Problem Solving and Decision Making

Agenda: Day One

Time	Activity
8:30-8:45	Icebreaker: Toilet Paper Twister
8:45-9:00	Session One: Course Overview
9:00-10:30	Session Two: Definitions
10:30-10:45	Break
10:45-11:45	Session Three: Making Decisions
11:45-12:00	Morning Wrap-Up
12:00-1:00	Lunch
1:00-1:15	Energizer: Jigsaw
1:15-1:45	Session Four: Getting Real
1:45-3:45	Session Five: The Problem Solving Model
3:45-4:15	Session Six: Case Study
4:15-4:30	Day One Wrap-Up

Session One: Course Overview

Learning Objectives

- Apply problem solving steps and tools
- Analyze information to clearly describe problems
- Identify appropriate solutions
- Think creatively and be a contributing member of a problem solving team
- Select the best approach for making decisions
- Create a plan for implementing, evaluating, and following up on decisions
- Avoid common decision-making mistakes

Session Two: Definitions

Defining Problem Solving and Decision Making (I)

What is a problem?

- A mystery
- A puzzle
- An unsettled matter
- A situation requiring a solution
- An issue involving uncertainty

Session Two:
Definitions

Defining Problem Solving and Decision Making (II)

Albert Einstein is quoted as saying that if he had an hour to save the world, he would spend fifty-five minutes defining the problem and only five minutes finding the solution.

Session Two: Definitions

Defining Problem Solving and Decision Making (III)

Problems can be classified in three ways:

•Problems that have already happened

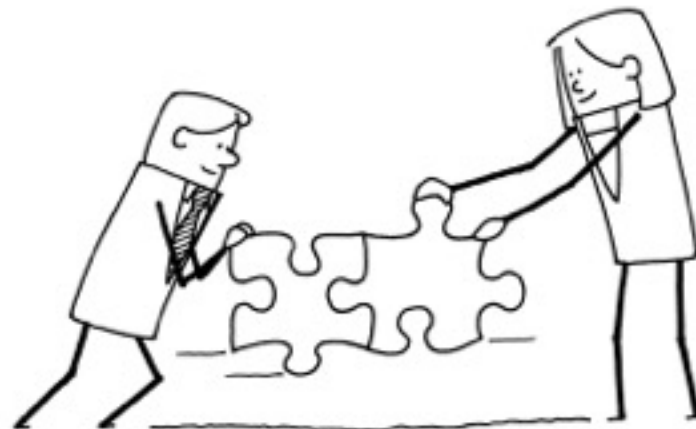•Problems that lie ahead

•Problems you want to prevent from happening

Session Two: Definitions

Defining Problem Solving and Decision Making (IV)

Three ways to approach problems:
- Stall or delay
- Make a snap decision
- Use a professional approach

Session Two: Definitions

Defining Problem Solving and Decision Making (V)

- Think of someone you know who is a **great problem solver**.

- Describe the **traits**, **characteristics**, and **behaviors** that make them a good problem solver.

Session Two: Definitions

Problem Identification (I)

- **You cannot work on something if you don't know what it is.**

- Resist the tendency to start working on the problem as soon as you know one exists.

- Instead, **develop an understanding** of problem.

Session Two: Definitions

Problem Identification (II)

- **We should go after the problem rather than attack symptoms.**
- This way, we can create **higher quality solutions**.
- This will also enable you to **resolve the problem much more easily**.
- You'll also know that you are taking on a **worthwhile problem**.

Session Two: Definitions

Eight Essentials to Defining a Problem

1. Rephrase the problem
2. Expose and challenge assumptions
3. Use facts
4. Grow your thinking
5. Shrink your environment temporarily
6. Practice multiple perspectives
7. Turn it upside down
8. Frame the problem purposely and positively

Session Two:
Definitions

Problem Solving in Action

1. Your child's teacher calls to say that your teenager has been late arriving to school every day this week.

2. Colleagues are leaving their dirty dishes in the kitchen at work.
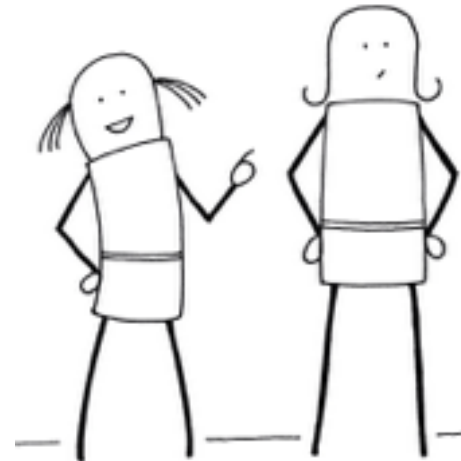
Session Three: Making Decisions

What it Means (I)

Ground Rules

- Encourage everyone to participate.
- Encourage new ideas without criticism.
- Build on each other's ideas.
- Use data to facilitate problem solving.
- Remember that solving problems and making decisions is a creative process.

Session Three: Making Decisions

What it Means (II)

Ground Rules ctd.

•Make decisions based on the best data available.

•Research and locate required information or data.

•Discuss criteria for making a decision before choosing an option.

•Encourage and explore different interpretations.

Session Three:
Making Decisions

Types of Decisions (I)

- Autocratic decision
- Consultative decision
- Group decision
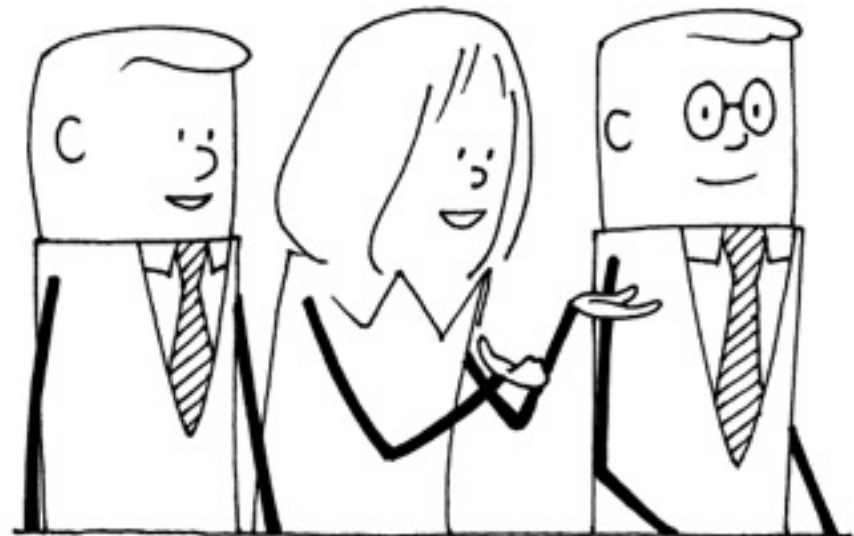
Session Three: Making Decisions

Types of Decisions (II)

Advice from Claude George

• Don't ignore it or cover it up.

• Accept that it is probably not the first or last poor decision you will make.

• Learn from your mistakes.

• After this analysis, decide what you should do now.

• You are responsible for the decision and for the error. Prepare for and accept the consequences.

Session Three: Making Decisions

Facts vs. Information (I)

Basic Ingredients
- Facts
- Knowledge
- Experience
- Analysis
- Judgment

Session Three:
Making Decisions

Facts vs. Information (II)

The Supplements

- Information
- Advice
- Experimentation
- Intuition

Session Three: Making Decisions

Facts vs. Information (III)

Eight Ingredients for Good Decision Making

1. Focus on the most important things.

2. Don't decide until you are ready.

3. Look for the positive results that can come from this decision.

4. Consider the negative outcomes.

Session Three:
# Making Decisions

Facts vs. Information (IV)

Eight Ingredients for Good Decision Making ctd.

5. Look ahead. Try to see how your decision will play out over time.

6. Turn big decisions into a series of little decisions.

7. Don't feel you are locked into only one or two alternatives.

8. Get what you need to feel safe.

Session Three:
Making Decisions

Decision-Making Traps

- Misdirection
- Sampling
- Bias
- Averages
- Selectivity
- Interpretation

- Jumping to conclusions
- Meaningless difference
- Connotation
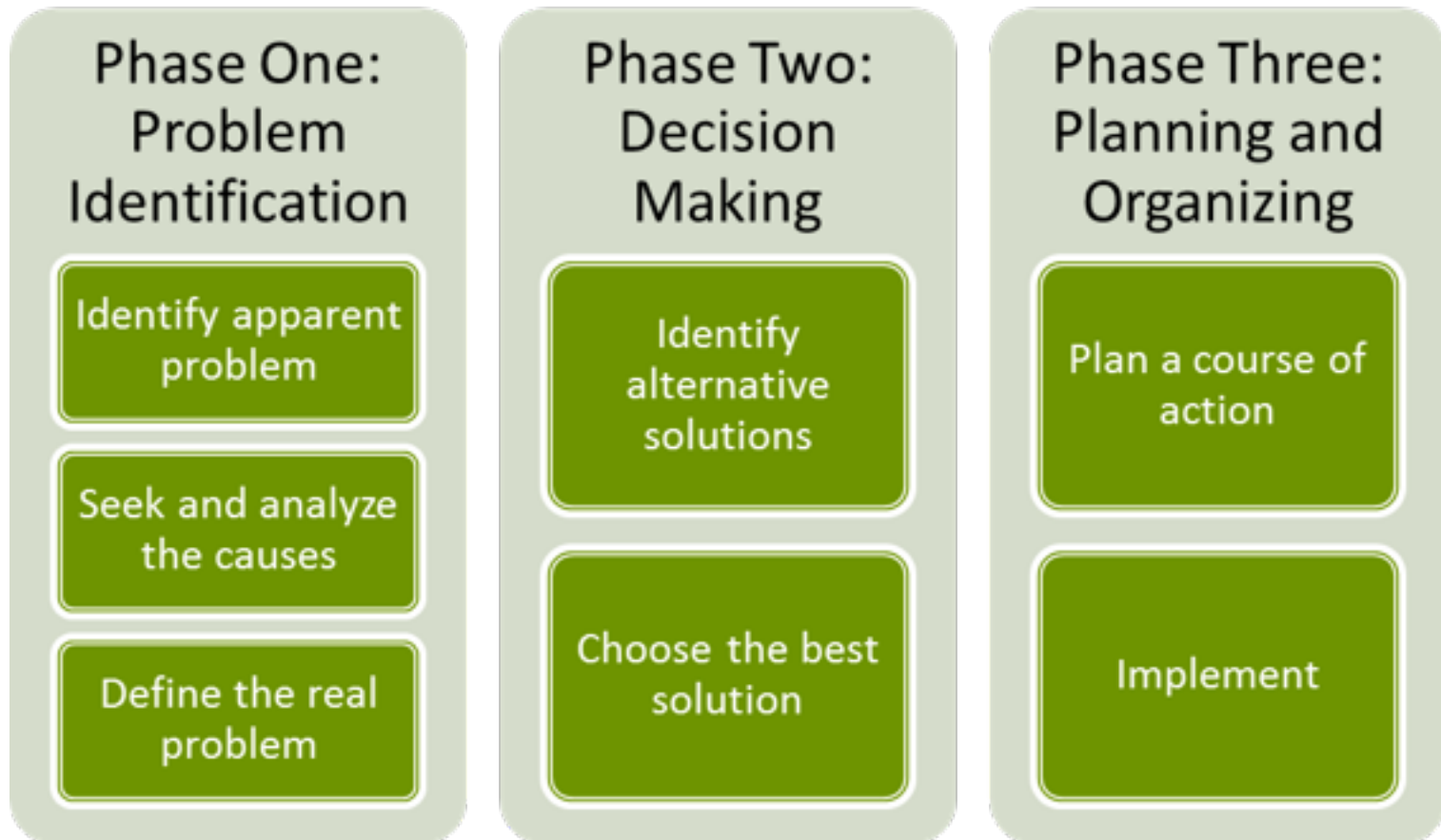- Status
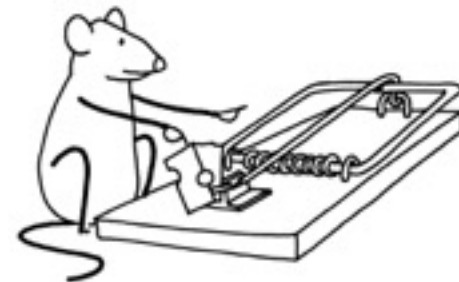
Session Four:
Getting Real

Pre-Assignment Review

- Write out your decision. What did you do as a result of the theft?

- Write out the steps you took to reach your decision.
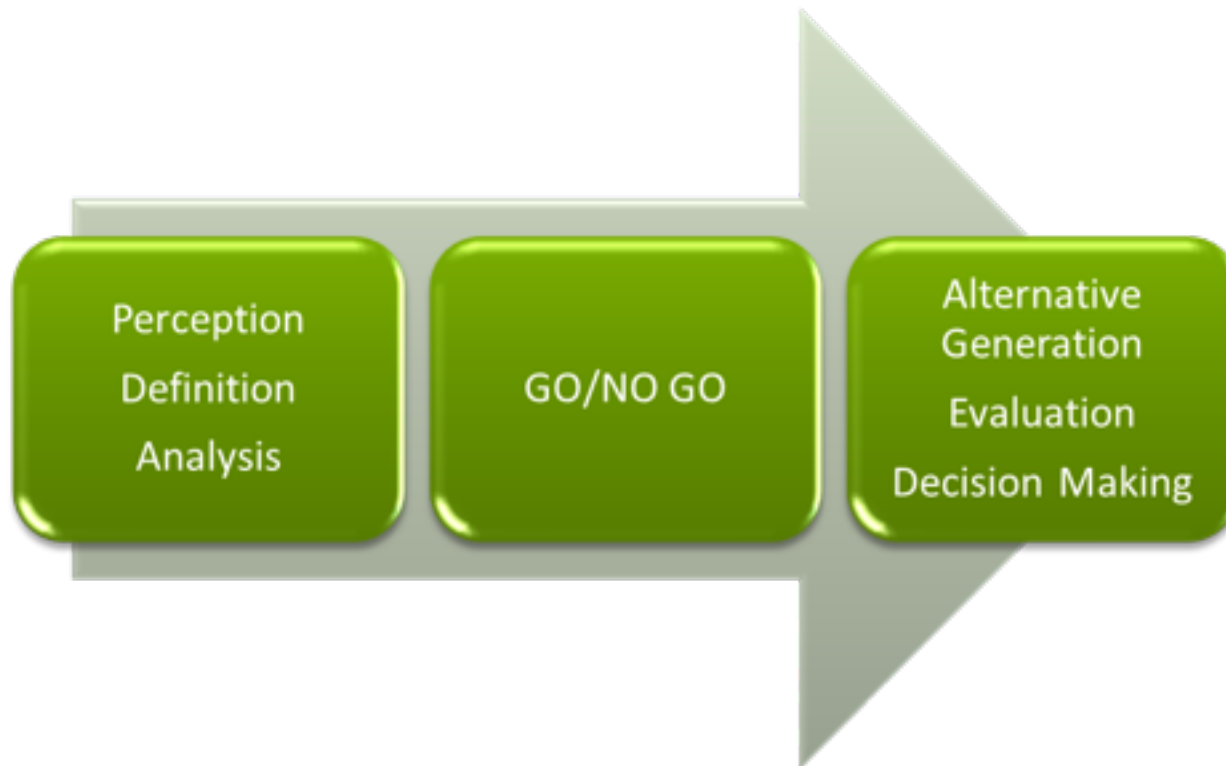
Session Five:
The Problem Solving Model

Model Overview (I)

Phase One: Problem Identification

- Identify apparent problem
- Seek and analyze the causes
- Define the real problem

Phase Two: Decision Making

- Identify alternative solutions
- Choose the best solution

Phase Three: Planning and Organizing

- Plan a course of action
- Implement

Session Five:
The Problem Solving Model

Model Overview (II)

Another Perspective

Session Five:
The Problem Solving Model

Model Overview (III)

Keeping an Open Mind
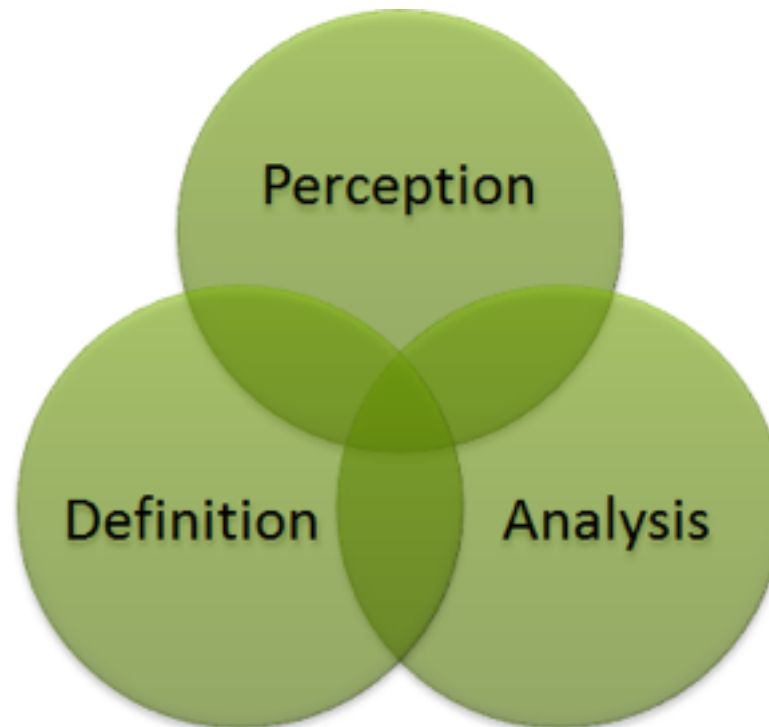
Model Overview (IV)

Solving Problems the "Right" Way

- Problem-solving is all about applying educated **trial and error**.

- **Many solutions are possible**, and some are better than others.

Session Five:
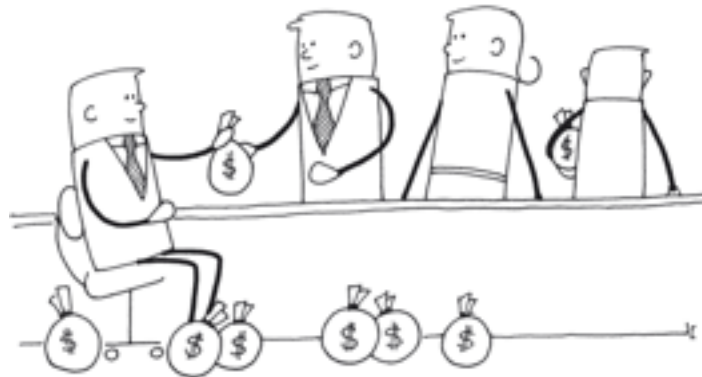# The Problem Solving Model

Model Overview (V)

Solving Problems the "Right" Way ctd.

- **Your skill as a problem-solver** depends on your expertise with the tools and your knowledge of how to use them.

- For many situations, having **formal steps** to follow can help you create flexible, workable solutions.

Session Five:
The Problem Solving Model

Real Problems

- What is the problem (or problems)?
- Is this your problem or someone else's?
- Do you have all the information you need to make a decision?

Session Five:
The Problem Solving Model

Phase One (I)

Stage One: Perception

- Is there a problem?
- Where is the problem?
- Whose problem is it?
- What are the symptoms?

Session Five:
The Problem Solving Model

Phase One (II)

Purpose of the Perception Phase

- To surface an issue.
- To make it okay to discuss it (legitimize).
- To air different points of view.
- To avoid perception wars.
- To get group agreement to work on the problem.

Steps in the Perception Phase

- Legitimize the problem.
- Asking, "How does the problem feel?" and, "What's the real problem?"
- Identifying the best, worst, and most probable situation.
- Identifying whose problem it is.

Session Five:
The Problem Solving Model

Phase One (III)

Definition

- State the problem as a question.
- Steps in this phase include identifying:
  - What is the problem?
  - What is not the problem?

Session Five:
The Problem Solving Model
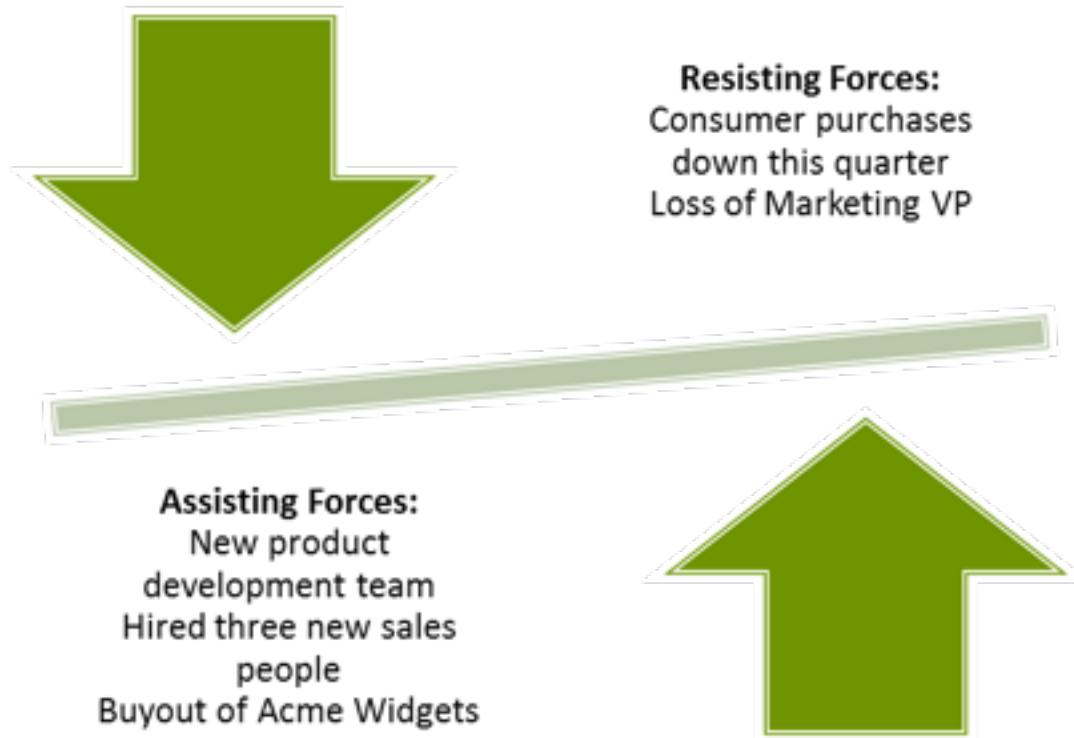
Phase One (IV)

Stage Three: Analysis

- Ask basic questions
- Break it down into smaller pieces
- Use force field analysis (see next slide)
- Move from generalizations to examples
- Ask the expert

Session Five:
The Problem Solving Model

Phase One (V)

Force Field Analysis Example

Resisting Forces:
Consumer purchases
down this quarter
Loss of Marketing VP

Assisting Forces:
New product
development team
Hired three new sales
people
Buyout of Acme Widgets

Session Five:
The Problem Solving Model

Phase Two (I)

Creative Thinking Methods: Brainstorming

Session Five:
The Problem Solving Model

Phase Two (II)

Creative Thinking Methods: Checkerboard

Main Solution	Possible Specific Solutions		
Create safe passage between building and parking/bus stop	Have security escort night staff to their cars or bus stop	Rearrange shifts so that people come and go during daylight hours	Set up a buddy system with employees
People missing work in snowstorm	Set up 50% of staff with ability to work from home during storms	Arrange for temporary shelters so that staff can stay overnight	Provide incentives for employees to put winter tires on their vehicles and learn safe winter driving
Threat of strike is rumored	Set up contract negotiations well before contract expires	Approach union and ask to speak with them	Set up contingency plan to ensure business continuity in the event of a strike

Session Five:
The Problem Solving Model

Phase Two (III)

Creative Thinking Methods: Research/ Report

- Look at what others have done.

- Do some research and prepare a report.

- What lessons can you learn from th information?

Session Five:
The Problem Solving Model

Phase Two (IV)

Evaluation

•Sort solutions by category.

•Identify the advantages and disadvantages to each solution.

•Identify what you like and don't like about each idea.

•Number your ideas in order.

Session Five:
The Problem Solving Model

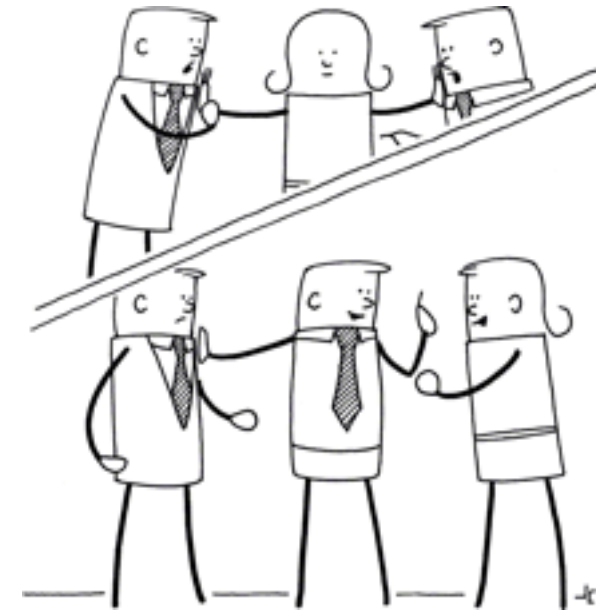*Phase Two (V)*

Decision Making

• Get a consensus from the group.

• Don't limit yourself to one option.

• Eliminate solutions that the group absolutely won't consider.

Session Five:
The Problem Solving Model

Phase Two (VI)

Decision Making ctd.

- Try to focus on agreements during voting.
- Use straw voting.
- Try negative voting.
- Back off!

Session Five:
The Problem Solving Model

Phase Three (I)

Planning

- What needs to be done?
- Who will do it?
- What resources will we need?
- How much time will it take?

Session Five:
The Problem Solving Model

Phase Three (II)

Implementation

- Figure out what you are going to do
- Do it!
- React to what happened/get feedback
- Can use a **Solution Planning Worksheet**

Session Six: Case Study

The Truck

- What is the problem?

- What is its root cause or the real problem?

- What is the Problem As Given (PAG)?

- What is the Problem As Understood (PAU)?

- How does it feel to Dave? How does it feel to Bruce?

- What are the best/worst/most probable consequences of solving/not solving the issue?

Agenda: Day Two

8:30-8:45	Reconnect: Alphabetize It!
8:45-11:00	Session Seven: The Problem Solving Toolkit
11:00-12:00	Session Eight: Aspirinia
12:00-1:00	Lunch
1:00-1:15	Energizer: Getting into It
1:15-1:45	Session Nine: Swotting Up
1:45-2:30	Session Ten: Making Good Group Decisions
2:30-2:45	Break
2:45-3:15	Session Eleven: Analyzing and Selecting
3:15-4:15	Session Twelve: Planning and Organizing
4:15-4:30	Workshop Wrap-Up

Session Seven:
The Problem Solving Toolkit

The Basic Tools (I)

The Lasso

- Tighten up our definition of the problem
- "How can we improve communication in our group?"
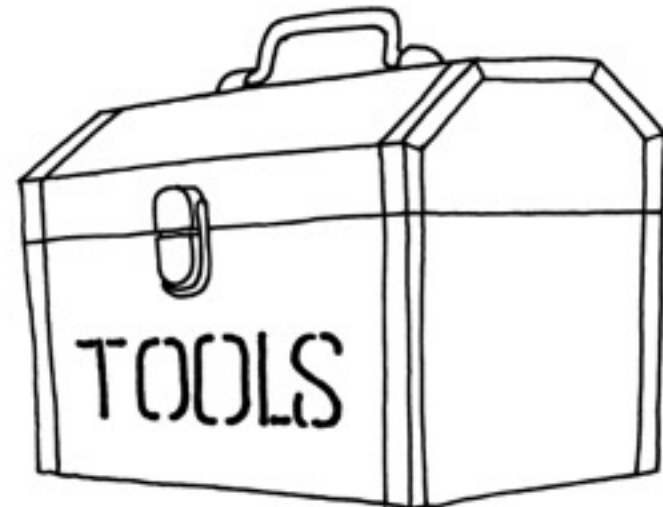- What do we mean by communication?

Session Seven:
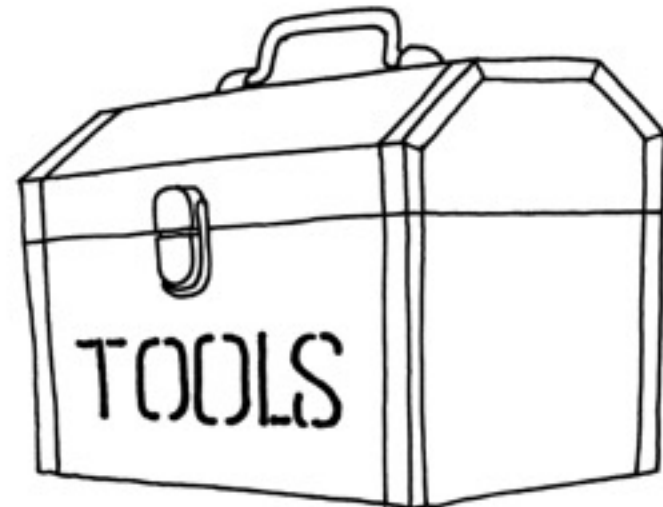# The Problem Solving Toolkit

The Basic Tools (II)

Is/Is Not

- "The telephone system isn't working."
- What is working?
- What isn't working?

Session Seven:
The Problem Solving Toolkit

The Basic Tools (III)

- **Graphics**
- Basic **questions** (Who, what, where, when, why, how?)
- Establish **criteria**

Session Seven:
The Problem Solving Toolkit

The Basic Tools (IV)

Force Field Analysis

Restraining Forces

- Boss is angry
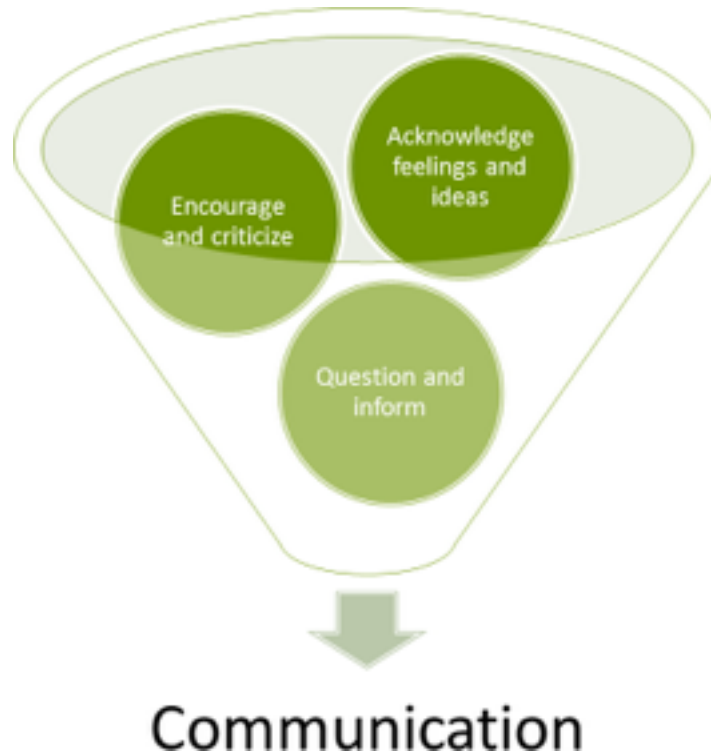- John is behind with his work
- Parking spots all gone

Sustaining Forces

- Gets to sleep an extra 15 minutes
- Takes the kids to the babysitter
- Misses traffic on way to work

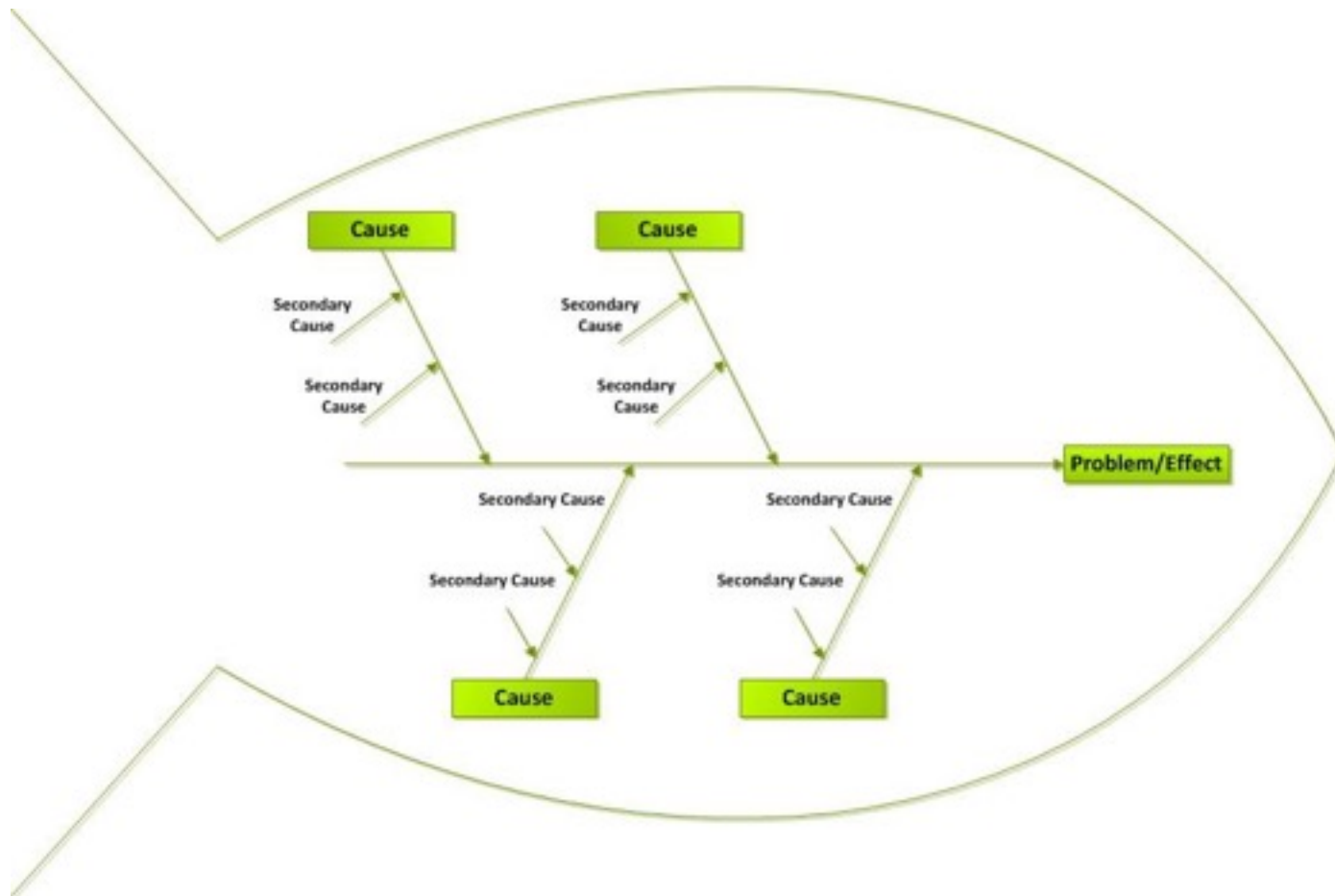# Session Seven:
The Problem Solving Toolkit

The Basic Tools (V)

Legitimizing Problems and Positions

Communication

Session Seven:
The Problem Solving Toolkit

The Fishbone

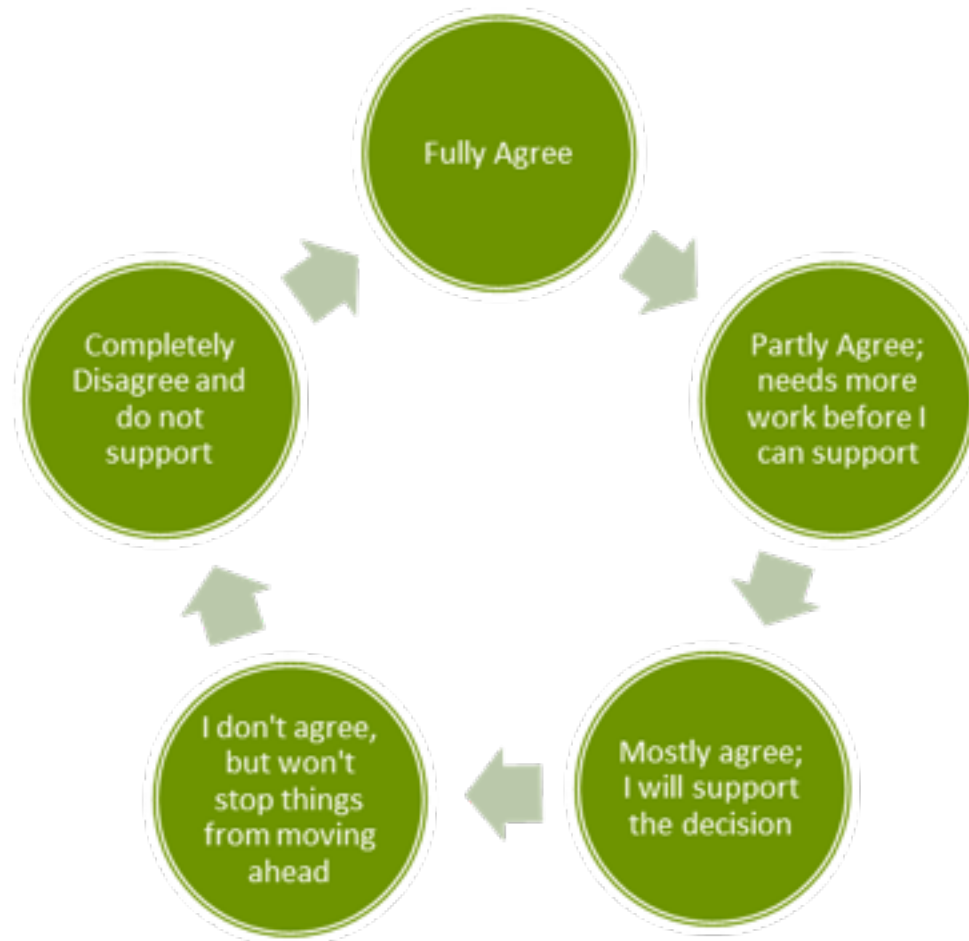# Session Seven:
The Problem Solving Toolkit

Degrees of Support (I)

- There are **shades of grey** everywhere in life, and decision making is no different.

- **Degrees of support** may help them articulate exactly how they feel about a decision.

- **Consensus** does not mean that everyone agrees to the same degree.

Session Seven:
The Problem Solving Toolkit

Degrees of Support (II)

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (I)

About Brainstorming

• People are encouraged to say what comes to their mind

• All the ideas generated are recorded

• People are encouraged to say whatever they are thinking

• There is no one right way to run a brainstorming session

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (II)

Before Brainstorming

- Define your purpose
- Choose the participants
- Change the environment
- Design an informal atmosphere
- Choose a facilitator

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (III)

After Brainstorming

•Relax the no-criticism rule.

•Circle ideas that members think are best.

•Take one promising idea and invent ways to make it better.

•Draw up a selective list of ideas.

•Set up a time for deciding which of these ideas to take further and how.

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (IV)

Limitations of Brainstorming

• Some people limit or filter what they say

• Sessions can sometimes benefit from the extroverts more than the introverts

• Verbal traffic jams can impede progress

• Social nature of the tool can be a barrier

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (V)

Brainwriting

- Originally made popular in Germany
- Further developed by Dr. Arthur B. VanGundy
- Interactive method has everyone gather around a table and write/share ideas
- Many variations possible

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (VI)

Mind-Mapping

Topic

• Adopting a puppy

Step One: Create a List

- Adoption = community oriented
- Require warranty for good health
- Must be neutered/spayed
- Can be male or female
- What breed?
- Family dog?
- What size?
- Dry food, canned, or raw?
- Company during lonely evenings
- Training required!
- Requires brushing regularly
- Will get me out walking every day
- Needs a sweater
- I need to learn to trim nails
- Need a vet

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (VII)

Mind-Mapping – Step Two: Create the Diagram

Dry food, canned, or raw?

Adoption = community oriented

Require warranty for good health

Training required!

Company during lonely evenings

Requires brushing regularly

Family dog?

What breed?

Must be neutered/spayed

Will get me out walking every day

Needs a sweater

Need a vet

Adopting a Puppy

Can be male or female

What size?

I need to learn to trim nails

Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (VIII)

Mind-Mapping – Step Three: Link/ Categorize
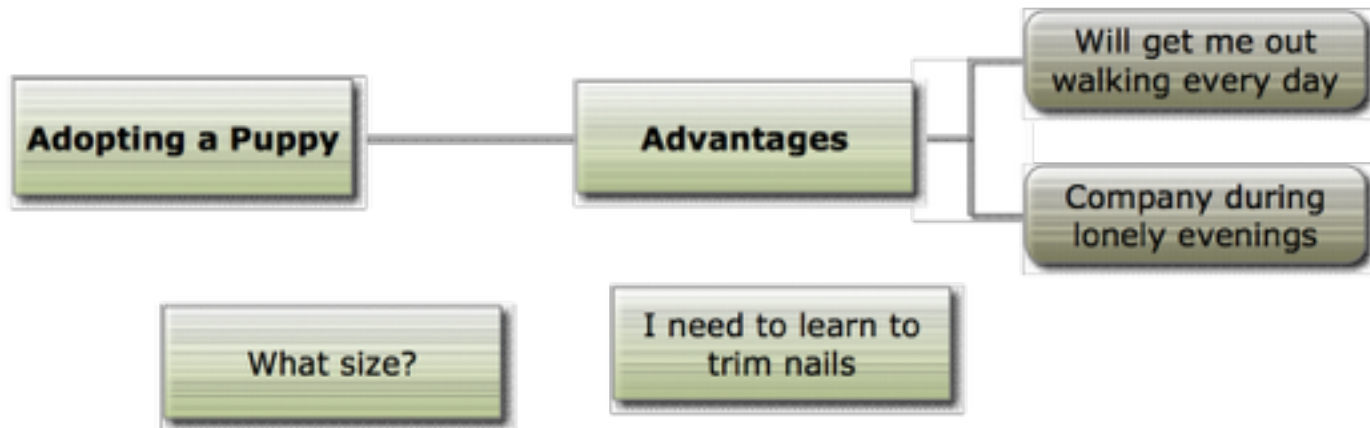
Session Seven:
The Problem Solving Toolkit

Creative Thinking Methods (IX)

Mind-Mapping – Step Four: Finalize and Review

Session Seven:
The Problem Solving Toolkit

Brainstorming and Brainwriting

- Methods to reach our customers
- Potential blog (or press release or article topics) for work
- How to save money (work or personal)
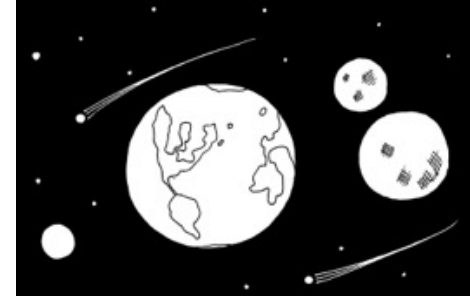- Weather phenomena
- Things people like to talk about

Session Seven:
The Problem Solving Toolkit

More Methods

- Random word method
- Don't re-invent the wheel
- Do something different
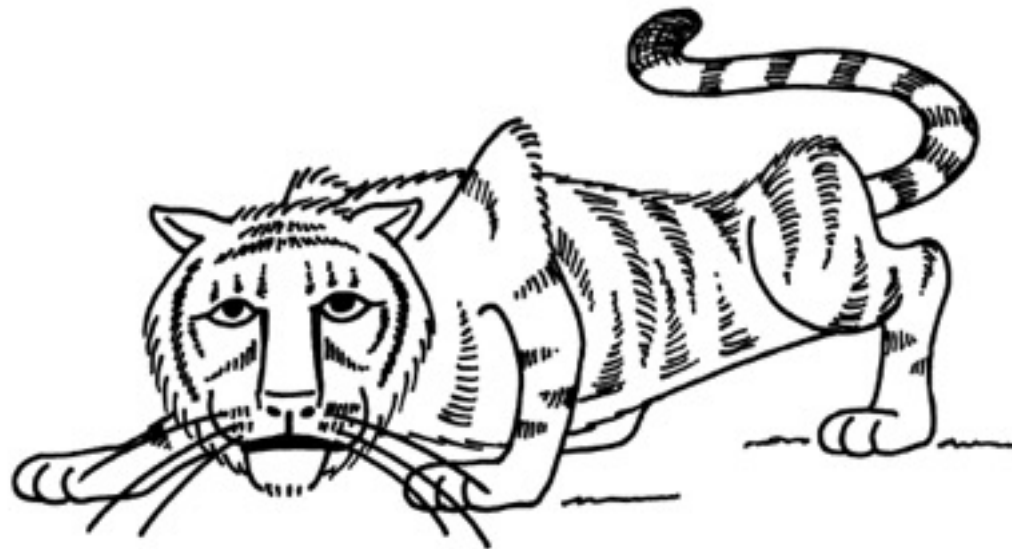
Session Eight: Aspirinia

Decision Information

- You have been selected to be a part of a team of scientists and astronauts getting ready to leave Earth to explore Aspirinia, a moon that appears able to sustain life and currently orbits Earth with our original Moon.

- There are several things that your team will need to do before leaving for Aspirinia!

Session Eight: Aspirinia

Exercise Debrief

1	Hire security personnel
3	Reassign resources
2	Visit the neighboring village
5	Make repairs to the space suits
4	Form a team to create ration packages
8	Establish your realistic launch date
7	Send ahead two unmanned shuttles with
6	Arrange for a launch party that includes the

Session Nine:
Swotting Up

SWOT Analysis (I)

- Solving business problems can be a bit different than everyday dilemmas.

- **SWOT stands for** the strengths, weaknesses, opportunities, and threats facing your company.

- The **strengths** and **weaknesses** are usually considered to be internal.

- The **opportunities** and **threats** are generally external to the company.

Session Nine: Swotting Up

SWOT Analysis (II)

	INTERNAL	EXTERNAL
P O S I T I V E	Strengths	Opportunities
N E G A T I V E	Weaknesses	Threats

Session Nine: Swotting Up

SWOT Analysis (III)

✓ Your company and its strengths and its weaknesses
✓ Your products and/or services and their strengths and weaknesses
✓ The community and what is currently going on
✓ Your primary and secondary target markets
✓ The competition and what they are doing
✓ The external forces that will affect your business
✓ Opportunities that are available to you and your company
✓ Environment and market factors that could threaten your business

Session Nine:
Swotting Up

Individual Analysis

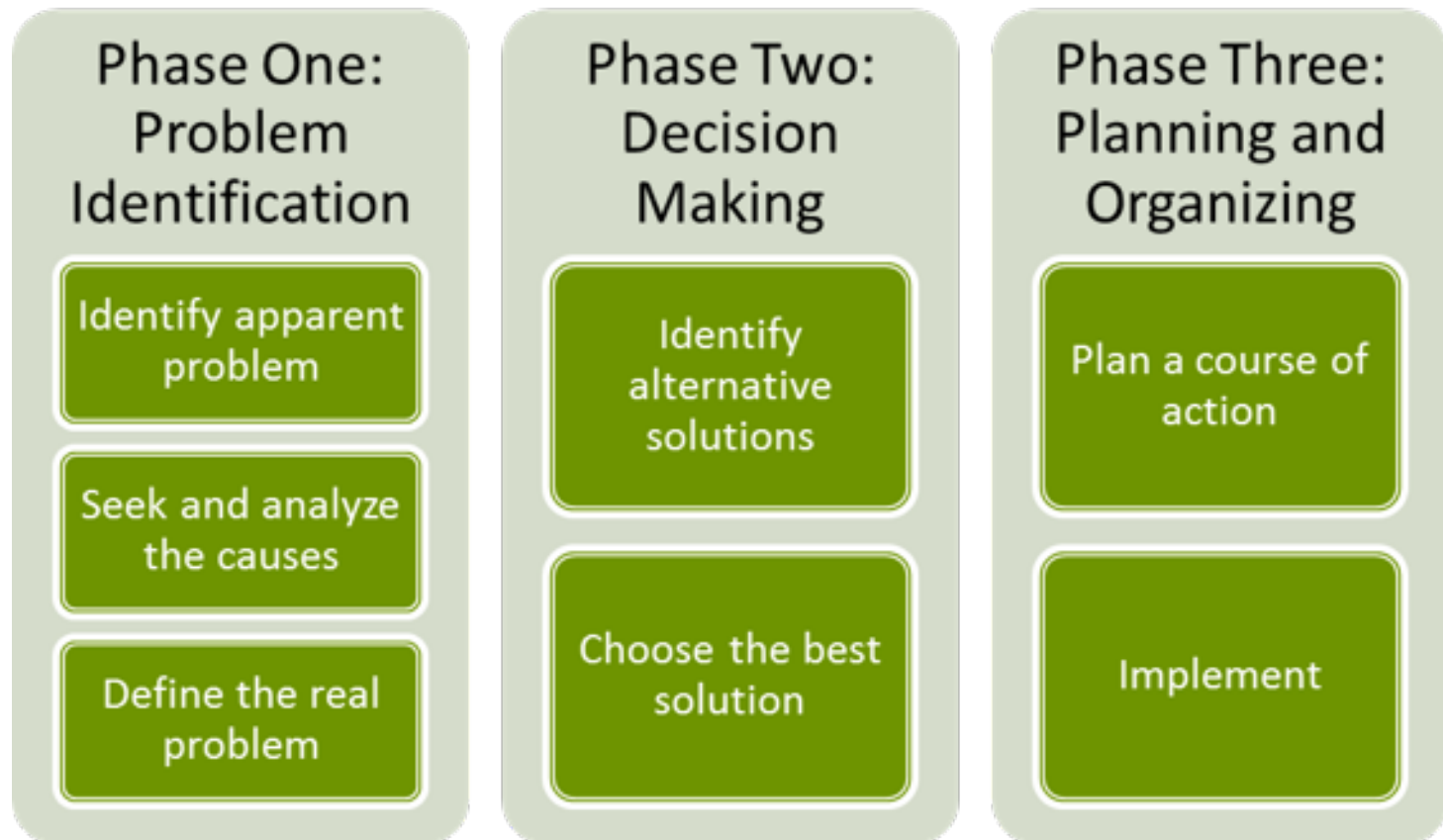|	INTERNAL	EXTERNAL
P O S I T I V E	Strengths	Opportunities
N E G A T I V E	Weaknesses	Threats

Session Ten:
Making Good Group Decisions

Working Toward the Decision (I)

- In a **routine decision**, the conditions of the situation which the solution has to satisfy are known.

- The job is simply to choose between a few obvious alternatives.

- **Strategic decisions** are more complex.

- You can use the **three-phase model** that we covered earlier for both types of decisions. (See the next slide for an image.)

Session Ten:
Making Good Group Decisions

Working Toward the Decision (II)

Phase One: Problem Identification

- Identify apparent problem
- Seek and analyze the causes
- Define the real problem

Phase Two: Decision Making

- Identify alternative solutions
- Choose the best solution

Phase Three: Planning and Organizing

- Plan a course of action
- Implement

Session Ten:
Making Good Group Decisions

Working Toward the Decision (III)

Decision Frames/Trees

Session Ten: Making Good Group Decisions

Working Toward the Decision (IV)

Stepladder Technique

1. Group members are presented with the problem and given time to think about it on their own.

2. Two members of the group are assigned to discuss the problem. They meet and discuss their ideas.

3. A third member is added to the group and presents their ideas before hearing the ideas that the first two have discussed.

Session Ten:
Making Good Group Decisions

Working Toward the Decision (V)

Stepladder Technique ctd.

4. The process is repeated by adding one member to the group at a time.

5. Once presentations and discussions are finished, the group makes their decision

Session Ten:
Making Good Group Decisions

Working Toward the Decision (VI)

The Delphi Technique

- **Cycles** of anonymous, individual written discussion and argument

- **Anonymity** and **remoteness** of the process helps to avoid personality issues and groupthink

- Requires an effective and strong **facilitator**

Session Ten:
Making Good Group Decisions

Working Toward the Decision (VII)

Nominal Group Technique

•Face-to-face process

•Each participant nominates their priority issues and rank them on a scale

•Then, group discusses items and assign priority order

Session Ten:
Making Good Group Decisions

Avoiding Fatal Mistakes

- Groupthink
- Fighting the status quo

Session Eleven:
Analyzing and Selecting Solutions

Selecting Criteria (I)

Deciding on Wants/Needs

• Sometimes the final debate is pretty close when we weigh it all out.

• Deciding what you **need** as opposed to what you **want** is an essential decision, especially if you are in a position to only get what you need.

Session Eleven:
Analyzing and Selecting Solutions

Selecting Criteria (II)

The Cost-Benefit Analysis

•Can be a driving factor in your decision

•Can also be the grounds for creating a business case to implement your decision

•Weighs out the cost of your decision in a way that readers can understand

Session Eleven:
Analyzing and Selecting Solutions

Creating a Cost-Benefit Analysis (I)

Your two year old smartphone no longer holds a charge well and is not under warranty. You would really love a tablet, since the people working in sales now have them and they seem so handy. You don't really need a tablet to do your job, but you could probably make a half decent argument to get one.

Session Eleven:
Analyzing and Selecting Solutions

Creating a Cost-Benefit Analysis (II)

- Would you ask your boss for a new tablet to replace the phone ($700) or a smartphone ($350) like you had before?

- Create a list of factors to justify the purchase of a new smartphone or tablet as mentioned above.

- When the cost is added up, and then projected for a 12 month period, is it reasonable?

Session Eleven: Analyzing and Selecting Solutions

Creating a Cost-Benefit Analysis (III)

- Does it add to your work to have one item instead of the other?

- What kind of business case are you most comfortable moving ahead with?

- What are the benefits to the company?

- How will you present your CBA to your manager as part of a request for consideration?

Session Twelve:
Planning and Organizing

Introduction (I)

- After the **problem has been identified** and a **solution has been chosen**, it's time to **plan and organize** your course of action and implement it.

- Depending on the size of the decision you've made, these tasks may take minutes, or they might require a full **project team**.

Session Twelve: Planning and Organizing

Introduction (II)

- This phase should be quite **straightforward**.

- Once you have developed your **plan**, assembled the **people** and supporting **resources** necessary, and get things started, it's all downhill!

Session Twelve:
Planning and Organizing

Follow-Up Analysis

- Were there essential elements that I missed in the problem identification phase?

- Did I adequately define the real problem?

- Were there other decision making tools I could have used?

- Knowing what I now know, would I have made a different decision?

- What would I do differently next time?

Session Twelve:
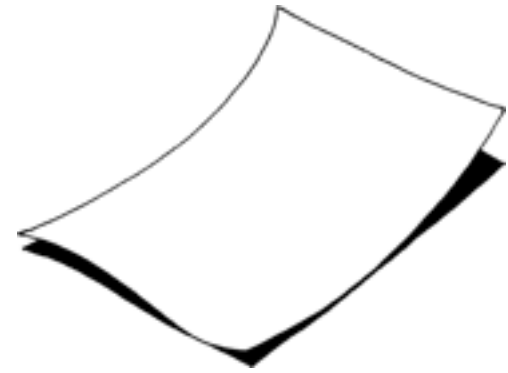# Planning and Organizing

Evaluate (I)

- We might give little thought to **small decisions**.

- For **larger decisions**, ask yourself what measureable impacts there are to the changes that were made.

- Gather those **results** and **data** first.

Session Twelve: Planning and Organizing

Evaluate (II)

- Then decide what **questions** you will ask and what **format** you will use to evaluate your decision.

- Do you require a **simple summary** of a few paragraphs, or does this decision need a full **report**?

Session Twelve: Planning and Organizing

Adapt, Close, and Celebrate (I)

- Sometimes, we must **adapt** or **evolve** in some way to continue along the desired path.

- If, during your evaluation, you find things that need adapting, **get back into** the problem solving process and change what needs changing.

Session Twelve:
Planning and Organizing

Adapt, Close, and Celebrate (II)

- You might find the **failure** of a well-executed plan troubling.

- Remind yourself that you've now identified a **new problem** and are working things through.

- Then, **re-implement and prepare for success**.

Session Twelve:
Planning and Organizing

Adapt, Close, and Celebrate (III)

- Once the changes are finished and your evaluation is complete, make sure you **close off** this project with all the people involved and **celebrate** your success.

- Change may not be easy, and you may have had some struggles, but you are finished for now!

Session Twelve:
Planning and Organizing

Adapt, Close, and Celebrate (IV)

"Change is what excites people. You can't stay the same. If you're growing, you have to keep growing. If you're going down, you got [sic] to turn it around. If you're stagnant, you're dead. And so in the end, you've got to get people to embrace change and not be paralyzed by it."

Jack Welch