THE "4-A plus 2" PROBLEM SOLVING PROCESS

1st A: AWARENESS

* **EXPAND** your thinking to all the problems to consider
----Use BRAINSTORMING (NO CRITICISM OR DISCUSSION ALLOWED)
----CHART all ideas

* **NARROW** your focus to the one problem you will work on now
----Use CRITERIA to review each problem
----Write a one sentence PROBLEM STATEMENT

2nd A: ANALYSIS

* **EXPAND** your thinking to all the possible causes
----Use BRAINSTORMING, FISHBONE DIAGRAMMING
----Design an experiment to gather data to identify causes of the problem

* **NARROW** your focus to the 1-3 core causes of the problem
----Use CRITERIA to review each possible cause
----Apply the PARETO PRINCIPLE and HIGHLIGHT the chief cause(s)

3rd A: ALTERNATIVES

* **EXPAND** thinking to all the solutions to the chief causes
----Provide INDIVIDUAL QUIET TIME to write down ideas
----Encourage CREATIVE THINKING and use ROUND ROBIN BRAINSTORMING

* **NARROW** the focus to the best strategy available
----Use CRITERIA (e.g. effectiveness, cost, etc.) to screen
----Seek CONSENSUS DECISION MAKING to choose the option to try

4th A: ACTIONS

* **EXPAND** thinking to all the possible implementation actions
----Specify what might have to happen CONCRETELY
----Be sure the implementation plan is REAL not just philosophical

* **NARROW** the focus to who is to do what with whom by when for each step
----Clarify individual RESPONSIBILITIES
----Chart an IMPLEMENTATION TIME LINE

Plus 1: ASSESSMENT

* **EXPAND** thinking to identify all the data that maybe should be tracked
----What metrics/documentation might help determine if the problem has been reduced?
----Identify strategies that could be used to gather this evaluation evidence

* **NARROW** your choices and choose the data/documentation that builds your case
----What data will be tracked and where will it be posted
----Who is responsible to gather the data and how will they do it

Plus 2: APPRECIATION

* **EXPAND** thinking regarding who should be thanked for their role in this effort
----Who helped with the problem identification, analysis, planning and implementation?
----What can be done to let these people know we appreciate their effort?

* **NARROW** your choices regarding who to recognize for what
----Who will be honored by whom, when and how?
----How will you provide individual recognition without detracting from the team's effort?

GETTING THE MOST OUT OF BRAINSTORMING

1. Clarify the question or issue that the group is to use the brainstorming technique on and the rules the group is to use to get the most out of brainstorming.

2. Give the members individual "quiet time" time to think before they start speaking. Ask each individual to write notes to themselves regarding the ideas he/she has on the matter. Recommend that no individual self-censor any idea relevant to the issue.

3. Reconvene the group and either allow anyone to just blurt out their ideas as they feel like it or get the group to sit in a circle and go around the group with each person being allowed to contribute an idea but asked not to repeat any idea that has already been reported out. However, do encourage people to build on previously reported ideas by offering variations. Continue going around the circle ("round robin") until all the ideas have been shared.

4. Be sure someone writes each idea down…ideally on a flip chart or projected on a screen so that everyone can see the list as it grows.

5. The most important rule of brainstorming is that absolutely no criticism of any idea is allowed to be given during the brainstorming period. You are seeking quantity now and will deal with the quality of ideas later. Make it clear that no one should verbally criticize, evaluate, judge, or debate any idea offered. It should also be made clear that no one should groan, roll their eyes, snicker or make any other sounds or non-verbal gestures that might infer criticism of any idea offered.

6. Brainstorming is most useful when an atmosphere of positive enthusiasm surrounds the effort. Even when you are brainstorming a list of problems, it helps if the group recognizes how well it understands the situation as evidenced by the long list of issues/problems it was capable of generating. Reinforce the fact that the group has much collective wisdom.

PROBLEM SELECTION

After generating a long, long list of the many, many possible problems the group is aware of, it is time to narrow the group's focus. Ideally the group will be allowed to work on one problem at a time and do a high quality, systematic approach to problem analysis and resolution. At the very least the group needs to sort through the problems that it generated during the first part of the Awareness Phase eliminating the redundant items and then listing the problems in priority order. This can best be accomplished by systematically screening the list of problems using some agreed upon criteria and then using some voting procedure to determine the rank order.

Listed below are some criteria that could be used to help a group think through the merits of each potential problem it is now aware of. Can you think of others?

CRITERIA TO CONSIDER DURING PROBLEM SELECTION

Is the problem within the guidelines of what the problem solving team at this location is allowed to work on? Some "problems" may be out of bounds for this team (e.g. company policy, issues agreed to in a union contract, etc.)

Do the people on this team have the specialized knowledge needed to understand this problem? Does anyone on this team have the authority to address this problem?

Is the group likely to learn a lot by tackling this problem?... About the subject matter of the problem? About how to work together on a team? About the 4-A problem solving method?

How bothersome (or costly) is this problem now? To whom?

How important is this problem to this team? To management? To others?

To what extent does this problem effect the performance of people's jobs? the quality of the product or service? profitability? timeliness of production? customer satisfaction?

To what extent does this problem effect the satisfaction of people working here?
Is this a problem we could come up with a solution and a plan for in the time we have available as a problem solving team?

THE KEY IS TO PICK A PROBLEM THAT IS SIGNIFICANT BUT DOABLE

VOTING PROCEDURES

Rank order all items

Give everyone 5 votes (or 3 or 10, etc.) and then rank order the problems according to the number of votes received

Discuss each problem one at a time. Then have each person rate the problem on a 1 to 10 scale. Add up the scores for each problem and use the scores to rank order the problems.

Categorize the problems into three lists: A. Hot items that must be addressed by this team right away; B. Important items that we need to start researching very soon but will take us quite some time to address; C. Wish list items that sound important but items you don't think you may ever really get to...eliminate all other items and then vote to select the top priorities in categories A & B.

Identify 5 (or 3 or 10, etc.) that your group is capable and motivated to address. Then submit your list to the authority figures to whom you will be reporting to and ask them to prioritize the list.

Eliminate all the items that are not appropriate for your group to address. Write a problem statement for each item your group is capable of addressing and is motivated to address. Place each of the statements in a jar (or box or hat, etc.) and randomly draw the problem statement that the group will work on first.

WHATEVER METHOD YOU USE, BE SURE THAT THE GROUP ENDS UP BEING FOCUSSED ON WHAT IT WILL ADDRESS. EVERY SINGLE PERSON ON THE TEAM MUST COMMIT TO ADDRESSING THE PROBLEM EVEN IF IT WASN'T HIS OR HER'S FIRST CHOICE. FINALLY, THE PROBLEM MUST BE STATED CLEARLY SO THAT ALL GROUP MEETINGS ARE USED TO ANALYZE AND RESOLVE THIS PROBLEM; NOT ALL THE OTHER PROBLEMS EVEN THOUGH IT MAY BE TRUE THAT THOSE PROBLEMS ARE VERY IMPORTANT. THE TEAM MUST BE FOCUSSED AND COMMITTED!

PROBLEM ANALYSIS TECHNIQUES

GENERATING AN UNDERSTANDING OF THE MANY POSSIBLE CAUSES:
The second "A" in the 4-A approach is analysis. The group must now generate all the many potential causes of the problem. All problems in organizations are multipli-caused. As in all the steps, the group must first expand it's thinking to discover the many perspectives that might help explain why this problem exists. You could use brainstorming again. However, other techniques have also proven to be quite useful. One of those is DATA COLLECTING or CHARTING. People simply note each and every time the problem occurs and what proceeded the occurrence. If you use charting, you must do it systematically. Team members must be perceptive, vigilant and thorough. You must decide what data you will track and how it is to be measured. You may need to learn some sampling procedures if the kind of problem you are dealing with happens frequently. If you would like some materials on data collection/charting procedures, contact us.

Another method now used by many problem solving teams is called FISHBONE DIAGRAMMING. Think of the backbone of a fish as the problem and each of the main bones that branches off of the backbone as categories of causes of the problem. A common system of generating these "bones" is known as the 4-M (or 5-M plus E) method. The M's refer to Manpower, Materials, Machines, and Methods (plus Measurements, Environment). The group asks "What about the people (Manpower) surrounding the occurrence of the problem? What are they doing (or not doing) that might be causing the problem?" The group asks other questions relevant to each of these M's. Each answer is charted on the fishbone diagram; thus, organizing a review of the many possible causes to the problem. Additional "bones" are added to the diagram for causes that are not easily categorized via the 4-M's.

A third popular method is known as the "5 Why's). The group starts with a cause that they think may underlie the problem being worked on. Then the group analyzes why that cause exists. Then they analyze why this deeper cause underlies the original cause they identified. The group is to do this at least five times to dig deeper and deeper to discover the root underlying the other causes.

SELECTING THE ROOT CAUSES:
Although all problems are multipli-caused, some causes are significant and some are trivial. The PARETO PRINCIPLE suggests that 80% of any problem is caused by 20% of the causes. The group must now focus on the root causes. It must determine which elements are merely symptoms and which are most likely to cause the problem and/or have the greatest impact on the problem. There are statistically based approaches for determining which causes are most significant. If you would like references regarding these techniques, contact us.
You could also use the voting procedures discussed in the previous step to select the main cause. Whatever method you use, remember your group must identify the chief cause (or two or three). The idea is to achieve CONTINUOUS IMPROVEMENT. Most problems cannot be totally eliminated. You are asked to identify the cause that if eliminated, we would see a significant improvement that would make this problem solving effort well worthwhile.

BLOCKAGES TO CREATIVITY

The first half of each of the 4-A plus 2 steps requires creative thinking. Unfortunately, there are several reasons why individuals and groups may inhibit their abilities to think creatively.

FEAR OF LOOKING FOOLISH

FEAR OF RISK TAKING

FEAR OF RETALIATION

LOOKING FOR "THE RIGHT (PERFECT) ANSWER"

NOT BELIEVING YOU ARE CREATIVE

TAKING A WAIT AND SEE ATTITUDE

FEAR OF GETTING BLAMED

FEAR OF GETTING STUCK WITH DOING THE WORK

HAVING A CULTURE THAT DOESN'T ALLOW A PLAYFUL SPIRIT

OVER EMPHASIS ON BEING PRACTICAL

OVER EMPHASIS ON LOGIC

CYNICISM

INABILITY TO TOLERATE AMBIGUITY

LACK OF TRUST

WORKING WITH A GROUP THAT AGREES TOO QUICKLY

Step 1: AWARENESS

Brainstorm a list of problems that you as an individual may want to work on or that this team may want to work on together.

Choose one for us to work on today using the following criteria:
a. It must be within the control (at least strong influence) of you or this team.
b. It must be specific enough that we can discuss it thoroughly in the limited time we have available to us today.
c. It is important enough that it will keep your interest through this exercise.

Step 2: ANALYSIS

Brainstorm a list of the many possible causes of the problem that you chose in step 1.

Choose a root cause (or two) that meets the following criteria:
1. It has a major impact on the chosen problem.
2. It is within the control (or at least strong influence) of you or this team.

Step 3: ALTERNATIVES

Brainstorm a long list of the many strategies/solutions that might eliminate or significantly reduce the root cause(s) chosen in step 2.

Choose the best strategy/solution using the following criteria:
a. It would have a major positive impact on the problem and its root cause(s)
b. It is likely to be affordable.
c. It could be implemented in a timely manner.

Step 4: ACTIONS

Brainstorm a list of the actions that might need to be taken in order to implement the alternative chosen in step 3.

Identify the steps that will be taken to implement the strategy/solution. For each step, specify who will do what, with whom, by when and how. Remember that involvement is a key way to gain the commitment of the people impacted by the problem. Ideally you will own the problem and the solution.

Follow-up Step 1: ASSESSMENT

Brainstorm a list of all the data that maybe should be tracked to help determine whether the problem has been reduced or eliminated. Also brainstorm a list identifying the strategies that could be used to gather this evaluation evidence (who would gather the data, when, how, etc.)

Specify:
----What data will be tracked, when?
----Who is responsible to gather which portion of the data?
----Which method is to be used to gather each portion?
----Who will be given access to the data that is gathered to assess the solution?

Follow-up Step 2: Appreciation

Brainstorm a list of all the people that in some small or large way helped you in any way throughout this problem solving process. (e.g., Who helped you become aware of the problems that you might have to deal with? Who helped define the problem you chose to work on? Who provided data that helped you analyze the causes of the problem? Who helped you pinpoint the root causes of the problem? Who provided ideas regarding alternative means of resolving the problem? Who helped you choose which solution would be recommended? Who helped with the implementation of the solution? Did anyone play an indirect role that helped you succeed in the problem solving? etc.)

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Brainstorm the possible ways that you could provide a reward or recognition to someone (or some group) who helped you systematically engage in problem solving.

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Choose who will you "reward/recognize" for the help they provided? How will this reward/recognition be provided? By whom? When?