

# Problem Solving & Decision making



## **Course Goals**

- Understand and practice problem solving processes**
- Identify solutions through analysis and systematic approaches**
- Select and validate best solutions**
- Prioritise Plan and Execute implementation of solutions**
- Effectively share and communicate solutions problems and solutions**
- Manage risk in delivering solutions**



## What is a problem?

“A problem is not actually a problem as long as there is a solution and a problem with no solution is very rare”

The Definition of a problem

the process of finding solutions to difficult or complex issues.

Problem Solving

The process of working through details of a problem to reach a solution.

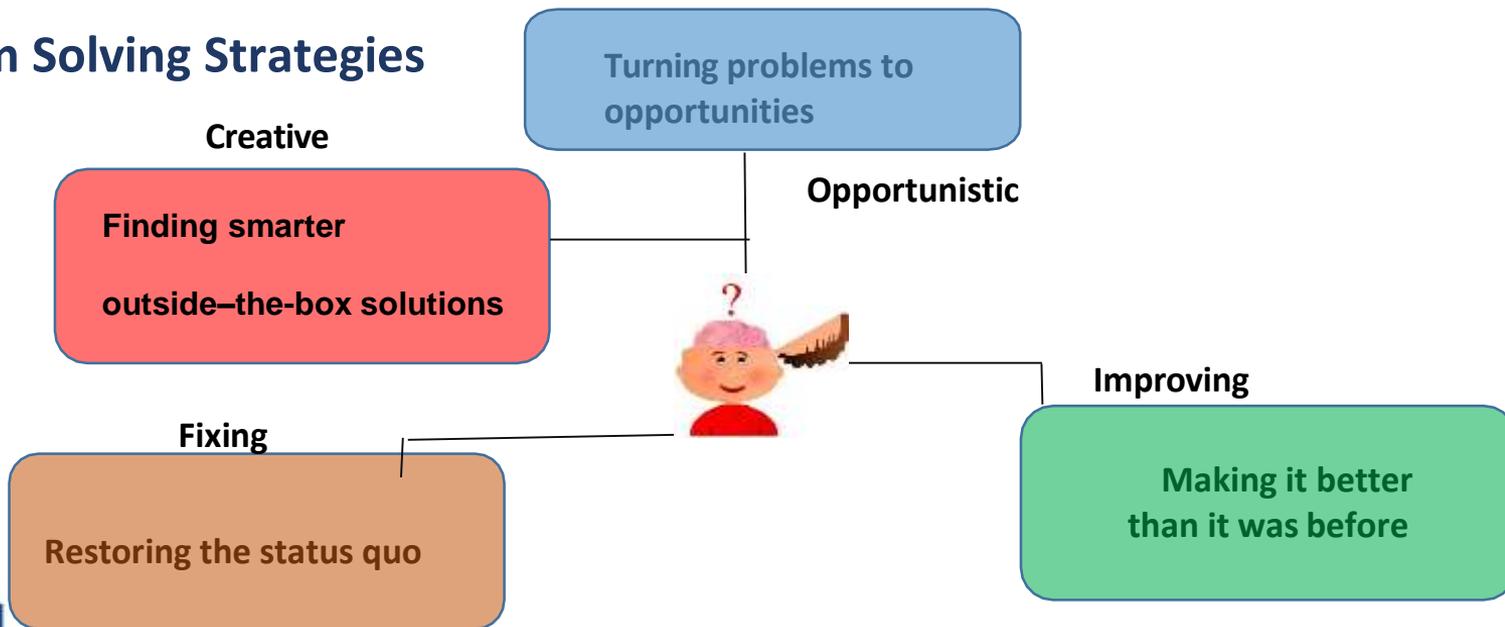


## Steps to Creative Problem Solving

Innovation - the implementation of the most promising ideas



## Problem Solving Strategies



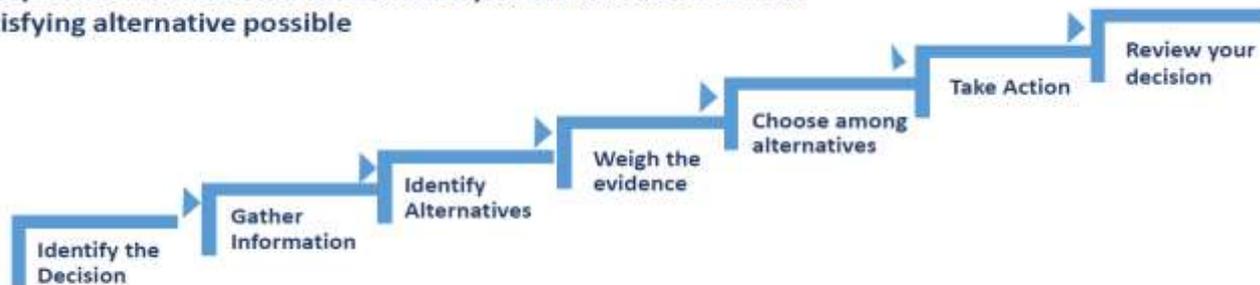
# Decision Making

The cognitive process resulting in the selection of a belief or a course of action among several alternative possibilities.

## 7 steps to effective decision making

Using a step by step decision making process can help you to make more deliberate, thoughtful decisions by organising relevant information and defining alternatives

This process increases the chance that you will choose the most satisfying alternative possible



MOTIVATION TO DECIDE

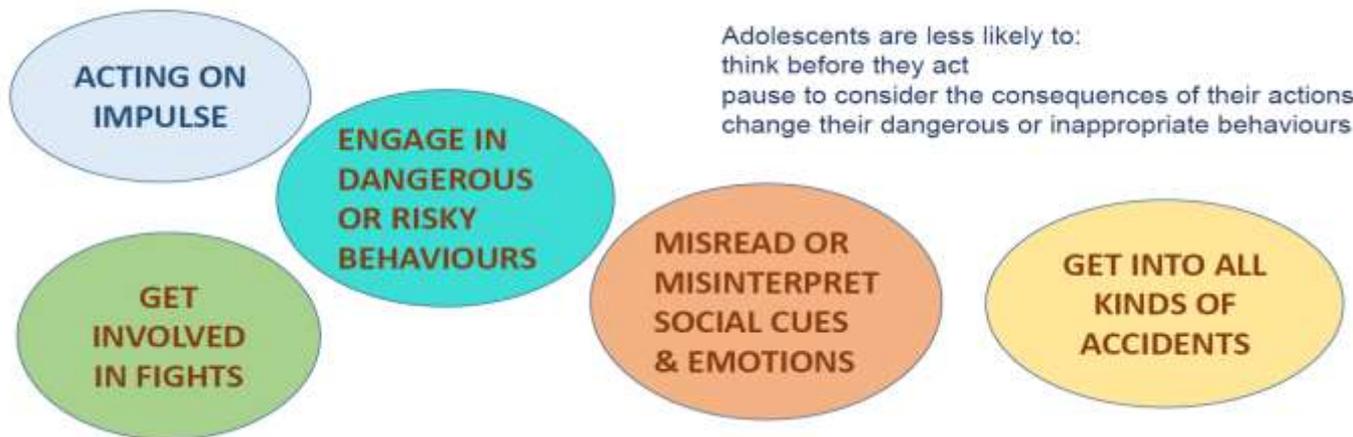
THINKING PROCESS

DECIDING



## Teen Brain, Teen Behaviour

### Developing Brains Mean that Adolescents Act Differently From Adults



Adolescents are less likely to:  
think before they act  
pause to consider the consequences of their actions  
change their dangerous or inappropriate behaviours



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Most activity in the  
adult brain is in the  
frontal lobe:

**Thinking, reasoning,  
planning**

Most activity in the  
teen brain is focused  
in the center:

**Pleasure / reward  
center**



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## Problem Types

Known

Solution  
requires  
just action



Known

Solution  
requires  
additional  
expertise



Known

Solution  
requires  
creative  
approaches



UNKNOWN

Need to  
be  
identified



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# Ethics within Decision Making

**Many decisions involve an ethical component,**

One of the most important considerations in management is whether the decisions you are making as an employee or manager are ethical.

## A Framework for Ethical Decision Making

Recognize  
an Ethical  
Issue

Get  
the  
Facts

Evaluate  
Alternative  
Actions

Make a  
Decision  
and Test  
It

Act and  
Reflect  
on the  
Outcome



## Types of Decision Making

<i>Decision Making Model</i>	<i>Use this Model when:</i>
<b>Rational</b>	<ul style="list-style-type: none"> <li>• Information on alternatives can be gathered and quantified</li> <li>• The decision is important</li> <li>• You are trying to maximize your outcome</li> </ul>
<b>Bounded Rationality</b>	<ul style="list-style-type: none"> <li>• The minimum criteria are clear</li> <li>• You do not have or you are not willing to invest much time to making the decision</li> <li>• You are not trying to maximize your outcome</li> </ul>
<b>Intuitive</b>	<ul style="list-style-type: none"> <li>• Goals are unclear</li> <li>• There is time pressure and analysis paralysis would be costly</li> <li>• You have experience with the problem</li> </ul>
<b>Creative</b>	<ul style="list-style-type: none"> <li>• Solutions to the problem are not clear</li> <li>• New Solutions need to be generated</li> <li>• You have time to immerse yourself in the issues</li> </ul>

## Edward de Bono – the Six Thinking Hats

The Six Thinking Hats provides a concrete framework for exploration which provides a means for moving from one way of thinking to another.

Since we are often not aware of our mode of thinking at any given moment, our mind might come up with emotions, intuitions, facts and judgments all at the same time.

The Six Thinking Hats can help you to become more aware of your own thinking, and this awareness allows you to change the course of your thinking in a conscious way.



*Hat 1 – Thinking  
about thinking*



*Feelings/ intuition/  
hunches/ emotions*



*Hat 3- Creative  
Thinking*



*Hat 4-  
Benefits /Value /Logic*



*Hat 5 – Data and  
information*



*Hat 6 – Critical  
Thinking*



Hat 1 – Thinking  
about thinking

The big picture-  
What thinking is needed ?  
Where are we now?  
What do we need to do next?  
Action Plans – Referee and timekeeper.



Hat 2 – Feelings /  
hunches / emotions/  
intuition

feelings intuition emotion –  
What do I feel about this task?  
What do I like about these feelings/ do not  
like?



Hat 3- Creative  
Thinking

Creative thinking – generating new Ideas,  
alternatives, possibilities,  
solutions to 'black hat' problems



Hat 4-  
Benefits /Value /Logic

Positive view – looks for benefits –  
Why is it a good idea?  
What are the advantages and benefits?  
Why will it work?



Hat 5 – Collecting  
Data & information

What do I know, what do I need to know  
– how will I get the information I need? –



Hat 6 – Critical  
Thinking

Caution & critical judgement – hi-lights  
difficulties, potential problems, why  
something may not work, what are the  
disadvantages?





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## PROBLEM SOLVING METHODOLOGY

**Define or identify the problem** -----> involves diagnosing the situation so that the focus on the real **problem** and not on its symptoms



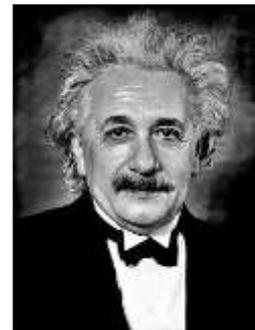
## Have a word with Yourself





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***'if I had one hour to save the world I would spend **fifty-five minutes defining the problem and only five minutes finding the solution'*****



**Before jumping right into solving a problem, we should step back and invest time and effort to improve our understanding of it.**



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## Move from Issue to Action

### 1. Specify or identify the problem

Stating the issue that an argument is meant to address

### 2. Analyze the problem

Gather knowledge about the issue at hand i.e. looking for premises that tell you something about the problem

### 3. Formulate possible solutions

Craft an Argument – use the premises that you discovered in your analysis to build an argument

### 4. Evaluate the possible solutions

Look at each argument to find out how strong or weak it is

### 5. Choose a solution

Decide which argument is the strongest based on your evaluation and use that argument as a basis for taking action





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## Defining Starting Point

1. Agreeing that a problem exists
2. Defining the Problem clearly

WHAT IS

vs

WHAT COULD BE

Most people see something as a problem when they look at the way the world is, and think ‘Hey, things really should be different’



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## What does that really mean?



*"a problem with guns"* has not clearly defined the problem

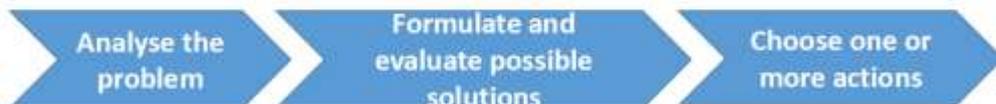
It doesn't specifically say anything about the way things are compared with the specific idea of the way things should be.



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## Clear Problem Identification



## Preparation, process and evaluation of the brainstorming

### Preparation

Choose a heterogeneous  
group of people

invite 5 to 10 participants

Location: unusual trouble-  
free environment time: 15 – 4  
5 minutes Information about:  
problem, rules

### Brainstorming meeting

Rules: not a criticism, allows  
many wild ideas, continuation  
of idea approaches

Procedure: co-ordinator  
explained topic, ensure  
observance of the rules

visualize ideas on a flip chart

### Evaluation

Complement of ideas in  
consultation

Classification and  
evaluation of ideas

announcement of the  
proposed solutions

## Do's and Don'ts for Brainstorming

- Capture EVERYTHING anyone says – no matter how crazy
- Encourage participation – ask people for new ideas
- Allow people to ask clarifying questions

- Don't evaluate anything, and not write it down – it may not be useful right now, but may be later
- Don't force participation or participation sequence
- Don't ask judging questions

THEN

Find like items and put them together – to reduce the number of 'things' you have to study

Find the things which just won't work – which are not feasible – take them off the list

Analyse – check out things which are useful, and bring them forward for implementation



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## Managing Risk in Decision Making

Uncertainty is a state of having limited knowledge of current conditions or future outcomes. It is a major component of risk, which involves the likelihood and scale of negative consequences.

**IDENTIFY -----> QUANTIFY -----> MANAGE**

## Identifying risks

Strategic Risks	Financial Risks	Operational Risks	Legal Risks	Other Risks
<p>Arise from the investments an organisation makes to pursue it's mission and objectives. Often associated with competition</p>	<p>Relate to potential economic losses that can result from poor allocation of resources, changes in interest rates, shifts in tax policy, increase or decreases in commodity prices etc</p>	<p>Arise due to choices of design and use of processes to create and deliver goods and services Can include production errors, substandard raw materials and technology malfunctions</p>	<p>Threat of litigation or ambiguity in applicable laws and regulations (including whether they are likely to change) Risk to reputation</p>	<p>Unforeseeable circumstances – outside the organisation's control e.g. weather conditions, disasters, war or other hostilities</p>

“Risk is good.

The point of risk management is not to eliminate it. That would eliminate reward.

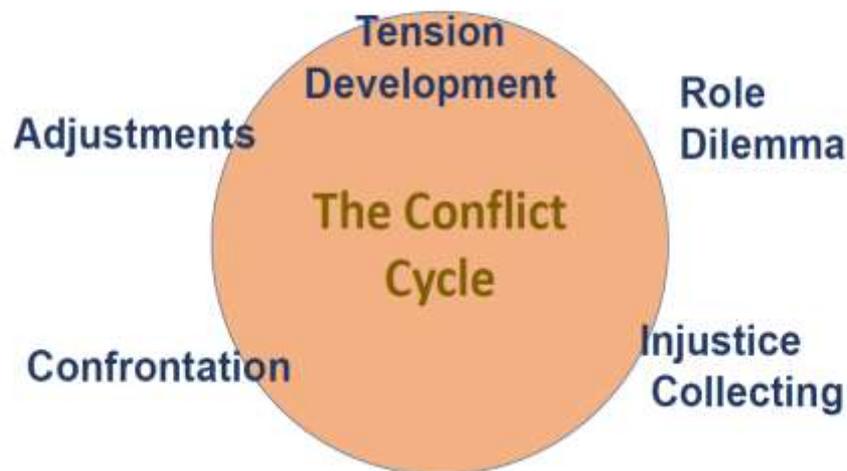
The point is to manage it. That is, to choose where to place bets and where to avoid betting altogether.”

*Th. A. Stewart, 'Managing Risk in the 21st Century*



## The Conflict Cycle

A conflict is a situation when the interests, needs, goals or values of involved parties interfere with one another.



## The Conflict Management Cycle





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# Managing Change

**So you've identified your problem, found solutions, made decisions, tested and evaluated, and planned**

**Getting everyone across your organization to accept and implement change effectively can be incredibly difficult.**

**70% of all change initiatives in businesses fail.**



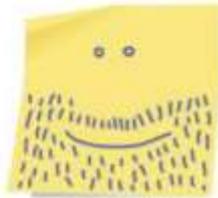
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## Reactions to change



### Committed

Ready to do what it takes to achieve the goal



### Supportive

In favor if you ask him, but achieving the goal is someone else's job



### Undecided

Won't say a word against it, but is waiting to see if she really has to act



### Unaware

Never read the email, or, if he did, he does not remember it



### Opposed

A saboteur, and talking to others about what a bad activity this is

# Resistance to change

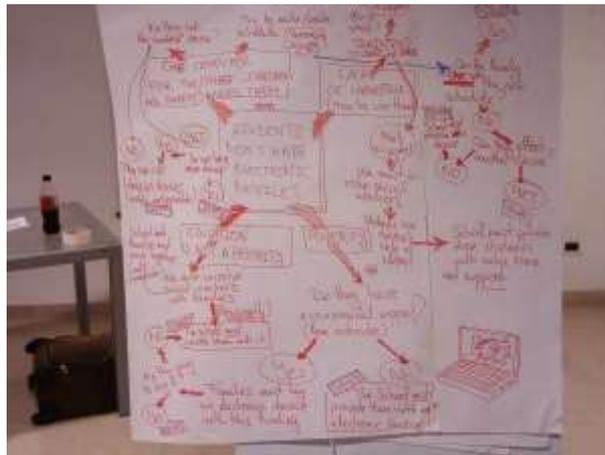
## Forms of Resistance to change



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