment of living.

Having a positive attitude towards the problems that arise for you in day-to-day living can help you feel more creative, competent, and relaxed.

It can also help your self-esteem improve and assist you in feeling you have more control in life, not in what happens but in having the skills to deal effectively with what happens, even when it's unexpected.

These are but some of the many ways that learning to develop your problem-solving strategies more broadly can profoundly impact on your life and your enjoyment of it.

So, let's look next at a number of different problem-solving approaches that can be utilized, in creatively and adaptively solving your day-to-day problems, whether big or small.

3 PROBLEM-SOLVING APPROACHES

> *"Whatever failures I have known, whatever errors I have committed, whatever follies I have witnessed in public and private life, have been the consequences of action without thought".*
>
> – Bernard Baruch

To help you avoid what Baruch is describing, in this chapter we're going to delve more deeply into a number of different ways your problem-solving can be based on well-thought-out processes which have a greater likelihood of leading to success, rather than just taking "action without thought."

3.1 THE EIGHT DISCIPLINES

8D – 8D stands for Eight Disciplines. Frequently ascribed to the Ford Company for having created it in the late '80s, 8D was actually used prior to that point by the American Department of Defense, from the mid-'70s to the mid-'90s.

Widely used in the auto, aerospace, and electronics industries, 8D provides a very highly structured, disciplined way to solve big, recurring problems in a complex system.

The Eight Disciplines (which really are 9, not 8) include the following:

- **Discipline Zero – Preparatory Step** – This step involves gathering the team, deciding on the time frame, and identifying the resources that will be required.
- **Discipline One – Building the Team** – It's important to have many disciplines participating to ensure diversity and creativity in looking at the problem from different viewing points (although too much diversity can just create ongoing debates and disagreements, so aim for a balance).
- **Discipline Two – Describing the Problem** – It's important to invest time in examining the problem from as many viewing points as possible. You can look at the 5 W's (who, what, where, whe, and why) and the 2 H's (how and how many) to provide you with good detail. You can also do a risk assessment to determine degree of risk. Your focus here is really on examining as many details as possible about what's going wrong as comprehensively as possible.
- **Discipline Three – Implementing a Temporary Fix** – This is especially important if the problems are affecting product quality, work processes, or

customers. The temporary fix should be fast and easy to put in place and worthwhile in the short run. Having a temporary solution in place allows space for a longer, more thorough problem-solving process.

- **Discipline Four – Identifying and Eliminating what's known as the 'Root Cause'** – With a temporary solution in place from the previous step, now you can dive more deeply into really understanding more fully the root cause[s] of the problem. Tools such as the 'Cause and Effect Analysis' can assist with this step and sometimes bring to light other problems that you may not have recognized as problematic. Once the root cause has been determined, attention can be given to finding a number of permanent solutions, each of which can then be examined for strengths and weak areas with a view to strengthening the weak areas.
- **Discipline Five – Verifying the Solution** – After your team has agreed on the best possible solution, you will want to test it out thoroughly, prior to complete implementation. Tools to assist with this can include Six Thinking Hats (which we'll be looking at in a later chapter), Blind Spot Analysis, Impact Analysis, and FMEA (Failure Mode and Effect Analysis). Each of these can provide further feedback for your consideration to fine-tune your solution before full implementation.
- **Discipline Six – Implementing a Permanent Solution** – With all the problem-solving and testing you've already accomplished, it's now time to roll out your full implementation of your solution. You'll want to ensure monitoring of the solution happens, so any unintended side effects can be identified and addressed.
- **Discipline Seven – Preventing the Problem from Recurring in the Future** – After you've had a chance to assess the solution in the previous step, your team will also want to take a look at how prevention of the same problem in the future can be accomplished. Perhaps this involves training of personnel or writing/re-writing your company's policies and procedures or training manuals. This step helps ensure you've learned from the process and can now generalize it to prevent further manifestations of this problem from emerging.
- **Discipline Eight – Celebrating Your Team's Success** – This step honors all the hard work, and rewards the success of your team. It helps everyone feel good about the process and their contributions. At this time, you can also have a Post-Implementation Review, which can again review the success of the solution and tweak any needed changes to improve it further.

When using this approach, it's very important to follow each step; skipping steps or haphazardly using them out of order, will not result in the same kind of success as following it with consistency.

Because of its thoroughness and people- and time-consuming aspects, this intensive approach is often utilized for highly complex, recurring situations where other problem-solving processes have resulted in only limited success.

It's best suited for those who are wanting a highly structured, customized approach to solving major, complex problems.

3.2 GROW MODEL

GROW model – Created in the U.K. and frequently used in the '80s and '90s by corporate coaches, the GROW model of problem-solving is a simple, straightforward four-step model.

In addition to corporate coaching, GROW has been found useful in any goal-directed business. However, in life-coaching or career-focused conversations, other processes, such as existential or transpersonal, might be more suitable.

GROW is an acronym for the four steps, which lead you in a linear fashion from clarifying the problem to resolution of it. Think of this as a journey you're embarking upon.

G – Goal – Using the metaphor of a map, think of this first step as you identifying your final destination.

It can be helpful, when trying to pinpoint your destination, to ask some clarifying questions. These might include the following: how will you know when you've 'arrived'? What will be some of the landmarks or markers that will let you know you're 'there'? In other words, how will you identify that the issue or problem has been successfully addressed and solved?

R – Your Current Reality – Now that your destination is clear, this next step takes a measure of where you are now - your current place on the map - with all the resources and tools that you're going to be packing to take along with you.

At this stage of planning your trip to your destination, this is a really important and often under-utilized step in the process.

You'll have a ton of information available to you, when you really begin to spend some time assessing where you are right now. Think about clarifying, for example, what's happening in your current reality – the what, when, who, and how oftenoften. How do these factors impact your current reality? Are there other goals you have, which may either support or conflict with your new destination?

This is also a fantastic opportunity, when looking at your reality now, to identify steps you may already have taken, no matter how small, towards your desired destination.

O – Options and Obstacles – This third step looks at identifying and clarifying, via brainstorming, your possible routes, along with potential roadblocks on each route to your achieving your goal, arriving at your destination.

Using the map metaphor, this step looks at the countryside, the 'lay of the land,' between you and your destination. You're looking for potential routes and the options and obstacles you might find along each one.

So, this step invites you to first brainstorm, without censoring, the various possibilities or routes. There'll be time later to look at which route makes the most sense. For now, just focus on as many options as possible, even if some don't make logical sense; you want to use as much creativity as possible to really get your imagination firing on all cylinders.

After you've spent some time on juicy brainstorming, now you can look at the pro's and con's of each potential route.

It's good to figure out which considerations or factors you'll want to use in weighing the pros and cons. This can be a bit of a tricksy business. You may find, for example, that although some 'routes' may have many more cons than other routes, maybe they don't 'weigh' as much; perhaps they're not as salient or important as the fewer but more powerful pros that are on that route.

For the options, think of this step as carefully packing your suitcase full of all that you've learned to date - informationg that's going to help you on your journey to your intended destination.

When examining each con, you can ask yourself, what else may I do about that? Allow time for further brainstorming reflection on this. Is there a way that restraint could be eliminated or reduced? If so, how would that change things for you?

If you've done your work on the first brainstorming part, you may just be surprised to discover that some of what you might have been tempted to chuck out as less worthy of „consideration." And that's the biggest benefit of brainstorming.

You might also discover there are some things you need to *stop* doing in order to achieve your goal. Sometimes, current habits can prevent us from moving forward; it's good to identify these and develop a plan about how to address this.

This step also looks at thinking ahead to how you can travel through, or around, each of those challenging parts of the trip that you've identified as cons on your list.

It's always good to have a plan to deal effectively with potential roadblocks. As with any trip, some routes are going to be more straightforward than others, getting you there in the least possible time. Some will be more scenic and complex, taking more time to arrive at your destination, but they may be filled with potentially more rich learning and adventures for you along the way.

These details are part of deciding what's important to you, and which route best suits your needs, your experience…And, hopefully, which will provide you with the most fun and pleasure in getting there.

W – Way Forward, or Will – This final step looks at concretizing your plan by looking at the steps you need to now take, given what you've discovered in the first three steps, to grow from where you are now, to reach your intended destination.

Using the map analogy, this is where the rubber hits the road. You need to determine which route to take and what your itinerary, step-by-step, will look like.

This final step in the process identifies which steps come first on your journey plus how you'll keep yourself nourished and motivated along the way.

Finally, it's good to build into this step, times when you'll review your progress, to ensure you're still on track to getting to your desired destination. It's helpful to decide ahead how frequently you should review your map, determine your progress, and fine-tune your route.

The GROW model is simple, but when each step is applied conscientiously, it can profoundly help with identifying and thoughtfully planning your journey to your destination.

3.3 KEPNER-TREGOE PROBLEM-SOLVING AND DECISION-MAKING

> *"To 'see both sides' of a problem is the surest way to prevent its complete solution. Because there are always more than two sides."*
>
> – Idries Shah

Since we all want to make the best decisions possible and sometimes need to be looking at multiple factors and possible solutions, here's a process that's both practical and logical, one which can allow you to methodically examine the options and potential impacts of your decisions.

The Kepner-Tregoe aims to focus on finding the best possible solution, rather than searching for perfection. It's intended to help you evaluate the pros and cons of different solutions in a way which minimizes risk and helps you find ways to deal with potential problems which could crop up as a result of your decision.

This is a powerful asset when problem-solving: the urge for perfection and our human expectations can definitely contribute to a log jam. Perfectionism can contribute to a mental set which is unproductive and can be a real time-waster in stopping you from moving forward.

We'll be looking at the issues of how your mental set or attitudes/beliefs can contribute to the challenges of problem-solving, in a later chapter. For now, knowing this process addresses some of these issues by moving you closer and closer, step-by-step, to your ideal solution is helpful. The Kepner-Tregoe can be both effective and potent when you're struggling with ambivalence in deciding which solution to try.

It was also developed to minimize biases in the decision-making process based on prior experience and beliefs as much as possible (given we're humans making the decisions) by using rank ordering of various problem-solving components. This helps you deal with the problem-solving components in a less emotional and more neutral fashion in assessing which components are more heavily weighted in the areas which matter most to you.

The approach is straightforward with only four steps.

Step 1 – Appraising the Situation – As in other models, you'll want to spend some quality time here looking to clearly identify the concerns, while also clarifying your priorities.

You'll identify both what you *need* and what you *want*, plus any limitations which are built into your system.

Once your needs and wants are identified, you'll want to rank order your wants, applying a number to each, which represents their relative weights – ie. how important are they, priority-wise.

For example, your list may look like 'Want A' has a weight of 6, whereas 'Want D' may only have a weight of 2 (given it's not as important as 'Want A').

Step 2 – Analyzing the Problem – Now that you've identified your wants and priorities, it's time to look more precisely at the problem in all its manifestations by also examining and carefully analyzing the cause[s]. And brainstorming as many alternative courses of action as possible.

Don't skimp on this step. The following two steps rely on your having done a thorough job in these first two steps; your potential solutions depend on your having been comprehensive here in having analyzed the situation, your priorities, the nature of the problem, and the differing factors contributing to it.

Next, once you have your list of possible solutions generated, check them against your previous lists from step 1. Any alternative solution which doesn't fit your "needs" list is now eliminated.

Now, using a scale of 1 to 10, rate each of the remaining alternative solutions against each of the 'wants' on your list; how many wants does it address? This gives you a satisfaction score for each possible solution.

Then, for each alternative solution, now go back to your list of needs and wants, from the first step. Multiply the weight of each objective/want (from that first list) by the satisfaction score (which you just identified in this step) to come up with the total weighted score for each possible solution.

So, for example, looking at possible solution #1, you should look more closely at how this potential solution matches and satisfies each specific want. Based on this, you assign it a satisfaction score of 4 (it matches 4 wants).

Those wants which this solution satisfies each already have a score from the first step (signifying how important those wants are). In this example, it was 6 for want A.

Now you multiply the scores (4×6) to come up with a total weighted score of 24. Repeat these steps with each potential solution, to see how it fits your wants. You'll now have a list of weighted scores, representing the rank ordering of your possible solutions.

Step 3 – Analyzing the Decision – This step invites you to look at the various possible solutions - to choose the top two or three numbers in your total weighted scores.

Next, you complete a risk assessment for each one, rating for adverse effects (both in terms of significance, and probability) to determine which makes the best possible decision with the lowest possible adverse effects. That's your solution to implement.

Step 4 – Analyzing Potential Problems – Given no solution is going to be perfect and you can't always predict with 100% accuracy how implementing it will go, the final step looks at supporting you in assessing potential risks that could accompany your chosen solution with a view to identifying preventive actions to mitigate potential trouble further down the line and to establish contingency plans.

The Kepner-Tregoe Problem-Solving and Decision-Making method can be very useful when there are a lot of potential solutions for methodically assessing the strengths of each, based on your needs and wants and the unwanted effects, as well. It also offers some planning ahead to minimize the risks of the chosen solution.

If you have many options to review, it can, however, be a time-consuming practice to spend the needed time on each step with each option.

3.4 OODA LOOP

> *"The problem is not that there are problems. The problem is expecting otherwise, and thinking that having problems is a problem".*
>
> – Theodore Rubin

This model evolved out of military strategic operations, created by U.S. Air Force Colonel John Boyd. He described that when dealing with an adversary, if a decision-maker can get inside the opponent's mindset by understanding *their* OODA loop, it gives the decision-maker a distinct advantage.

Mastering this loop is akin to developing the mind-set of a chess master who always considers all the variables and thinks five steps ahead. This includes your use of chaos, diversion, ambiguity, and confusion as some of your playing pieces/tools to keep your opponent off-balance in their decision-making. In order to strategize most effectively, you need to have a very clear picture of how your opponent thinks. The OODA helps you practice the needed skills.

OODA is an acronym, each letter of which stands for a word in this problem-solving 'loop'.

O – Observe – In this initial step, you acquire the necessary raw information upon which later decisions and then actions are developed. Again, you want to gather as much information as possible in this step, including information which may appear to be irrelevant.

O – Orient – Boyd has commented that this 'O' is *the* most important part of the looploop: „As the repository of our genetic heritage, cultural tradition, and previous experiences, (it's) the most important part…since it shapes the way we observe, the way we decide, the way we act."[2]

This step looks at how the observations from the first step make sense, given your 'lens'. Your lens consists of previous experience, cultural and genetic factors, new information, and your ability to analyze and synthesize information. These factors all combine to inform your decisions, as well as those of your adversary or competitor. The faster and more efficiently these factors can be understood, the more quickly you can move efficiently and thoroughly through the loop, gaining a viewing point from inside your opponent's perspective by tuning into *their* lens.

This can create disorder and confusion in your opponent since some of your decisions may look as though they're unpredictable, confusing, or ambiguous.

D – Decide – Based on the two O's, you devise your plan of action.

A – Act – The final step in this initial loop is to act. Once you've begun to implement your decision, you immediately begin the next loop, assess the impact of your decision, and make any necessary adjustments, or corrections.

The intent overall is to strategically stay a step (or more) ahead of your opponent's thinking, using their thinking strategies to help you develop effective ways to keep them off balance. In turn, this then creates in your opponent's decision-making under – or over-reactivity to activities or conditions, which have been orchestrated by your effective use of the OODA.

How's this work in a business, rather than on a battlefield? Well, consider an example of someone in a highly competitive business environment.

You can use the OODA steps to efficiently and effectively gather the information (step 1) about an industry problem, which you then use to understand the underlying factors as to why the situation developed the way it did (step 2). Then, you develop a plan to address the underlying issues (step 3), and, finally, you act upon the plan (step 4), which allows the problem's underlying factors (from your two 'O's') to dissolve, which sorts the problem.

Then you immediately repeat the process, by re-assessing new information based on your observations of your actions until the problem is completely resolved. This is why the OODA is referred to as a 'loop'; at each step, you can move forward, and the information you have may also loop back to re-commence another loop.

You should be able to do this quickly and efficiently and your competitors are instead kind of bumbling about with either a poor grasp of all the factors or just reacting to what happens without having developed a plan. Can you see where this gives you a decided advantage?

This takes some skill to develop, obviously. However, with practice, the process becomes simple and more powerful. It's a habit, a strategic way of looking at the world and understanding the problems which inevitably develop in ongoing interactions. This is not a model you do once to solve a problem and then forget about it; rather, it's a loop that is constantly in motion. The faster you become at it, the more advantageous your position with regard to competitors.

OODA works well in the military because of the chain of command. It can also work well in a business where one person is making the decisions using the OOMLA.

However, it works less well in settings where teams of people are collaborating in the decision-making process. Why? Each person contributing will have their own ideas, beliefs, experience, genetics, and traditions that inform their own observations and orientation (steps 1 and 2). This, obviously, creates the potential for more divisiveness and extra time working it through. You lose the speed advantage that, in addition to the proactive nature of this loop, is part of what's beneficial about this strategy.

Overall, if you appreciate the gaming aspect of strategic thinking (ie. you enjoy thinking of life as an ongoing, unfolding chess match), this could be a problem-solving strategy that's a great fit for you!

3.5 PDCA

> *"We always hope for the easy fix; the one simple change that will erase a problem in a stroke. But few things in life work this way. Instead, success requires making a hundred smalls steps go right, one after the other".*
>
> – Atul Gawande

PDCA is another acronym; it stands for: Plan, Do, Check and Act.

The PDA, often credited to Dr. W. Edward Deming, is also sometimes known as the Shewhart Cycle. Deming was a pioneer in quality management processes, and his work was successfully used in manufacturing by the Japanese. He developed this model to ensure a process for quality purposes, which was both repeatable and clearly defined.

It's a circular model, developed to assist you in carrying out change. The circularity reaffirms the need to repeating the cycle over and over, to ensure continuous improvement. It's especially helpful in avoiding what's been called "analysis paralysis," which is defined as a moment in which you may have insufficient information to initiate a comprehensive implementation process.

Rather, the PDCA helps you move closer and closer to perfection, in small, repeatable steps, even if you have limited information in the beginning. Let's take a look at how this works.

P – Plan – As in all problem-solving patterns, you begin by first identifying and then analyzing the challenge/problem. This step is about noticing the opportunity the problem presents to you and gathering as much data to plan for the upcoming change as possible.

D – Do – This is not implementing the plan from the first step! Rather, it's about developing a testable plan based on information from the Planning step and now testing it out, as a pilot project in order to gain more feedback/information, before full implementation.

C – Check – After you've run the pilot, this is your opportunity to review the results and re-analyze. What needs to be fine-tuned or tweaked to improve the results? Incorporate those results. Do you need to run another pilot now, to re-test, or are you confident that there is enough right about your plan that you're ready for taking the next step in Deming's circle?

A – Act – The final step is Acting. Now's the time; once your pilot results are satisfactory, you can implement your plan fully.

When is this problem-solving circle helpful? It works well when you're beginning a new project and don't have much information; the PDCA helps you gather together enough information to create a pilot that you can test, to gather more information for you to analyze, before needing to sink all your resources into an untested plan with potentially insufficient information.

Likewise, if you're in a situation where you need to define a work process that's repetitive, the PDCA can help you look at continuous improvement over time.

The PDCA can also be helpful, if you're looking to verify and prioritize root causes of problems you're continuing to struggle to overcome in spite of having tried some solutions.

Finally, whenever you're ready to implement a change, this model works well; it's simple, and the piloting stage (Do) encourages you to try innovative new solutions in a small way first, which allows for more data gathering to analyze further before committing to full implementation. This process can save you time, money, resources and (potentially) your reputation.

Just as a circle has no end, the PDCA is meant to be used in a circular fashion over and over again to respond to the ongoing interface between solutions and real life unfolding with all its infinite variations and permutations.

The Deming circle is a simple, straightforward problem-solving strategy which has been used with great success, notably in the Japanese manufacturing sector. It's easy to do and to repeat. It works well in situations where there are problems about which you have little information. The Deming circle with its test pilot format, means you begin to work with the information (however limited) that you already have and continue to fine tune, gathering more information as you go until you have the knowledge, experience, and data to ensure success for full implementation.

3.6 RPR

"Never try to solve all the problems at once – make them line up for you one-by-one."

– Richard Sloma

A three-step problem management process, RPR stands for Rapid Problem Resolution. It was first developed in 1990 to be utilized in IT environments where quite often problems recur until they're resolved. So, given the complexity and ever-changing nature of most IT arenas, there is also a focus in using the RPR and on choosing only one symptom to work on at a time.

The core process includes:

Discovery – This step looks first to gathering together and analyzing all the available information and then to choosing one specific symptom of the problem with which to work.

Investigating – In step 2, you develop an action plan, which also clarifies the diagnostic data. Then, you pinpoint the root cause and iterate, if required.

Fixing the problem – Finally, you create and implement the solution or fix. Then, you confirm whether the root cause was addressed successfully.

Depending on the situation, additional stages to the problem-solving process can either be added or subtracted, as warranted in each situation.

In addition to the core process described above, the RPR also includes some supporting tools and techniques. These help clarify how to achieve the objectives in the steps of the core-process. The supporting techniques also provide examples which can be available in any business.

Just as with any problem or problem-solving technique, the RPR has pros and cons.

Originally created to deal with diagnosing recurring or ongoing problems in the IT arena, the RPR successfully deals with such grey problems as transient performance problems, or incorrect output errors which are intermittent. Where you want a fast process to get a single problem quickly identified, analyzed and solved. So, it's great to use in settings similar to where it was developed, such as in fast-changing, complex settings where there are recurring IT grey problems, which necessitate focusing on just one problem at a time.

On the other hand, some critics have suggested that it's more of a helpful adjunct to other methods, given it doesn't necessitate delving deep into a comprehensive root cause analysis of all the components evident in the problem. Plus, some suggest they prefer not waiting for the problem to re-emerge in order to move into the Investigatingphase, which does necessitate a repeat of the problem in order to apply the solution.

However, if you're looking for a simple process that divides a problem up into single issues and you're looking at IT problems such as grey problems, the RPR problem management process may provide the solutions for which you've been looking.

3.7 PDCA

> *"We always hope for the easy fix; the one simple change that will erase a problem in a stroke. But few things in life work this way. Instead, success requires making a hundred smalls steps go right, one after the other".*
>
> – Atul Gawande

PDCA is another acronym – it stands for: Plan, Do, Check, and Act.

The PDA, often credited to Dr. W. Edward Deming, is also sometimes known as the Shewhart Cycle. Deming was a pioneer in quality management processes, and his work was successfully used in manufacturing by the Japanese. He developed this model to ensure a process for quality purposes, which was both repeatable and clearly defined.

It's a circular model, developed to assist you in carrying out change. The circularity reaffirms the need to repeat the cycle over and over, to ensure continuous improvement. And it's especially helpful in avoiding what's been called "analysis paralysis", when you may have insufficient information to initiate a comprehensive implementation process.

Rather, the PDCA helps you move closer and closer to "perfection", in small, repeatable steps, even if you have limited information in the beginning. Let's take a look at how this works

P – Plan – As in all problem-solving patterns, you begin by first identifying and then analyzing the challenge/problem. This step is about noticing the opportunity the problem presents to you, and gathering as much data to plan for the upcoming change as possible.

D – Do – This is *not* implementing the plan from the first step! Rather, it's about developing a testable plan, based on information from the Planning step, and now testing it out, as a pilot project, in order to gain more feedback/information, before full implementation.

C – Check – After you've run the pilot, this is your opportunity to review the results, and re-analyze. What needs to be fine-tuned or tweaked to improve the results? Incorporate those results. Do you need to run another pilot now, to re-test, or are you confident that there is 'enough right' about your plan that you're ready for taking the next step, in Deming's circle?

A – Act – The final step is "Acting" – *Now's* the time, once your pilot results are satisfactory, to implement your plan fully.

When is this problem-solving circle helpful? It works well when you're beginning a new project, and don't have much information – the PDCA helps you gather together enough information to create a pilot that you can test, to gather more information for you to analyze, before needing to sink all your resources into an untested plan, with potentially insufficient information.

Likewise, if you're in a situation where you need to define a work process that's repetitive, the PDCA can help you look at continuous improvement over time.

The PDCA can also be helpful, if you're looking to verify and prioritize root causes of problems you're continuing to struggle to overcome, in spite of having tried some solutions.

Finally, whenever you're ready to implement a change, this model works well – it's simple, and the piloting stage (Do) encourages you to try innovative new solutions in a small way first. This allows for more data gathering to analyze further, before committing to full implementation. And that, of course, can save you time, money, resources and (potentially) your reputation.

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The Deming circle is a simple, straightforward problem-solving strategy which has been used with great success, notably in the Japanese manufacturing sector. It's easy to do, and to repeat. It works well in situations where there are problems about which you have little information. The Deming circle, with its 'test pilot' format, means you begin to work with the information (however limited) that you already have, and continue to fine tune, gathering more information as you go…until you have the knowledge, experience and data to ensure success for full implementation.

4 COMMON BARRIERS OF PROBLEM-SOLVING

"Don't let mental blocks control you. Set yourself free. Confront your fear and turn the mental blocks into building blocks."

– Dr. Roopleen

Let's begin this chapter with a small story about my experience with my mental set from earlier this week.

Staying with some friends, I was trying to use their central vac, which I've never used before. It was the evening after a very long weekend, and I was tired. Nonetheless, I'd promised to vacuum and wanted to get it done.

Well, I pulled it out, plugged it in, and tried to turn it on. Nothing. Nada. No juice.

So, I went through my own mental set of potential solutions. I tried turning on the light switch, thinking the two switches might be wired together. I tried plugging the vac in upside down. I tried pushing the 'on' button forward and backward to no avail. I tried taking it to a different floor to see if it worked there. Nope. I just could not get it to work. So, I left it that night.

Finally, the next day, when I was feeling more rested, I tried it again and discovered that the power switch on the handle, instead of moving forward and backward to turn on and off, moved from side to side.

So simple. Who knew?

What does this have to do with useful information for you (aside from your now knowing power switches on central vacs can move in different directions)?

I tell this story to clearly illustrate how our mental sets can limit our problem-solving. A mental set is built on past experience, reflecting being rigidly set in your ways. There in lies the challenge.

When you have a novel situation (problem), and everything you've already tried hasn't worked, what do you do?

Most of us follow the well-known maxim, "If at first you don't succeed, try harder" (i.e. by doing more of the same, with greater vigor), but in spite of the specifics of your problem, the real problem is this: usually our efforts in trying harder *are within our mental set*, within the constructs that have helped us before. That can be okay, if it works.

What if what you've used in the past has been less than ideal (but it's gotten you through, historically)? Even though it may be your fall-back position, it may not lead you forward into successfully finding the best and most innovative potential solution.

And again, our mental set happens within that teensy 2% of the already-known-and-familiar in our brains. The rest is all unconscious potential, and that's where all the juicy mining happens.

When looking for novel, creative solutions to a problem which focuses on new possibilities, this means several things. Using brainstorming, intuition, or any of the other tools from earlier chapters in examining as many facets of the problem, is critical. Additionally, spending time deeply examining the situation around which the problem developed is also likely to be time well-spent. The combination just might result in some new possibilities, in terms of mining some new solutions.

So, we've been discussing one aspect of the challenges associated with having a mental set. Here's another layer for you. We tend, as we saw in the previous chapter, to look for what we want to find and to defend those choices with some passion. Our beliefs are very precious to us. It can be challenging to give them up, even when there's good evidence suggesting we do exactly that. This is why we have sayings like, "You can lead a horse to water, but you cannot make him drink."

Another way of saying this is to acknowledge the connection between our thoughts/beliefs and our emotions. The combination of these influences create powerful behavior in all of us.

Think about a snowball rolling down a hill, getting bigger and bigger. Imagine that the top is where your thoughts and beliefs, which you've accumulated over your lifetime, first create the small snowball. As the snowball rolls downhill, it picks up new snow (emotions and feelings which become attached, over time, to those thought/beliefs). By the time your snowball gets to the bottom, a problem may have developed. That whole process of the snowball being formed and rolling down into a huge ball, results in your making certain choices; your *behavior* is now affected by the massive snowball. It can be only too easy to forget where that massive snowball started – as a tiny little snowball with your early thought – at the top of the hill.

When you're engaging in problem-solving behavior, it helps to pay attention to your mental set/your beliefs (small snowball) and to consider how your mental set may be impacting your emotions, decision-making, problem-identification skills, and solution-sleuthing processes. Looking carefully at all of these factors in turn may just make the difference between a solution which says "Been there and done that, already", and one which creates new and novel learning for you.

Your mental set is that powerful. That's how you turn those mental blocks that Dr. Roopleen was talking about (in the quote at the beginning of this chapter) into new building blocks, or new solutions. *You consciously consider them all*. See what contribution each is making. And then decide whether the solution needs to change. Or whether it's time to let a belief (especially a cherished one) go, to make room for something new in your life.

5 FUNCTIONAL FIXEDNESS

"We shape our tools and thereafter our tools shape us."

– Marshall McLuhan

Ready for some fun? (First the 'bad' news. Then the fun.)

Functional fixedness is like a sub-category of a mental set. It's a cognitive bias which is focused on using objects in an expected, or normed way. So, for example, if you're looking to use a screwdriver to screw something together, but you can't find the screwdriver, what do you do? If you're struggling with functional fixedness, you spend a lot of time searching for the screwdriver to ensure your success with the task at hand.

If you're not struggling with functional fixedness and can think more creatively in a more lateral fashion, maybe you think to yourself, „Oh, I could use the tip of a butter knife, instead" (or a pair of scissors, the edge of a coin, or a paperclip etc.).

The concept of functional fixedness was first examined by Karl Duncker in the 1930s.

Long before Duncker came along, one most unfortunate example of functional fixedness had already infamously occurred, costing many, many lives, when the Titanic sank. Even though it was (obviously) very close to an iceberg when it went down, no one on the ship thought to climb onto the iceberg and wait there for the four hours it would have taken to be saved by the other ship. Instead, many people perished from hypothermia and/or drowning from waiting in the icy cold water for rescue. That's a really good (if heartbreaking) example of functional fixedness. Everyone on board was thinking of the iceberg as being *the source* of the problem (which it was), rather than *also* a potential solution (which it also could have been). Tragically, more than 1,500 people died as a result, who might well have been saved had anyone been able to think more flexibly.

So, how's functional fixedness helpful when it's the opposite of innovation? Though it sounds like a real downer in terms of creativity, it can be efficient in everyday living. Many times, we don't need to think creatively to solve simple problems. Like a mental shortcut, looking at common, mundane ways of using objects can efficiently save on brain power. And that leaves us freer to tackle more novel and interesting challenges, ones that require more brain juice.

Here's one way of moving through this thinking challenge. It's based on functional fixedness research from one scientist who came up with a list of 32 categories based on the physical

features of objects. Results from this research had suggested that, in fact, of the 32 categories, most people overlooked 20.7 (usually the ones which aren't associated with how the object is commonly used).

Well, obviously, missing out on about two-thirds of potential solutions isn't good when problem-solving.

Thus, the idea of the generic parts technique was born. When using this technique, you first want to break each object down into as many parts as possible. Next, ask yourself these questions: 'Can I break it down further?' Then, 'Does the way I've broken it down suggest a use for the object?'

Going back to that Titanic example, the name 'iceberg' suggests something which can hit and sink ships. However, if instead that object is described as something that is 200 to 400 feet long and floats, the opposite information emerges. Maybe it can be used to save people from a sinking ship. It is, after all, pretty stable, too big to sink, and it floats!

When once our brains are loosed from thinking inside the box of conformity and considers a space outside of 'been-there-and-done-that,' the more obscure bits of information about an object may now sashay out from the shadows into the spotlight of consciousness and, potentially at least, provide the basis for an innovative solution.

So, the opposite skill of functional fixedness, which this technique develops, is called divergent thinking. Now for the fun part.

There are also games people have created to increase your divergent thinking. For example, you can ask yourself questions like, 'How many uses for a paperclip can I imagine?' When you play with this, you're practising developing new neural pathways in your brain that encourage new associations. This means new and novel ways of thinking, both in general and when faced with a problem.

If you want to play with developing your divergent thinking, one online site you can use is http://99u.com/articles/7160/test-your-creativity-5-classic-creative-challenges. On this site, you'll find five different fun brain stretchers, which can help you develop more flexible thinking habits. Play with these brain teasers often enough, and you may just be unshackling your mind from the prison of functional fixedness.

The less your thinking is bound by functional fixedness, the more space your creative juices will have to flow and the more inventive your solutions to problems will be.

6 RATIONAL VERSUS ORGANIC APPROACH TO PROBLEM-SOLVING

"OK, all those in favor of decision-making, shrug your shoulders."

– cartoon by Royston

Well, here's where all those other factors and varieties of problem-solving methods all come together. As humans, we have personalities and decided preferences.

Remember that old classic T.V. show (or the re-runs) from the '70s and '80s called "The Odd Couple" with Felix the neat freak and Oscar the slob?

Well, those are both pretty negative, extreme versions of a human truth; we all have our preferences, even when it comes to how we like to solve our problems.

I'm not suggesting here that some of us are as extreme as those characters, but there do seem to be two broad approaches to problem-solving, which seem reflective of whether your brain is more left or right brain dominant.

Let's take a look and see what this means. Remember that this is a continuum, so you may find your own natural style is somewhere more in the middle, than clearly at one end or the other).

Rational Approach:

Someone who prefers the rational approach likes to use a logical, comprehensive, detail-oriented, left-brain way of approaching a problem.

This might include a linear process, which goes logically from one step to the next. Here's an example of how this can look:

Step 1 – defining the problem, moving to
Step 2 – looking thoroughly at all the possible underlying causes, to
Step 3 – meticulously examining all the options to resolve it, to
Step 4 – carefully selecting what appears to be the best choice, to

Step 5 – ensuring the implementation plan is orderly and thorough and that no stones are left unturned in predicting outcomes, to
Step 6 – monitoring the plan's implementation with scrupulous scrutiny, to
Step 7 – re-checking in a comprehensive fashion whether the problem was resolved or whether further steps are needed.

As you can see, this is a very highly organized process. It focuses on an orderliness, which can be very helpful in complex situations where chaos is reigning. This approach also creates predictability and helps people feel relaxed and safe as if things are being well taken care of.

However, in its purest form, it does take a great deal of time and effort, and life can be pretty chaotic and unpredictable under even the most rigorous circumstances. So, even using a process like this, there are no guarantees the unexpected won't show up and create more havoc. Life tends to be like that.

(Felix Unger would LOVE this very left-brain, organized, and rational approach!)

Organic Approach:

Okay, here comes Oscar Madison, the relaxed, let-it-happen slob of the Odd Couple.

People who tend to cluster more towards this end than the rational end of the spectrum, recognize that the world, and organizations within it, are not quite as mechanistic and entirely predictable as to be able to proceed in a smooth, orderly fashion, just solving one problem after the one before it.

If you like this approach, you'll likely prefer to enjoy the journey, rather than over-focusing on the destination. You'll enjoy tweaking the ongoing process as you go along.

Carl Jung, when describing psychological types in his book "Psychological Types" [1923] wrote,

"All the greatest and most important problems in life are fundamentally insoluble. They can never be solved, but only outgrown. This 'outgrowing' proves on further investigation to require a new level of consciousness. Some higher or wider interest appeared on the horizon, and thorough this broadening of outlook, the insoluble lost its urgency. It was not solved logically in its own terms, but faded when confronted with a new and stronger life urge."

The biggest advantage of this organic approach is its high level of adaptability and flexibility when facing and explaining the unexpected and often chaotic changes, which happen in both life and even the best-laid business plans.

However, the biggest disadvantage of the organic approach is that it can be 'loosey-goosey,' lacking a clear frame of reference. This can make it harder for people to feel comfortable, to communicate clearly, and to measure the new solution's progress. Plus, sometimes when a problem recurs, it can be helpful to have a more thorough look at the situation within a more rational approach.

As in all things in life, moderation in both approaches (and knowing when to use each in a flexible way which is tailored to the specific needs, rather than slavishly following one or the other approach) is likely to provide the best supports and the most options in problem-solving. This is, perhaps, an excellent example of how 'both/and' strategizing can be more useful than 'either/or' thinking.

7 PROBLEM-SOLVING STRATEGIES

In this section of the book, we're now going to have a look at some models of problem-solving strategies which may prove helpful to you.

7.1 CONSTRUCTIVE CONTROVERSY – ARGUING FOR AND AGAINST? YOUR POSITION

> *"To me, constructive criticism is when people take ownership of their ideas. But it's hard."*
>
> – Brene Brown

Brene Brown is not alone in feeling this way. Many people don't enjoy conflict, criticism (no matter how positive), or controversy. For some, engaging with another who's disagreeing with them is a stressful and preferably avoided process.

However, there are times when an essential part of problem-solving involves using constructive feedback specifically about differing viewing points. After all, seeing the problem from multiple viewing points can be helpful, not only in giving different vantage points and potential solutions, but also in stretching your brain out of functional fixedness!

So, how can you best do this without dissembling into more chaos and confusion?

Well, in 1979, Roger Johnson and David Johnson developed the Constructive Controversy technique. Since then, the approach has been rigorously tested/researched, and the results have been validated. It's now a well-recognized model for developing and creating sturdy, creative solutions, purposely utilizing controversy or dissention in the ranks.

It is based on five main assumptions.

Our personal perceptions and experiences (as we've seen in earlier chapters) influence our initial perspective of the problem.

As we have noted earlier, when others agree with us, that is, when we persuade others to see the problem as we do, this agreement from them strengthens our belief in our own essential rightness.

However, we begin to experience doubt about our perspective and rationale when others disagree with us, or hold competing views.

This inner doubt that's been triggered can create a need in us to seek out new information since we want to feel confident about our choice.

Overall, this search for additional information, or a more comprehensive perspective, creates better decision-making.

When used with repetition, the Constructive Controversy method helps us circle closer and closer to a more comprehensive solution, since we're allowing ourselves to be challenged by new information. In the process, our initial assumptions, which underlie our position, are often challenged. This is one of its main advantages. It can highlight previously unseen blind spots and other forms of limited thinking.

All that being said, it is not a free-for-all method, which extols chaos and flagrant disagreements. There is a structure to Constructive Controversy.

Before we look at that structure, let's review some of the underlying rules of engagement. These are essential understandings in ensuring cooperative collaboration in a positive environment. It's not about winning and losing.

Ground Rules

1. Everyone shows all others mutual respect at all times.
2. The focus of the process is not on winning and losing but rather on participating in a good decision-making process while using rational, deductive, and inductive reasoning upon which the group's conclusions rest.
3. Encourage active listening. People can request clarification when needed.
4. Don't allow criticizing of the person presenting; the focus is on critiquing the ideas. You want people to be collaboratively sleuthing out the best possible solution, not taking sides against other participants.
5. Encourage everyone to work to understand all sides of the issues within all the alternative solutions.

Given number five, you need everyone to be willing to change their side of the fence for the other side when it's time for that. This will make more sense once the model has been clarified below. For now, just know you need to encourage everyone participating to take positions on both sides of the fence for all the alternative possibilities being examined.

With the ground rules now clarified, let's take a look at how this process actually unfolds.

How-to's for Constructive Controversy

Brainstorm as many possible solutions as possible, as broadly as possible.

Next, create advocacy teams. Give each team a potential alternative, and their focus is to research it as deeply as possible. Their job will be to present the best possible scenario illustrating why their alternative is the best and should be selected.

To use the Constructive Controversy process, now have each group take a turn presenting their findings to the entire group of all advocacy teams. The representing team is trying to convince all the others of the validity of their approach to solving the problem.

The other teams (who also each have their approach that they feel will be the best) all get a chance to argue against the solution being presented. It's an open discussion, almost like an informal debating team.

You want to encourage participants to use their critical thinking and their logic and to stay on task, just focusing on this one alternative while it's being presented.

This process is about getting a deeper appreciation of all of the alternatives, in turn, so that the best possible decision can be made after thoroughly examining each one.

You want to support each advocacy team, reminding them to look for solid data, and to ask as many questions about the conclusions drawn by the presenting team as possible – the more, the better.

When the first team is done, the next advocacy team takes its turn presenting their approach. This process repeats and proceeds until all teams have presented.

Next, each of the teams who argued against another team's approach is now asked to argue on behalf of that approach. This is the part of the Constructive Controversy process that's so helpful – people can radically change their own opinions, which creates much deeper levels of understanding.

Finally, it's decision-making time. Everyone comes together now to explore what everyone has learned. Out of this, the final proposal emerges.

Sometimes scheduling a post-decision-making session to evaluate the plan can be very helpful. This can help re-consider and review the decision. And, as importantly, it can also help create an opportunity to review the process and find ways of improving the constructive controversy process for next time.

As you can see, the Constructive Controversy process encourages flexible, dynamic, creative thinking for everyone involved. People learn to give up their beloved positions, at times, when it becomes obvious that another solution may actually work better. This process, when well-structured, also helps build strong and vital relationships among your employees, creating a vibrant, enjoyable environment within which respect and creativity can flourish.

Once the process is learned and comfortably internalized, you can also use it in smaller, less formalized ways in your life. For example, you can try taking more than one side or perspective yourself, in looking at a problem and potential solutions. Or you can ask another, at home or at work, to play devil's advocate for you.

Understanding and practising the Constructive Controversy process results in better, more flexible, and creative thinking, which, of course, means better decision-making and better solutions.

7.2 MEANS-END ANALYSIS (MEA)

I want to take my son to nursery school.
What's the difference between what I have and what I want?
One of distance. What changes distance?
My automobile.
My automobile won't work. What is needed to make it work?
A new battery…

– Newel and Simon, "Human Problem-solving"

Well, this is another very left-brain approach to solving problems. It was first noted in the 1950s in engineering books focused on design methods utilizing creativity.

MEA made another appearance in either 1963 or 1972 (sources differ on the date), when Allen Newell and Herbert A. Simon began using it for problem-solving.

It has been used extensively within the Artificial Intelligence field with computer programs to control the search within the problem-solving process.

Carnegie also used it at Mellon U, where another problem-solver called Prodigy was developed.

And Professor Morten Lind (in Denmark) used it to develop what has been called multi-level flow modeling (MFM), for problem-solving in automation and industrial control systems.

MEA invites you to consider a problem by first looking at your goal and then considering all the obstacles that stand between it and where you are now. When you methodically eliminate each of the obstacles (which also includes clearing the smaller obstacles which impact each of the obstacles), then your pathway to your goal is unimpeded. Success!

You could say that this method is the queen of the divide-and-conquer methodology since MEA is a more flexible approach, given that the sub-problems in this approach can be of different types (unlike the divide-and-conquer method).

The crux of the method's success as a problem-solving technique is to build up simple (or complex) associations between states and specific actions that can bring about the changes you seek, step by step. This is a process of discovery that unfolds within a specific series of actions to address whatever obstacles stand between you and your goal.

To use the means-end analysis, you first need to clearly identify your goal. Then, clarify if there are factors or limitations, which need to be considered an intrinsic part of the process,when thinking about how you can attain your goal.

There are many brain-teaser puzzles that illustrate the process of MEA in a fun way. Here are several, which will illustrate the model.

First example. There's what's been known as the **Tarts and Vicars puzzle**: On one side of a river is a church. On the other side is a boat with 6 people on the shore. Three are "ladies of the night" and three are church vicars. The church service is beginning later this morning, and all six need to get across to the church. However, there are some constraints within how this feat can be accomplished.

Obviously, there has to be at least one person who travels in the boat;

At any time, there is also a maximum of two people in the boat;

To ensure the vicars are not tempted by the intoxicating enticements of the lovely ladies, you cannot have more women on either bank than there are vicars.

Can you figure out how to get all six across, with these constraints in place? If so, congratulations! You've just demonstrated your skill with the MEA approach to problem-solving!

Engaging and fun, right?

Here's another common puzzler, which benefits from an understanding of and skill with MEA. Remember, you want to build a chain or ladder of steps you take. Each step takes you closer, narrowing the gap between you and your desired goal:

The Infamous Tower of Hanoi – There are three rods in a row, standing vertically on a piece of wood, and there are three donuts (or discs with a hole through the center of each). Each donut is a different diameter, and they're all stacked in ascending order (largest at the bottom, smallest at the top) on the far left rod. Your mission, should you choose to accept it, is to move that entire stack to a different rod, but, of course, there are some rules or constraints:

You can only move one disk at a time.

For each move, you can only move the top disk on a stack to put it on another stack or on a rod.

You cannot place a bigger disk on top of a smaller one.

With three disks, this puzzle can be solved in seven moves. Ready? GO!

Finally, here's another simple yet challenging MEA puzzle called Three Coins. Place (or envision) three coins in a row on a tabletop. On either end, tails are showing. In the middle, it's heads. In exactly three moves, can you make all three coins all the same, either all tails or all heads?

Remember, when using the MEA, you want to follow these four overarching steps:

Define your goal clearly.

Next, define all the obstacles you need to surmount to reach your goal. Each of them becomes a sub-goal. (Sub-goals can often have sub-sub-goals too…)

Choose the most important of the obstacles to tackle first.

Keep going, based on the outcome, as you circle closer and closer to reach your goal.

Remember, just like those MEA brain-teasers, have some fun with this; life's challenges are meant to be entertaining for us, as well as helping us grow!!

7.3 APPRECIATIVE INQUIRY

"Nothing is impossible; the word itself says 'I'm possible'."

– Audrey Hepburn

So far, we've looked mostly at problems as just that. Problems. Obstacles to growth. Challenges. Stuff that need fixing.

What happens if we flip that coin over and look instead at what's going right?

Then, do more of that.

This way of looking at a topic was first spearheaded in the mid 1980s, at Case Western Reserve University by David Cooperrider.

A good beginning place to understand this innovative approach is to look to the meaning of the words themselves. To 'appreciate' means to value and recognize the attributes or contributions of people and/or things. 'Inquiry' means to discover and explore within the energy of being open to new potentials and searching to understand something more deeply.

So, when you put those two words together and are willing to appreciate what's already valuable and good in the current situation, you then open to learning and discovering new ways to create positive change in moving forward.

Appreciative Inquiry even affects even how you define the situation or topic. Just think about this: if you're looking for what goes right, rather than problems or things that need fixing, you're likely to come up with some *very different* information about the situation. This is one way of bringing previously unseen or unacknowledged strengths into the foreground where they can be further grown and developed.

The approach is known for its "5 D's." These are the five steps needed, to help support you through the Appreciative Inquiry process: Define; Discover; Dream; Design; and Deliver/ Destiny. Let's take a look at each of them next.

Step 1 – Define, or "What Is It We Want to Explore" – This is where you analyze the situation. Avoid the temptation of focusing on the problems (since that's how we've all been trained to look at solving problems) and instead focus on the positives and strengths. In defining this situation, choose words which reflect what's already present as strengths. Make sure you sidestep value-laden, critical potholes in the road and choose instead to explore as

many avenues and possibilities for positive change as possible. It's good to keep your topic broad to allow more space for seeing the strengths.

Step 2 – Discovery, or "Noticing The Best of What Is" – This is where you put on your sleuthing caps and look at the best of the best from your past, in addition to what's working well now. It's good to involve as many people in this process as possible to get as many viewing points and as much breadth as possible.

Ask questions and invite success stories to really get people focusing on what's most appreciated or valuable from their viewing point.

Some helpful discovery questions could include the following: What attracted you (to your employees) most about working in this company? In order for the company to be successful, what are the most important aspects (which are already present to some degree) that need to be either maintained or grown? What are their (employees') stories about when they felt most enthusiastic and/or proudest about their work?

Step 3 – Dreaming, or "What Might Be Possible" – What could be more important than clarifying, defining, identifying your dream about what might be possible? Dream big here. There's little point in dreaming small. Use what you've already defined and discovered in terms of strengths, and now dream them even bigger. Reinforce them. Create opportunities for people to imagine that it is already so, and how this will feel.

If it's not clear yet how to move your strengths forward into this step, you can bring together a group of dreamers to brainstorm new, creative possibilities, built securely on what's already emerging as your greatest strengths. When you've envisioned your way forward with some big and beautiful dreaming, now it's time for the following.

Step 4 – Designing, or "What Should Be Possible" – This step builds on the last. It's where you put all the practicalities in place to manifest your vision. You want to take care of the processes and strategies which will give your dream lift. You can enrich your ongoing discovery here with questions related to the impact on relationships, people, your company's culture, and systems.

Step 5 – Deliver/Destiny, or, "What Will Be Possible" – In this final step, the implementation of your plan, your dream will require lots of preparation and planning. You need to keep the Dream (from your third step) front and center. With all the different people with their various roles/functions, everyone needs to be working to manifest the dream. So, when the Dream is the focal point for everyone, all the changes which are happening in all the different departments will all work collaboratively to birth your Dream.

In the end, as in the beginning and within each step of this model, the best successes come when it evolves out of all the participants' experiences and contributions. Then everyone can own the new Dream together.

If you want to see a fantastic video about the Appreciative Inquiry model, check out https://www.youtube.com/watch?v=Tfn6vD4yyC4. It beautifully describes moving from a fear-based, problem-solving approach to a passion-based journey of transformation, via focusing on strengths and appreciation.

The Appreciative Inquiry model can be used repeatedly for continuous, ongoing improvement. Who doesn't appreciate having positive outcomes for positive thinking recognized and validated. It purely feels good. What a great concept and motivator that can be!

7.4 THE SIMPLEX PROCESS

> *Understand that most problems are a good sign. Problems indicate that progress is being made, wheels are turning, you are moving toward your goals.*
>
> *Beware when you have no problems.*
>
> *Then you've really got a problem.*
>
> *Problems are like landmarks of progress.*
>
> – Scott Alexander

In his 1995 book called *The Power of Innovation: How to Make Innovation a Way of Life & How to Put Creative Solutions to Work*, author Dr. Min Basadur shares a problem-solving technique that is both comprehensive and suitable for a broad range of challenges or problems.

The Simplex process has eight steps, which together form a circle. The circle is as important as each of the steps, reflecting the benefits of continuing the process and recursively re-working each of the steps, heading towards ongoing growth. Remembering that "problems are landmarks of progress."

The eight steps in the Simplex Process, while similar to many problem-solving methods, ensure a thorough process, which doesn't miss any crucial steps.

Problem-Finding – In this first step, you want to ask a series of questions that are intended to ensure clarity around whether you're addressing the right problem or not. These questions can include the following possibilities:

Are there bottlenecks, or places where your work flow slows down, which could be improved?

What might your customers want you to improve? (You can look to customer complaints to discover possibilities.)

What smaller problems are you encountering that could turn into bigger ones if unattended?

What kinds of innovative things are your competitors doing that might improve your services?

Are there changes you could make now in predicting future trends, which would put you/keep you ahead of the game?

If, after asking all these questions, you're still not sure whether you've identified the right problem, no worries. Wait until you get to step three before addressing this worry.

Fact-Finding – In the next step, you need to find as much information as possible about the potential problem areas. Dig deep. Focus on how different people in different roles view the problem. Look again to your competitors to see how they may be handling a similar problem effectively. Research to see what's already been done (been there and tried that). Clarify what technologies or processes or services would be helpful and whether the benefits connected to solving this problem will be cost effective. In other words, is it worth the time, effort, and money needed to solve this problem?

Problem Definition – At this stage, you'll likely have a pretty good idea of the problem and the facts surrounding it. Now, it's helpful to look at the scope of the problem identified; if it's too narrow, you could run the risk of just fixing a symptom of an underlying problem (the band-aid approach). Or, if you define it too broadly, you could bump into not having sufficient resources to address it effectively.

Two questions suggested by Min Basadur at this stage are the following: "Why?" (ie why does it matter?) and "What's stopping you?" Both these questions can help take a broadly defined problem and narrow it down more helpfully.

Idea-Finding – This is the brainstorming step where you'll want to generate as many possibilities as possible without evaluating or editing them yet! You won't know yet, whether one of those not-so-great sounding ideas could just lead you right to a really great idea. So, just keep focused on lateral thinking and coming up with as many ideas as possible, no matter how wacky or impractical some of them may seem.

Selection and Evaluation – Now that you have a bunch of potentially great ideas, in this next step you'll want to identify useful criteria which help you winnow the wheat from the chaff. Now's the time to refine, evaluate, and choose the most promising option.

Planning – Now that you've selected a solution which you feel is most promising, it's time to put it into action. You can use an action plan to help you identify the Five W's and the One H (who, what, where, when, and also how). This is where you concretize the plan of action with do-able steps.

Selling the Idea – This important step cannot be under-emphasized. Even the best solution in the world won't go anywhere unless you can sell it to the decision-makers. In addition to your boss, these can also include other stakeholders or investors upon which this solution

will impact. In this step, you'll also need to focus on how the needed practicalities impact on other parts of your system, such as the politics involved, people's anxieties about change, etc.

Action – Here you go! It's the action step: put your plan into practice and see the results.

Oh, look! Now that you've worked through the eight steps of the Simplex Process, you're back at step one again. Yep, time for another go-round. You want to use this tool over and over again to ensure continuous improvement and growth.

7.5 STRAW MAN APPROACH

> *"Have you got a problem? Do what you can, where you are, with what you've got."*
>
> – Theodore Roosevelt

Within the problem-solving process, a straw man is a rough prototype, one that may get knocked about and lose some stuffing while testing it out to see how well it holds up. This means if it doesn't hold up, it can be discarded (it's just a rough prototype, after all), and potentially a new straw man built, based on a new hypothesis. Or, sometimes knowing what isn't the answer can help further clarify where else to look for the best solution possible.

A Straw Man is considered to be hypothesis-driven; it's often is used in situations where you really don't have enough information to get beyond decision paralysis where "what you've got, where you are" doesn't seem like enough to move forward with.

What it isn't!

This is *not* the same as a straw man in debating or politics in which an opponent attacks an alternative (straw man) rather than the opponent's actual position. This is quite a tiresome ploy, played out over and over in political debates. So, *not* the same straw man as here.

It also isn't (often) the final solution. It's just a rough draft to tease apart a hypothesis-driven potential solution.

When to use it?

You can use a problem-solving Straw Man approach when you're developing a preliminary outline or when you're in need of an initial draft version of something.

Remember, it's not intended to be the final solution; its purpose is merely to develop a draft of something which could benefit from further finessing. It leads you closer towards the best possible answer (even when the straw man itself may not provide that answer).

How is it helpful?

So, you may be wondering, if it doesn't lead you toward the answer, what's the point of the Straw Man? Well, if you're working in a collaborative setting with others, sometimes when you don't have a clear Straw Man, lack of understanding amongst the group can create frustration and miscommunication. That's not only a time waster, but it's also bad for morale.

Alternatively, without a Straw Man, you could also get stuck just wasting a bunch of time creating and developing a number of solutions which are either incorrect or less than optimal.

Maybe you're just feeling stuck within decision paralysis, unsure of which way to move forward. The Straw Man invites you to move forward, understanding it's just a Straw Man and not necessarily the best answer. At least it gets you unstuck and moving again.

With a solid, well-defined Straw Man in place, your team now has the chance to move forward, with picking it apart to test your hypothesis.

Cautionary notes with a Straw Man

Remember, it's just a rough draft. Be prepared to give away your Straw Man; don't take it personally when it gets picked apart and sometimes discarded.

Another reminder: if you're part of the team doing the picking apart, you want to focus your efforts not on picking apart the creator but rather on the creation!

In summary, the Straw Man is a terrific problem-solving tool when you have a hypothesis you're wanting to test out but not enough information about whether it will fly or not. It's like a rough draft whose purpose is to generate criticisms and helpful feedback.

If it somehow withstands the picking apart, showing signs of being resilient and strong, so much the better. Remember, it's built specifically to be torn down. So, it's good to be clear that (usually) it's not the actual proposal.

The Straw Man can be helpful in getting things moving again and getting people thinking about the issue. This avoids lengthy, unclear conversations about diffusing ideas about which to get log-jammed. Rather, it develops a commonly held understanding of the problem under review.

However, it's also good to remember, more often than not, that it's a temporary testing of a hypothesis; you don't want to get carried away and jump to any rash conclusions.

That being said, it can be great for helping everyone move beyond decision paralysis into taking some action, moving forward. As the great problem-solver Mary Poppins would say, "Once begun is half done."

7.6 SIX HATS

> *"Sometimes the situation is only a problem because it is looked at in a certain way. Looked at in another way, the right course of action may be so obvious that the problem no longer exists."*
>
> – Edward de Bono

Six hats (developed by Edward de Bono who is known for his work on lateral, creative thinking) is a way of understanding and solving problems.

De Bono realized that oftentimes when discussing a problem with another person, people could end up in unprofitable arguments. Upon further examination of this phenomenon, he discovered it was, more often than not, because they were each representing a different way of looking at the problem. If they were talking apples and oranges, and assuming since the conversation was about fruit, they were both talking about the same fruit.

So, he developed the Six Hats process of understanding problem-solving.

Imagine seeing the metaphor of six stacks of hats lined up on a table. Each of the six piles is a different color, and each represents a different way of looking at the problem. When discussing the problem, it's helpful if everyone collectively takes turns wearing the same colored hats. This way, each perspective, each color, has its turn being explored methodically, and everyone's focused together on the same aspect of the problem-solving process.

It's a practical, interactive, and fast-paced way of moving forward, minus arguing. You learn to separate out the facts from the emotions, the creative from critical thinking, and the positive from the negative. All are valued but each in their turn.

Six hats can be used for ongoing process improvement, new designs/products, resolving conflict, facilitating meetings, group problem-solving, ppresentations, and decision-making. It can also be used in workplaces, individually, in couple relationships, or in families. Six Hats also works well cross-culturally.

In terms of some results:

- MDS reduced their product development lead time by two-three years while clearing out reliability issues and creating a collaborative culture.
- Product development time in a division of Siemens was reduced by 50%.
- Saving $50,000 while cutting their meeting time by 88% and improving morale were three major benefits of using the Six Hats at Potawatomi Bingo Casino.

Those are some pretty impressive results, yes? Ready to take a look at each of those six stacks of colored hats now? Remember, they can be used in the order presented or more flexibly, depending on your needs.

White Hat – "*Just the facts please, ma'am*": This hat looks at how you identify the problem, by examining the known and unknown facts and information.

Red Hat – *Using your Hunches and Feelings*: The red hat looks at the brainstorming process. You can explore fully by using and acknowledging the fullness of all your intuitions, gut instincts, feelings, and hunches. (No judgements allowed!)

Yellow Hat – *Values*: A yellow hat approach to the problem examines the benefits of the different alternatives with the accompanying consequences, allowing you to look at the feasibility and the reasons for optimism underlying each idea.

Black Hat – *Caution*: This is the amber light hat. When you put on the black hat, you're focusing on the potential difficulties and problems, what doesn't fit, and the consequences of each alternative, including why each idea may not work.

Green Hat – *Solutions!* The green hat invites you to focus on new ideas and possibilities within creativity in order to find a solution. You want to maintain a non-judgemental attitude to promote creativity flowing freely.

Blue Hat – ***Managing*:** This hat looks at how you manage the thinking process itself – how you choose your next steps, how you manage your action plans, and how you evaluate the solutions and conclusions. You'll want to keep everyone focused on the topic while wearing the blue hat, remembering the goal.

Can you see where, outside of this process, if you have someone figuratively wearing a blue hat and someone else wearing a black or a green hat, this could create a whole series of challenges in communication?

Even though each person is talking about the same problem, their different assumptions and different ways of processing their hat can result in some very messed up communications. You know, the kind that can go something like this: 'I know you think you understand what you thought I said, but I'm not sure you realize that what you heard is not what I meant' (Alan Greenspan).

Alternatively, when the Six Hat information is acknowledged by all and used methodically, all six hats get their turn being addressed in parallel fashion, the process ensures a systematic overview of each method of focusing on the issue at hand, resulting in a smoother communication process and a more thorough assessment of all the viewing points. Result? A more comprehensive problem-solving process, leading to a more robust solution.

7.7 BRAINSTORMING

> *"Regular brainstorming is as critical to an organization as regular exercise is to your health. It creates a responsive innovative culture".*
>
> – Tom Kelly

Well. We've used the term *brainstorming* in many of our discussions about problem-solving. It plays well in just about any sandbox when it comes to problem-solving.

Let's take a look now at what it really means to brainstorm effectively.

In 1953, Alex Faickney Osborn first popularized the term brainstorming in his book *Applied Imagination*, where it was defined as a process "to generate a long list of ideas in a group, to develop a better solution to a given problematic situation in an organization."

Why brainstorm?

For problem-solving, brainstorming helps to find alternative solutions, search out root causes, support good decision-making, and/or identify issues. Also, it increases innovation, initiative, profitability, morale, and efficiency. Plus, it's great for team building in a friendly, relaxed, safe atmosphere.

Brainstorming is an incredibly powerful technique that can be used equally well by individuals and groups.

Additionally, it brings teams together and helps them collaborate successfully with each participant having a chance to contribute, no matter what their viewing point.

Some General Guidelines

- Judgement and criticism are not allowed in initial stage of generating creative ideas.
- You want to record every idea no matter how unusual. You never know; it may just lead to other ideas which are quite workable.
- You can combine ideas and also connect weaker ones with stronger ones.
- Although no idea can be seen to be too extreme for suggesting during brainstorming, this might suggest a very loosey-goosey format, and that would be inaccurate. When properly done, brainstorming has its own set of rules and structure. It also helps to have a skilled facilitator who is both organized and diplomatic.

Rules:

- Set clear parameters: define the situation and problem as clearly and simply as possible.
- Remember, all ideas matter. No criticism is allowed at this stage. That comes later on in the problem-solving process. You want to encourage and celebrate diversity.
- Welcome cross-fertilization . It's helpful to innovatively combine ideas to synergize them.
- Don't worry about repetition.
- Don't get sidetracked into stopping to discuss; keep on generating more.
- Record all ideas.
- Support thinking outside the box.
- Make sure you're not overlooking the right-under-your-nose obvious solutions.
- Encourage merging ideas from different, apparently unrelated fields.
- Clarify and challenge all your assumptions.

- SWOT: identify all the Strengths, Weaknesses, Opportunities, and Threats.
- Change the size of the goal; make it smaller, or bigger. How would you respond in each scenario?
- Look at your resources. If there were no issues related to time, people, money, and/or supplies, how would this change things? What would you then feel free to do?

Brainstorming Steps

Here are the steps involved in the brainstorming process:

1. Clarify the objective or topic, keeping it as simple as possible.
2. Define a specific time limit and have as many suggestions and ideas emerge during that time as possible. Don't stop to chat about any of them; you're after quantity here.
3. Next, condense, combine, refine, and/or categorize all the ideas. You can use paper or colored markers on a dry erase board.
4. Now, analyze all the consequences or effects of each idea. Here's where you look at each with a discerning eye.
5. Agree on and prioritize your options.
6. Agree on the actions to take forward and set due dates for each.
7. Decide on follow up actions.

Some Additional Brainstorming Strategies

Group Passing Technique – Seat everyone in a circle. Each person writes their idea on paper, which is then passed clockwise to next person. The next person then adds onto the idea. Continue brainstorming until all the papers have moved around the circle until they're all back with their original innovator. Then, vote on all the ideas.

Team Idea-Mapping Technique – Here the focus is on the power of collaboration. Everyone is given a topic, for each person to develop as many ideas as possible. All ideas are then put on a group idea map (ensuring no ideas are left out).

Nominal Group Technique – This idea comes from Delbecq and Vandeven. Divide everyone in the large group into smaller groups. Each group writes ideas anonymously, to be collected by the facilitator; the ideas can later be voted on.

As you can see, the process of brainstorming can be used to facilitate increasing the flow of creative problem-solving ideas within many contexts, both at work and at home in your

relationships. It's just one of those life-skills which everyone can benefit from, in responding creatively with processes which help breakthrough the challenges that life puts before all of us!

7.8 PRODUCTIVE THINKING MODEL

The Positive Thinking model was first developed by creativity theorist and author Tim Hurson and published in his book, *Think Better*, in 2007.

This model can be utilized by both individuals and groups.

Each of the six steps outlined in this model specifically focuses on bringing both critical thinking and creativity to each and every stage of the problem-solving process. It is this combination of creativity and critical thinking all along the process that results in better ideas and more effective solutions when using this model.

Some of the other problem-solving tools we've looked at, such as brainstorming and lateral thinking, can also be incorporated into this model.

Here are the six steps found in the Productive Thinking model:

Ask the question,"What is going on?" This first question invites you to explore your understanding of the challenge you're facing. There are a number of questions you can ask to assist in clarifying this. Again, the idea here is to explore the topic creatively within as broad a perspective as possible.

So, you can ask questions as the following: What seems to be out of balance? What could be improved to work more effectively? What bugs your customers, or your employees/you? What is creating your need to take action?

It's best to list as many possibilities as you can, and then link as many items together as possible into groups.

Finally, you can prioritize the groups according to which is most important. Then, look at how this solution may impact (both positively and negatively, and both directly and indirectly) on all stakeholders involved. Try and look at this from as many perspectives as possible.

Now gather together all the information possible. This means digging into the underlying causes; you can use root cause analysis or cause and effect analysis to clarify. It's important to ensure you solve these underlying issues in addressing your problem.

Lastly, in this first step, you'll want to clarify what Hurson calls your "Target Future," or the vision for your future after this problem has been solved.

Ask the question, "What is success?"

This next step looks more deeply at that "Target Future" you identified in that first step, by looking at how you identify success. What are the markers you'll be looking for?

You'll want to consider what you want your solution to both do and not do, and you'll need to look at the resources needed (including both financially, and in terms of time). Finally, it's also obviously best when your solution fits into your underlying values, so you'll want to have a look at that too.

Ask the question, "What is the question?" Based on all the information you've acquired in steps one and two, your next step is to brainstorm around what is needed to achieve that Target Future goal. It's helpful to begin with phrases such as "How will we…?" and "How can I…?" in order to avoid falling into the potential quagmire of negative thinking.

Once you've generated a good-sized list, focus on the most relevant questions.

Generate answers. Having now come up with your list of questions, next it's time to begin looking for the answers to them. Brainstorming is a great tool to use here, too. Remember, no judging or criticizing of brainstorming ideas allowed at this point.

Forge your solution. With all the information you've discovered, now it's time to compare all your very best ideas, against your Step two criteria for success. Choose the one that most closely matches your criteria.

With this done, now spend some time further developing your new strategy/plan/idea. How else can you make this even more successful? What are the ways you can make it even stronger as a solution? Creatively refining your solution can take time and effort, but it's well worth it.

Align your resources. Finally, you'll want to identify all the resources and people who are needed to move your new plan into implementation.

Remember, when you're not sure which direction to follow and are wanting to figure out a plan that's both creative as well as having a basis in critical thinking in every step of its development, the Productive Thinking model promises both!

8 CONCLUSIONS

"We are continually faced by great opportunities brilliantly disguised as insoluble problems."

– Lee Iacocca

I hope you've found some helpful ideas in this book to support your responding to your challenges at work and in life within a wide variety of problem-solving strategies.

No matter what challenge you're facing, it's good to remember there are always many, many ways to respond creatively. Obviously, however, there are some ways which are going to be better than others:

There are three ways you can get to the top of a tree: 1) sit on an acorn; 2) make friends with a bird; 3) climb it.

While some people may want under certain circumstances to be "sitting on the acorn" and allowing the creative tree-solution to emerge slowly (but strongly rooted) over time, in many situations this may not be the most effective use of time. Then you'll want to consider other options; your use of time and resources will also be important considerations in your solution.

However, more than knowing what to do, your biggest asset is in knowing how you can create different options and which of the many problem-solving strategies is going to be most effective for your current situation. Hopefully, this book has provided you with a wide array of new possibilities for you to explore.

In the end, as Robert Redford has stated, "Problems can become opportunities when the right people come together."

Good luck with facing those opportunities, with an openness to growing into the adventures they provide for you, using as much creativity and as many problem-solving techniques as needed to come up with the best solution possible. Above all, enjoy the process; problem-solving is a life-skill which provides us all with many opportunities to expand our awareness and grow into new arenas. In the end, this is what makes businesses flourish.

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