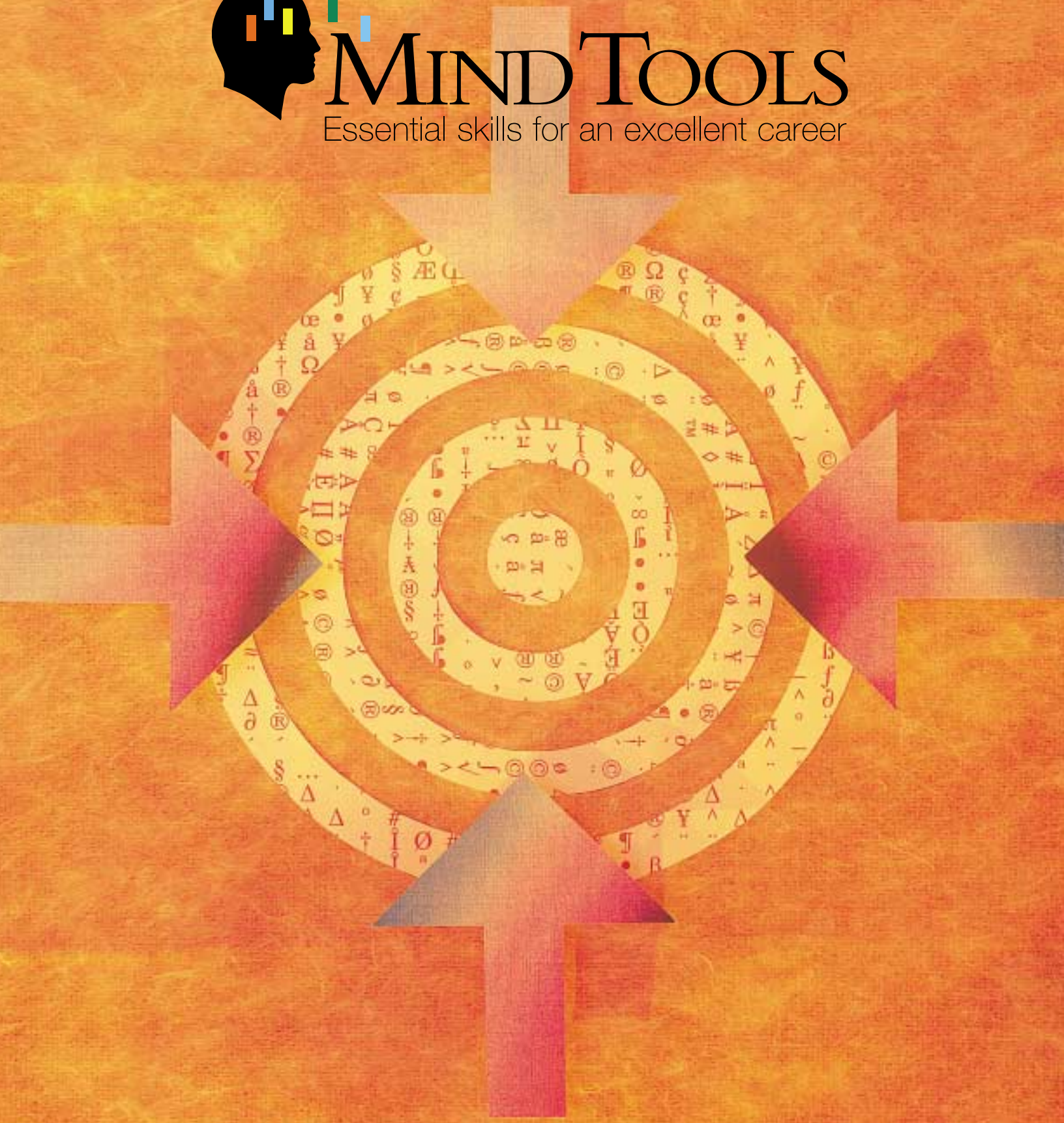
MindTools

Essential skills for an excellent career



Essential skills for an excellent career

Mind Tools

Essential Skills for an Excellent Career!

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This Ebook contains a section on stress management. Stress can cause severe health problems and, in extreme cases, can even cause death. While stress management techniques are conclusively shown to have a positive effect on reducing stress, readers should take the advice of suitably qualified medical professionals if they have any concerns over stress-related illnesses. Medical professionals should also be consulted before changing diet or levels of exercise.

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About the Author… James Manktelow

James Manktelow has developed Mind Tools since 1995.

The Mind Tools concept started with his research into the practical skills and techniques he needed to progress his own career - he found it frustrating that so many simple, but important, life and career skills were so little known and taught.

Mind Tools exists to help correct this. Since 1995, visitors have viewed more than 8 million Mind Tools pages on the Mind Tools web site at www.mindtools.com. Many have been kind enough to send us very positive testimonials on how the techniques we have helped to popularize have helped them in their daily lives and their careers.

Outside his work with Mind Tools, James is a Director of UK financial software house, CQ Systems Ltd, which produces Europe's leading leasing and loan systems. His career with CQ has spanned marketing, business development, strategy, production and project management, business and systems analysis, software development and consultancy. In this capacity, he has provided extensive consultancy for major corporations in most European countries. Clients have included DaimlerChrysler, Bank of Scotland, Ford and Capital One, among many others.

James gained his MBA at London Business School, specializing in entrepreneurship, finance and strategy. He lives with his wife Rachel and son Alex in Wimbledon in London.

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- And my wife Rachel, for her help and professional advice during the writing of this e-book.

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How to use this e-book

Welcome to Mind Tools!

This e-book is a tool kit for your mind.

On its own, a screwdriver will only help you in a small way. Although it can be very useful, there are only a few jobs that you can use it for. When, however, you use this screwdriver as part of a complete tool kit, the range of options open to you is enormous. A craftsman with a good tool kit can make many different, useful things.

Similarly, individual thinking skills used on their own may help you in a small way. When, however, you use many different thinking skills together, your ability to solve problems increases significantly. Mind Tools is a tool kit of thinking techniques.

The first four modules of Mind Tools cover the techniques that will make you a more effective business thinker. Module 1, *Creativity Tools*, shows you how to generate fresh and innovative ideas reliably. The next two modules, *Tools for Understanding Complex Situations* and *Techniques for Effective Decision Making*, give you the skills you need to understand many difficult problems, and make the best decisions possible with the information available. Module 4, *Project Planning & Management Skills*, shows you how to plan, schedule and implement complex projects.

Modules 5 and 6 explain how to study and remember information. These techniques will help you to study more effectively when you need to master a new subject or when you want to pass examinations. The section on Memory Techniques also explains useful ways of remembering people's names, lists of information, foreign languages, etc.

The final two modules explain the time and stress management skills that you will need as you become increasingly successful. They explain how to control and dissipate the pressures that will build around you. These tools will help you to live a happy life as well as a highly successful one.

The best way to use this e-book is to skim through it quickly so that you get an overview of what is contained within it. Then read through the sections that are useful to you in more detail, so that you remember the bones of the methods. Finally, keep Mind Tools on your PC desktop, and refer to it whenever you need a new approach to solving a problem. It will be worth skimming through it periodically to keep the range of tools you now have available fresh within your mind.

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Module 1

Creativity Tools

- Improving a product or service - *Reversal and SCAMPER*
- Creating new products, services & strategies
  - *Attribute Listing, Morphological Analysis & Matrix Analysis*
- Generating many radical ideas - *Brainstorming*
- Making creative leaps - *Random Input*
- Widening the search for solutions - *Concept Fan*
- Looking at problems from different perspectives - *Reframing Matrix*
- Carrying out thought experiments - *Provocation*
- A simple process for creativity - *DO IT*
- A powerful integrated problem solving process - *Simplex*
- Subconscious problem solving

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1. Creativity Tools

The tools in this module can help you to become intensely creative. They will help you both solve problems and spot opportunities that you might otherwise miss.

We will discuss the following techniques:

- Improving a product or service - *Reversal and SCAMPER*
- Creating new products, services & strategies
  - *Attribute Listing, Morphological Analysis & Matrix Analysis*
- Generating many radical ideas - *Brainstorming*
- Making creative leaps - *Random Input*
- Widening the search for solutions - *Concept Fan*
- Looking at problems from different perspectives - *Reframing Matrix*
- Carrying out thought experiments - *Provocation*
- A simple process for creativity - *DO IT*
- A powerful integrated problem solving process - *Simplex*
- Subconscious problem solving

It is important to understand what we mean by creativity, as there are two completely different types. The first is technical creativity, where people create new theories, technologies or ideas. This is the type of creativity we discuss here. The second is artistic creativity, which is more born of skill, technique and self-expression. Artistic creativity is very specific to the medium chosen, and would probably not benefit from a general discussion.

Many of the techniques in this module are those used by great thinkers to drive their creativity. Albert Einstein, for example, used his own informal variant of Provocation (1.8) to trigger ideas that lead to the Theory of Relativity.

Approaches to Creativity

There are two main strands to technical creativity: programmed thinking and lateral thinking. Programmed thinking relies on logical or structured ways of creating a new product or service. Examples of this approach are Morphological Analysis (see 1.3) and the Reframing Matrix (see 1.7). Another example of this sort of approach is the enormously powerful TRIZ process, which would require an e-book-length summary and is therefore beyond the scope of this e-book.

The other main strand uses “Lateral Thinking”. Examples of this are Brainstorming (see 1.4), Random Input (1.5) and Provocation (1.8). Edward de Bono has popularized Lateral Thinking.

Lateral thinking recognizes that our brains are pattern recognition systems, and they do not function like computers. It takes years of training before we learn to do simple arithmetic, something that computers do very easily. On the other hand, we can instantly recognize patterns such as faces, language, and handwriting. The only computers that begin to be able to do these things do it by modeling the way that

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human brain cells work[1]. Even then, computers will need to become vastly more powerful before they approach our ability to handle patterns.

The benefit of good pattern recognition is that we can recognize objects and situations very quickly. Imagine how much time would be wasted if you had to run a full analysis every time you came across a cylindrical canister of effervescent fluid. Most people would just open a can of fizzy drink. Without pattern recognition we would starve or be eaten. We could not cross the road safely.

Unfortunately, we get stuck in our patterns. We tend to think within them. Solutions we develop are based on previous solutions to similar problems. Normally, it does not occur to us to use solutions belonging to other patterns.

We use lateral thinking techniques to break out of this patterned way of thinking. They help us to come up with startling, brilliant and original solutions to problems and opportunities.

It is important to point out that each type of approach has its strength. Logical, disciplined thinking is enormously effective in making products and services better. It can, however, only go so far before all practical improvements have been carried out. Lateral thinking can generate completely new concepts and ideas, and brilliant improvements to existing systems. It can, however, be sterile, unnecessarily disruptive or an undisciplined waste of time.

A number of techniques fuse the strengths of the two different strands of creativity. Techniques such as the Concept Fan (see 1.6) use a combination of structured and lateral thinking. DO IT (1.9) and Min Basadur's Simplex (1.10) embed the two approaches within problem solving processes. While these may be considered overkill when dealing with minor problems, they provide excellent frameworks for solving difficult and serious ones.

The Creative Frame of Mind

Often the only difference between creative and uncreative people is self-perception. Creative people see themselves as creative, and give themselves the freedom to create. Uncreative people do not think about creativity, and do not give themselves the opportunity to create anything new.

Being creative may just be a matter of setting aside the time needed to take a step back. Ask yourself if there is a better way of doing something. Edward de Bono calls this a "Creative Pause". He suggests that this should be a short break of maybe only 30 seconds, but that this should be a habitual part of thinking. This needs self-discipline, as it is easy to forget.

Another important attitude-shift is to view problems as opportunities for improvement. While this is something of a cliché, it is true. Whenever you solve a problem, you have a better product or service to offer afterwards.

[1] This is achieved using neural networks. These are fascinating computer models that mimic the way brain cells work. Knowledge of neural networks is essential to anyone who is genuinely interested in why people behave the way that they do. Using them you can show how patterns are recognized, and how problems such as prejudice arise. An excellent (if slightly old) coverage of neural networks is 'Explorations in Parallel Distributed Processing' by James L McClelland and David E Rumelhart - ISBN 0-262-63113-X.

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Using Creativity
Creativity is sterile if action does not follow from it. Ideas must be evaluated, improved, polished and marketed before they have any value. Other sections of Mind Tools lay out the evaluation, analysis and planning tools needed to do this. They also explain the time and stress management techniques you will need when your creative ideas take off.

Have fun creating!

Reversal (1.1)

Function: Improving products or services

How to use tool: Reversal is a good tool for improving a product or a service. To use it, ask the opposite of the question you want to ask, and apply the results.

Example: Imagine that you want to improve the response of a service centre. Using Reversal you would ask: "How would I reduce customer satisfaction?" After considering this question, you might give the following answers:

- Not answering the phone when customers call
- Not returning phone calls
- Have people with no product knowledge answering the phone
- Use rude staff
- Give the wrong advice
- Etc.

After using Reversal, you would ensure that the appropriate staff members were handling incoming phone calls efficiently and pleasantly. You would set up training programs to ensure that they were giving accurate and effective advice.

Key points: Reversal is a good, easy process for improving products and services. You use it by asking the exact opposite of the question you want answered, and then apply the results appropriately.

SCAMPER (1.2)

Function: Generating new products and services

How to use tool: SCAMPER is a checklist that helps you to think of changes you can make to an existing product to create a new one. You can use these changes either as direct suggestions or as starting points for lateral thinking.

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The changes SCAMPER stands for are:

S - Substitute - components, materials, people
C - Combine - mix, combine with other assemblies or services, integrate
A - Adapt - alter, change function, use part of another element
M - Modify - increase or reduce in scale, change shape, modify attributes (for example, color)
P - Put to another use
E - Eliminate - remove elements, make as simple as possible, reduce to core functionality
R - Reverse - turn inside out or upside down, also use of Reversal (see 1.1)

SCAMPER was devised by Alex Osborn in his book 'Applied Imagination'.

Example: As an example, imagine that you are a manufacturer of nuts and bolts, and you were looking for new products. SCAMPER would give you:

Substitute - use of high tech materials for niche markets, such as high-speed steel? Carbon fiber? Plastics? Glass? Non-reactive material?
Combine - integrate nut and bolt? Bolt and washer? Bolt and spanner?
Adapt - put Allen key or Star head on bolt? Countersink head?
Modify - produce bolts for watches or bridges? Produce different shaped bolts (e.g. screw in plugs)? Pre-painted green bolts?
Put to another use - bolts as hinge pins? As axles?
Eliminate - Eliminate nuts, washers, heads, thread, etc.
Reverse - make dies as well as bolts, make bolts that cut threads for themselves in material, etc.

Here, SCAMPER has helped to define possible new products. Many of the ideas may be impractical or may not suit the equipment used by the manufacturer. However, some of these ideas could be good starting points for new products.

Key points: SCAMPER is an acronym for Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse. This is a list of changes that you could make to existing products and services to open up new opportunities.

Attribute Listing, Morphological Analysis & Matrix Analysis (1.3)

Function: Creating New Products, Services & Strategies

How to use tool: Attribute Listing, Morphological Analysis and Matrix Analysis are good techniques for finding new combinations of products or services. They are sufficiently similar to be

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discussed together. We use Attribute Listing and Morphological Analysis to generate new products and services. Matrix Analysis is a good tool for creating things like marketing strategies.

To use the technique, first list the attributes of the product, service or strategy you are examining. Attributes are parts, properties, qualities or design elements of the thing being looked at. Attributes of a pencil would be shaft material, lead material, hardness of lead, width of lead, quality, color, weight, price, etc. A television plot would have attributes of characters, actions, locations, weather, etc. For a marketing strategy you might use attributes of markets open to you, uses of the product, skills you have available, etc.

Draw up a table using these attributes as column headings. Write down as many variations of the attribute as possible in the columns. This might be an exercise that benefits from Brainstorming (see 1.4). The table should now show all possible variations of each attribute.

Now, select one entry from each column. Either do this randomly or select interesting combinations. By mixing one item from each column, you will create a new mixture of components. This is a new product, service or strategy.

Now evaluate and improve that mixture to see if you can imagine a profitable market for it.

Attribute Listing focuses on the attributes of an object, seeing how each attribute could be improved. Morphological Analysis uses the same basic technique, but is used to create a new product by mixing components in a new way. Matrix Analysis focuses on businesses. It is used to generate new approaches, using attributes such as market sectors, customer needs, products, promotional methods, etc.

Example:

Imagine that you want to create a new lamp. The starting point for this might be to carry out a morphological analysis. Properties of a lamp might be power supply, bulb type, light intensity, size, style, finish, material, shade, etc.

You can set these out as column headings on a table:

Power Supply	Bulb Type	Light Intensity	Size	Style	Color	Material
Battery	Halogen	Low	Very large	Modern	Black	Metal
Mains	Bulb	Medium	Large	Antique	White	Ceramic
Solar	Daylight	High	Medium	Roman	Metallic	Concrete
Generator	Colored	Variable	Small	Art Nouveau	Terra cotta	Bone
Crank	Arc		Very small		Enamel	Glass
Gas	Flame		Hand held	Industrial	Natural	Wood
Oil/Petrol				Ethnic	Fabric	Stone
						Plastic

Interesting combinations might be:

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- Solar powered/battery, medium intensity, daylight bulb - possibly used in clothes shops to allow customers to see the true color of clothes.
- Large hand cranked arc lights - used in developing countries, or far from a mains power supply.
- A ceramic oil lamp in Roman style - resurrecting the olive oil lamps of 2000 years ago.
- A normal table lamp designed to be painted, wallpapered or covered in fabric so that it matches the style of the room perfectly.

Some of these might be practical, novel ideas for the lighting manufacturer. Some might not. This is where the manufacturer's experience and market knowledge are important.

Key points: Morphological Analysis, Matrix Analysis and Attribute Listing are useful techniques for making new combinations of products, services and strategies.

You use the tools by identifying the attributes of the product, service or strategy you are examining. Attributes might be components, assemblies, dimensions, color, weight, style, speed of service, skills available, etc.

Use these attributes as column headings. Underneath the column headings list as many variations of that attribute as you can.

You can now use the table by randomly selecting one item from each column, or by selecting interesting combinations of items. This will give you ideas that you can examine for practicality.

Brainstorming (1.4)

Function: Generating many radical ideas

How to use tool: Brainstorming is an excellent way of developing many creative solutions to a problem. It works by focusing on a problem, and then coming up with very many radical solutions to it. Ideas should be as broad and odd as possible, and should be developed as fast as you can. Brainstorming is a lateral thinking process (see the introduction to this module for further information). It helps you to break out of your thinking patterns into new ways of looking at things.

During brainstorming sessions there should be no criticism of ideas. You are trying to open possibilities and break down wrong assumptions about the limits of the problem. Judgments or analysis at this stage will stunt idea generation. You should only evaluate ideas after a brainstorming session has finished. You can then explore solutions further using conventional approaches.

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If your ideas begin to dry up, you can “seed” the session with a random word (see Random Input, section 1.5).

You can brainstorm your own or in a group.

Individual Brainstorming
When you brainstorm on your own, you will tend to produce a wider range of ideas than group brainstorming. You do not have to worry about other people’s egos or opinions, and so can be more freely creative. You may not, however, develop ideas as effectively as you do not have the experience of the group to help you.

When Brainstorming on your own, it can be helpful to use Concept Maps (see 5.1) to arrange and develop ideas.

Group Brainstorming
Group brainstorming can be very effective as it uses the experience and creativity of all members of the group. When individual members reach their limit on an idea, another member's creativity and experience can take it to the next stage. Therefore, group brainstorming tends to develop ideas in more depth than individual brainstorming.

Brainstorming in a group can be risky for individuals. Strange and often very valuable suggestions may appear stupid at first sight. Because of such, you need to chair sessions tightly so that uncreative people do not crush these ideas and leave group members feeling humiliated.

To run a group brainstorming session effectively, do the following:
- Define the problem you want solved clearly, and lay out any criteria to be met.
- Keep the session focused on the problem.
- Ensure that no one criticizes or evaluates ideas during the session. Criticism introduces an element of risk for group members when putting forward an idea. This stifles creativity and cripples the free running nature of a good brainstorming session.
- Encourage an enthusiastic, uncritical attitude among members of the group. Try to get everyone to contribute and develop ideas, including the quietest members of the group.
- Let people have fun brainstorming. Encourage them to come up with as many ideas as possible, from solidly practical ones to wildly impractical ones. Welcome creativity.
- Ensure that no train of thought is followed for too long.
- Encourage people to develop other people’s ideas, or to use other ideas to create new ones.
- Appoint one person to note down ideas that come out of the session. A good way of doing this is to use a flip chart. This should be studied and evaluated after the session.

Where possible, participants in the brainstorming process should come from as wide a range of disciplines as possible. This brings a broad range of experience to the session and helps to make it more creative.

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Key points: Brainstorming is a formal way of generating radical ideas. During the brainstorming process there is no criticism of ideas, as free rein is given to people's creativity. Criticism and judgment cramp creativity.

Individual brainstorming is best for generating many ideas, but tends to be less effective at developing them. Group brainstorming tends to develop fewer ideas, but takes each idea further. Group brainstorming needs formal rules for it to work smoothly.

Random Input (1.5)

Function: Making Creative Leaps

How to use tool: Random Input is a lateral thinking tool. It is very useful when you need fresh ideas or new perspectives during problem solving.

As explained in the introduction to this module, we tend to think by recognizing patterns. We react to these patterns based on past experience and extensions to that experience. Sometimes, though, we get stuck inside them, and within a particular pattern there may be no good solution to a particular sort of problem.

Random input is a technique for linking another thinking pattern into the one we are using. Along with this new pattern comes all the experience you have connected to it.

To use Random Input, select a random noun from either a dictionary or a pre-prepared word list. It often helps if the noun is something that can be seen or touched (e.g. "helicopter", "dog") rather than a concept (e.g. "fairness"). Use this noun as the starting point for brainstorming (see 1.4) on your problem.

You may find that you get good insights if you select a word from a separate field in which you have some expertise.

If you choose a good word, you will add a range of new ideas and concepts to your brainstorming. While some will be useless, hopefully you will gain some good new insights into your problem. If you persist, then at least one of these is likely to be a startling creative leap.

Example: Imagine that you are thinking about the problem of reducing car pollution. So far in thinking through the problem you have considered all the conventional solutions of catalytic conversion and clean fuels.

Selecting a random noun from the titles of the books in a bookcase you might see the word "Plants". Brainstorming from this you could generate a number of new ideas:

- Plant trees on the side of roads to convert CO_2 back into oxygen.
- Similarly, pass exhaust gases through a soup of algae to convert CO_2 back into oxygen. Perhaps this is how an "air scrubber" in a space craft works?

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- Put sulfur-metabolizing bacteria into an exhaust gas processor to clean up exhaust gases. Would nitrogen compounds fertilize these bacteria?
- Another meaning of “Plant” is factory. Perhaps exhaust gases could be collected in a container, and sent to a special plant to be cleaned? Perhaps you could off-load these gases at the same time as you fill up with fuel?

These ideas are very raw. Some may be wrong or impractical. One of them might be original and the basis of some useful development.

Key points: Random input is an excellent way of getting new perspectives on a problem. It often leads to startling creative leaps.

It provides an easy way of breaking out of restrictive thinking patterns. It helps you to link in whole ranges of new solutions that you would not otherwise associate with the problem.

The best words to use are concrete nouns, which may come from areas in which you have some expertise. Nouns should not, however, come from the same field as the problem you are considering, as the whole idea of Random Input is to link in new thinking patterns, not to stay inside old ones.

Concept Fan (1.6)

Function: Widening the Search for Solutions

How to use tool: The Concept Fan is a way of finding different approaches to a problem when you have rejected all obvious solutions. It develops the principle of “taking one step back” to get a broader perspective.

To start a Concept Fan, draw a circle in the middle of a large piece of paper. Write the problem you are trying to solve into it. To the right of it radiate lines representing possible solutions to the problem. This is shown in figure 1 below:

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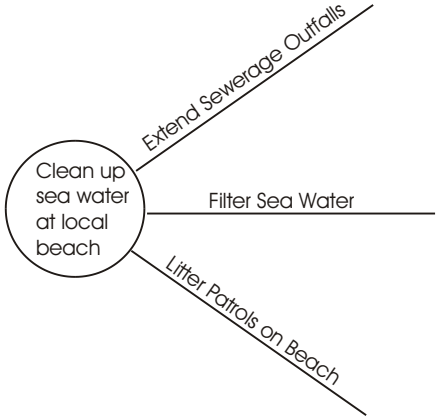

Figure 1: First Stage of a Concept Fan

It may be that the ideas you have are impractical or do not really solve the problem. If this is the case, take a "step back" for a broader view of the problem.

Do this by drawing a circle to the left of the first circle, and write the broader definition into this new circle. Link it with an arrow to show that it comes from the first circle:

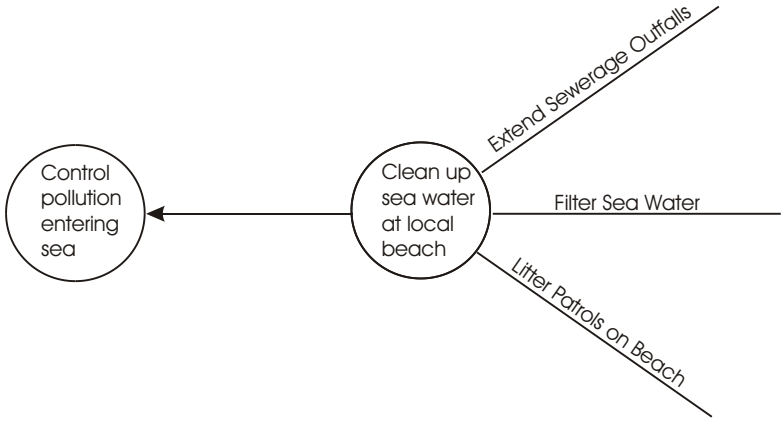

Figure 2: Broadening the Problem Definition on a Concept Fan

Use this as a starting point to radiate out other ideas:

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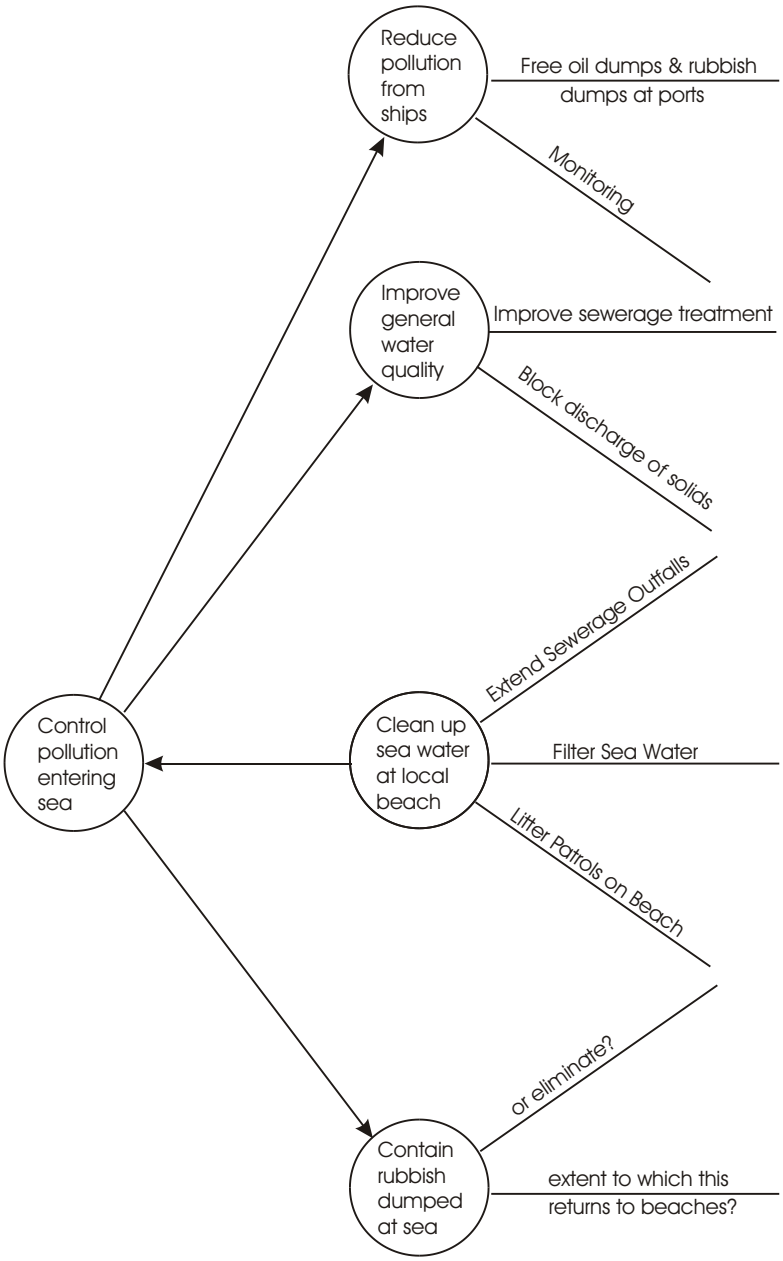

Figure 1.6.3: Radiating Ideas from the Broader Problem Definition

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If this does not give you enough new ideas, you can take yet another step back (and another, and another…):

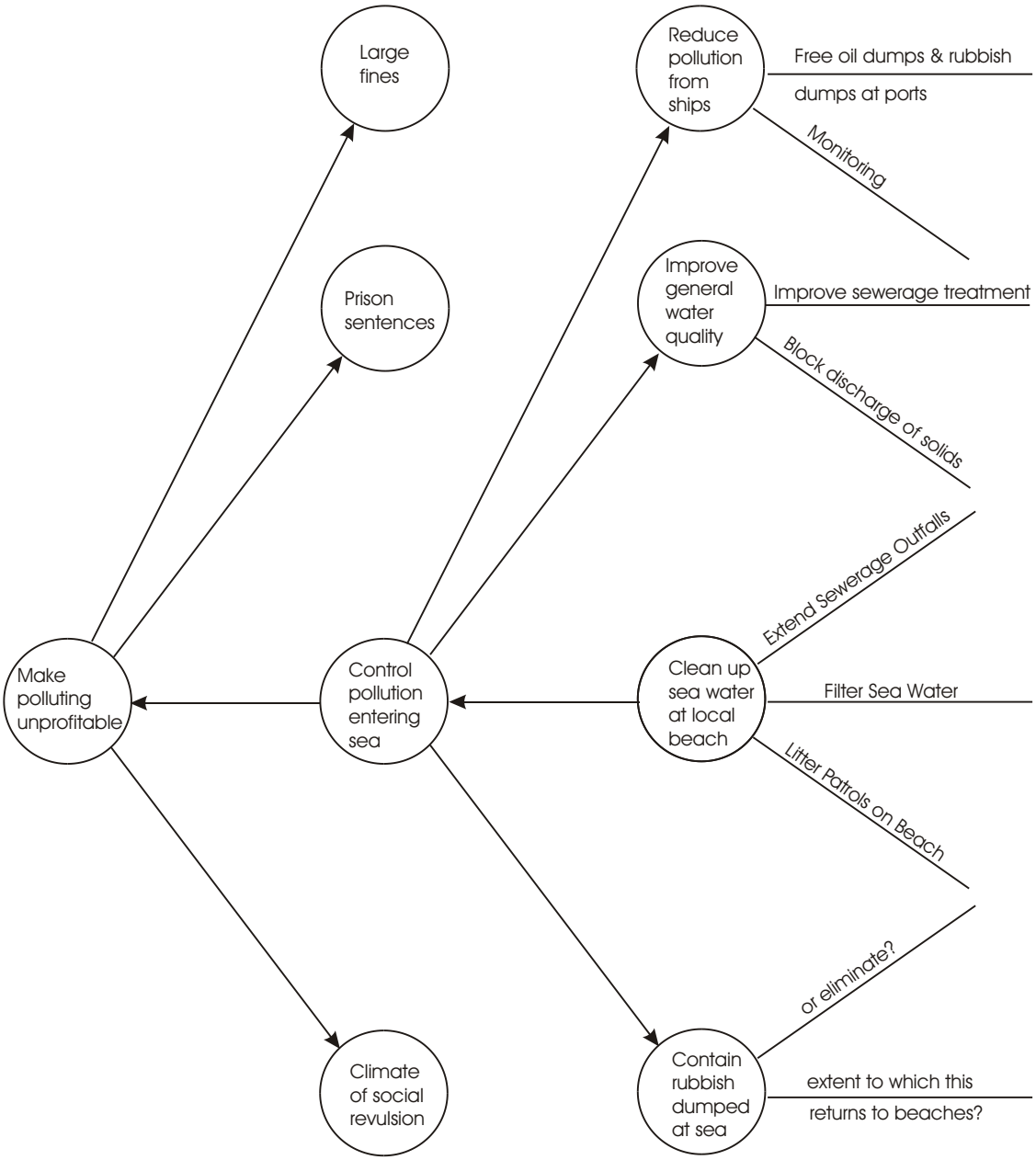

Figure 4: A Developed Concept Fan

The Concept Fan was devised by Edward de Bono in his book '[Serious Creativity]'.

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Key points: The Concept Fan is a useful technique for widening the search for solutions when you have rejected all obvious approaches. It gives you a clear framework within which you can take “one step back” to get a broader view of a problem.

To start a concept fan, write the problem in the middle of a piece of paper. Write possible solutions to this problem on lines radiating from this circle.

If no idea is good enough, redefine the problem more broadly. Write this broader definition in a circle to the left of the first one. Draw an arrow from the initial problem definition to the new one to show the linkage between the problems. Then radiate possible solutions from this broader definition.

Keep on expanding and redefining the problem until you have a useful solution.

Reframing Matrix (1.7)

Function: Looking at a problems from different perspectives

How to use tool: A Reframing Matrix is a simple technique that helps you to look at business problems from a number of different viewpoints. It expands the range of creative solutions that you can generate.

The approach relies on the fact that different people with different experience approach problems in different ways. What this technique helps you to do is to put yourself into the minds of different people, to imagine the solutions they would come up with.

We do this by putting the question to be asked in the middle of a grid. We use boxes around the grid for the different perspectives. This is just an easy way of laying the problem out, so if it does not suit you, change it.

We will look at two different approaches to the reframing matrix. You could look at problems in a large number of different ways.

The 4 Ps Approach
This relies on looking at a problem from different perspectives within a business. The 4 Ps approach looks at problems from the following viewpoints:

- Product perspective: Is there something wrong with the product?
- Planning perspective: Are our business plans or marketing plans at fault?
- Potential perspective: If we were to seriously increase our targets, how would we achieve these increases?
- People perspective: Why do people choose one product over another?

An example of this approach is shown below:

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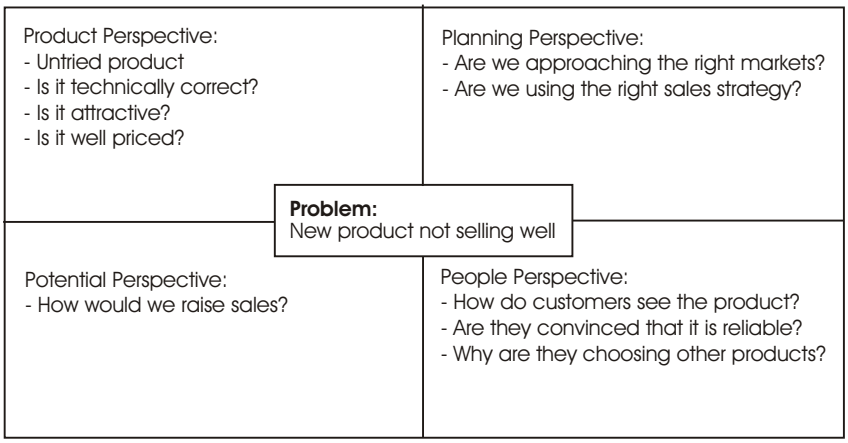
Figure 1. Reframing matrix example - New product not selling well



The "Professions Approach"
Another approach to using a reframing matrix is to look at the problem from the viewpoints of different specialists. The way, for example, that a doctor looks at a problem would be different from the approach a civil engineer would use. And, this would be different from a sales manager's perspective.

The idea of the Reframing Matrix was devised by Michael Morgan in his book 'Creating Workforce Innovation'.

Key points:

The Reframing Matrix is a formal technique used to look at problems from different perspectives. It helps to expand the number of options open to you for solving a problem.

You draw up a reframing matrix by posing a question in a box in the middle of a piece of paper. You then draw a grid around it. Each cell will contain approaches to the problem, seen from one perspective.

One of the ways of using the technique is the '4 Ps' approach. This looks at the problem from the following viewpoints: Product, Planning, Potential and People. Another set of perspectives is to ask your self how different professionals would approach the problem. Useful professions to consider would be medical doctors, engineers, systems analysts, sales managers, etc.

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Provocation (1.8)

Function: Carrying Out Thought Experiments

How to use tool: Provocation is an important lateral thinking technique. Just like Random Input (see 1.5), it works by moving your thinking out of the established patterns that you use to solve problems.

As explained earlier, we think by recognizing patterns and reacting to them. These reactions come from our past experiences and logical extensions to those experiences. Often we do not think outside these patterns. While we may know the answer as part of a different type of problem, the structure of our brains makes it difficult for us to link this in.

Provocation is one of the tools we use to make links between these patterns.

We use it by making deliberately stupid statements (Provocations), in which something we take for granted about the situation is not true. Statements need to be stupid to shock our minds out of existing ways of thinking. Once we have made a provocative statement, we then suspend judgment and use that statement to generate ideas. Provocations give us original starting points for creative thinking.

As an example, we could make a statement: “Houses should not have roofs”. Normally, this would not be a good idea! However this leads one to think of houses with opening roofs, or houses with glass roofs. These would allow you to lie in bed and look up at the stars.

Once you have made the Provocation, you can use it in a number of different ways, by examining:

- The consequences of the statement
- What the benefits would be
- What special circumstances would make it a sensible solution
- The principles needed to support it and make it work
- How it would work moment-to-moment
- What would happen if a sequence of events was changed
- Etc.

You can use this list as a checklist.

Edward de Bono developed and popularized use of Provocation by using the word “Po”. “Po” stands for “Provocative operation”. As well as laying out how to use Provocation effectively, he suggests that when we make a Provocative statement in public that we label it as such with “Po” (e.g. “Po: the earth is flat”). This does rely on all members of your audience knowing about Provocation, and if they do not, they will think you are mad!

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As with other lateral thinking techniques, Provocation does not always produce good or relevant ideas. Often, though, it does. Ideas generated using Provocation are likely to be fresh and original.

Example: The owner of a video-hire shop is looking at new ideas for business to compete with the Internet. She starts with the provocation: “Customers should not pay to borrow videos”.

She then examines the provocation:

- Consequences: The shop would get no rental revenue and therefore would need alternative sources of cash. It would be cheaper to borrow the video from the shop than to download the film or order it from a catalogue.
- Benefits: Many more people would come to borrow videos. More people would pass through the shop. The shop would spoil the market for other video shops in the area.
- Circumstances: The shop would need other revenue. Perhaps the owner could sell advertising in the shop, or sell popcorn, sweets, bottles of wine or pizzas to people borrowing films. This would make her shop a one-stop “Night at home” shop. Perhaps it would only lend videos to people who had absorbed a 30-second commercial, or completed a market research questionnaire.

After using the Provocation, the owner of the video shop decides to run an experiment for several months. She will allow customers to borrow the top ten videos free (but naturally will fine them for late returns). She puts the videos at the back of the shop. In front of them she places displays of bottles of wine, soft drinks, popcorn and sweets so that customers have to walk past them to get to the videos. Next to the film return counter she sells merchandise from the top ten films being hired.

If the approach is a success she will open a pizza stand inside the shop.

Key points: Provocation is an important lateral thinking technique that helps to generate original starting points for creative thinking.

To use provocation, make a deliberately stupid comment relating to the problem you are thinking about. Then suspend judgment, and use the statement as the starting point for generating ideas.

Often this approach will help you to generate completely new concepts.

DO IT (1.9)

Function: Simple Process for Creativity

How to use tool: DO IT is a process for creativity.

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Techniques outlined earlier in this module focus on specific aspects of creative thinking. DO IT bundles them together, and introduces formal methods of problem definition and evaluation. These help you to get the best out of the creativity techniques.

DO IT is an acronym that stands for:

- D - Define problem
- O - Open mind and apply creative techniques
- I - Identify best solution
- T - Transform

These stages are explained in more detail below:

1. Problem Definition

This section concentrates on analyzing the problem to ensure that the correct question is being asked. The following steps will help you to do this:

a) Check that you are tackling the problem, not the symptoms of the problem. To do this, ask yourself why the problem exists repeatedly until you get to the root of it.
b) Lay out the bounds of the problem. Work out the objectives that you must achieve and the constraints that you are operating under.
c) Where a problem appears to be very large, break it down into smaller parts. Keep on going until each part is achievable in its own right, or needs a precisely defined area of research to be carried out. See section 2.2 (Drill-Down) for a detailed description of this process.
d) Summarize the problem in as concise a form as possible. Robert W. Olsen suggests that the best way to do this is to write down a number of 2-word problem statements and choose the best one.

2. Open Mind and Apply Creative Techniques

Once you know the problem that you want to solve, you are ready to start generating possible solutions. It is very tempting just to accept the first good idea that you come across. If you do this, you will miss many even better solutions.

At this stage of DO IT we are not interested in evaluating ideas. Instead, we are trying to generate as many different ideas as possible. Even bad ideas may be the seeds of good ones.

You can use the whole battery of creativity techniques covered earlier in this module to search for possible solutions. See sections 1.1 to 1.8 for full detail on these. Each tool has its particular strengths and benefits, depending on the problems that you want to solve. While you are generating solutions, remember that other people will have different perspectives on the problem, and it will almost certainly be worth asking for the opinions of your colleagues as part of this process.

3. Identify the Best Solution

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Only at this stage do you select the best of the ideas you have generated. It may be that the best idea is obvious. Alternatively, it may be worth examining and developing a number of ideas in detail before you select one.

Section 3 of Mind Tools explains a range of excellent decision-making techniques. Decision Tree Analysis (3.4) and Force Field Analysis (3.6) are particularly useful. These will help you to choose between the solutions available to you.

When you are selecting a solution, keep in mind your own or your organization's goals. Often decision-making becomes easy once you know these. Section 7.6 discusses the setting of personal goals.

4. Transform
Having identified the problem and created a solution to it, the final stage is to implement this solution. This involves not only development of a reliable product from your idea, but all the marketing and business side as well. This may take a great deal of time and energy.

Many very creative people fail at this stage. They will have fun creating new products and services that may be years ahead of what is available on the market. They will then fail to develop them, and watch someone else make a fortune out of the idea several years later.

The first stage in transforming an idea is to develop an Action Plan for the transformation (see 7.4). This may lead to creation of a Business or Marketing Plan. Once you have done this, the work of implementation begins!

DO IT was devised by Robert W Olsen in his book 'The Art of Creative Thinking'.

Key points:

DO IT is a structured process for creativity. Using DO IT ensures that you carry out the essential groundwork that helps you to get the most out of creativity tools.

These steps are:

1. Problem Definition: During this stage you apply a number of techniques to ensure that you are asking the right question.
2. Open Mind: Here you apply creativity techniques to generate as many answers as possible to the question you are asking. At this stage you are not evaluating the answers.
3. Identify the best solution: Only at this stage do you select the best solutions from the ones you came up with in step 2. Where you are having difficulty in selecting ideas, use formal techniques to help.
4. Transform: The final stage is to make an Action Plan for the implementation of the solution, and to carry it out. Without implementation, your creativity is sterile.

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Simplex (1.10)

Function: Powerful integrated problem solving process

How to use tool: Simplex is an excellent, industrial strength creativity tool. It takes the approach of DO IT (see 1.9) to the next level of sophistication.

Rather than seeing creativity as a single straight-line process, Simplex sees it as the continuous cycle it should be. Completion and implementation of one cycle of creativity leads straight into the next cycle of creative improvement.

Simplex uses the following eight stages:

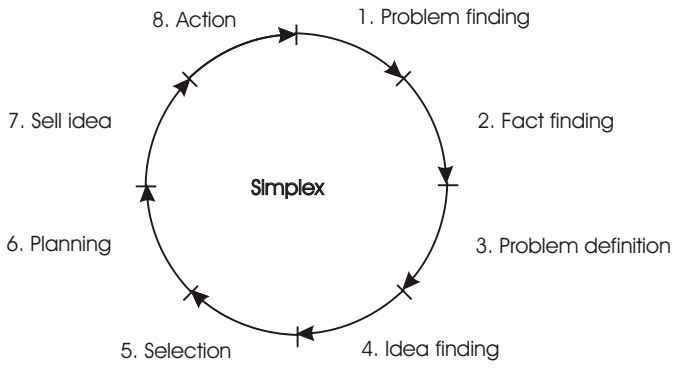

Figure 1: The Simplex Process

These are explained below:

1. Problem finding
Often finding the right problem to solve is the most difficult part of the creative process. When using Simplex, actively seek problems out. Wherever they exist, you have opportunities for change and improvement.

Problems may be obvious, or can be flushed out using trigger questions like the ones below:

- What would your customers want you to improve?
- What could they be doing better if we could help them?
- Who else could we help using our core competences?
- What small problems do we have which could grow into bigger ones?

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- What slows our work or makes it more difficult? What do we often fail to achieve?
- How can we improve quality?
- What are our competitors doing that we could do?
- What is frustrating and irritating?

These questions deal with problems that exist now. It is also useful to try to look into the future. Think about how you expect markets and customers to change over the next few years; the problems you may experience as your organization expands; and social, political and legal changes that may affect it.

At this stage you may not have enough information to formulate your problem precisely. Do not worry about this until step 3!

2. Fact Finding
The next stage is to find out as much information relating to the problem as possible. This gives you the depth of knowledge you need to:

- Use the best ideas your competitors have had
- Understand customers needs in more detail
- Know what has already been tried
- Fully understand any processes, components, services or technologies that you may need to use
- Ensure that the benefits of solving the problem will be worth the effort you will put into it

This stage also involves assessing the quality of the information that you have. Here it is worth listing your assumptions and checking that they are correct.

3. Problem definition
By the time you reach this stage, you should know roughly what the problem is and should have a good understanding of the facts relating to it. From here, the thing to do is to crystallize the exact problem or problems you want to solve.

It is important to solve a problem at the right level. If you ask questions that are too broad, then you will never have enough resources to answer them effectively. If you ask questions that are too narrow, you may end up fixing symptoms of a problem, rather than the problem itself.

Min Basadur (who created the Simplex Process) suggests using the question “Why?” to broaden a question, and “What’s stopping you?” to narrow it. For example, if your problem is one of trees dying, ask “Why do I want to keep trees healthy?” This might broaden the question to “How can I maintain the quality of our environment?”

A “What’s stopping you?” here could be “I do not know how to control a disease killing the tree”.

Big problems are normally made up of many smaller ones. This is the stage at which you can use a technique like Drill-Down (see 2.2) to break the problem down to its component parts.

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4. Idea finding
The next stage is to generate as many ideas as possible. Ways of doing this range from asking other people for their opinions, through programmed creativity tools (see 1.1, 1.2, 1.3, 1.6 and 1.7) and lateral thinking techniques (1.5 and 1.8) to brainstorming (see 1.4).

Do not evaluate ideas during this stage. Instead, concentrate on generating many ideas as possible. Bad ideas often trigger good ones.

5. Selection & Evaluation
Once you have a number of possible solutions to your problem, it is time to select the best one.

The best solution may be obvious. If it is not, then it is important to think through the criteria you will use to select the best idea. Section 3 of Mind Tools (Decision Making Techniques) lays out a number of good methods for this. Particularly useful techniques may be Decision Trees (3.4), Paired Comparison Analysis (3.2) and Grid Analysis (3.3).

Once you have selected an idea, develop it as far as possible. It is then essential to evaluate it to see if it is good enough to be considered worth using. It is important not to let your ego get in the way of your common sense. If your idea does not give big enough benefit, then either see if you can generate more ideas, or restart the whole process. You can waste years of your life developing creative ideas that no one wants.

There are two excellent techniques for doing this. One is Edward de Bono's 6 Thinking Hats (see 3.7), which is an excellent tool for qualitative analysis. The other is Cost/Benefit Analysis (3.8), which gives you a good basis for financially based decisions.

6. Planning
Once you have selected an idea, and are confident that your idea is worthwhile, than it is time to plan its implementation.

The best way of doing this is to set this out as an Action Plan (see 7.4), which lays out who, what, when, where, why and how of making it work. For large projects it may be worth using more formal planning techniques. These are laid out in sections 4.1 to 4.5.

7. Sell Idea
Up to this stage you may have done all this work on your own or with a small committee. Now you will have to sell the idea to the people who must support it. This might be your boss, a bank manager or other people involved with the project.

In selling the project you will have to address not only the practicality of the project, but also things such internal politics, hidden fear of change, etc.

8. Action
Finally, after all the creativity and preparation, comes action! This is where all the careful work and planning pays off.

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Once the action is firmly under way, return to stage 1, Problem Finding, to continue improving your idea.

Key points: The Simplex Process is a powerful, sophisticated approach to innovation. It is suitable for projects and organizations of almost any scale.

The Process is an eight-stage cycle. Upon completion of the eight stages you start it again to find and solve another problem. This helps to ensure continuous improvement.

Stages in the process are:
1. Problem finding
2. Fact finding
3. Problem Definition
4. Idea Finding
5. Selection and Evaluation
6. Planning
7. Selling of the Idea
8. Action

By moving through these stages you ensure that you solve the most significant problems with the best solutions available to you. This process can help you to be intensely creative.

Subconscious Problem Solving (1.11)

Function: Using all your brain to solve problems

How to use tool: Often when you have immersed yourself in a difficult problem, you will have found that the answer pops into your mind when you have relaxed or looked at something else. Perhaps the answer came to you when you were drifting off to sleep.

This happens when your whole brain is working on a problem, and includes the parts of your brain that do not have the focus of your current consciousness. When you relax that focus, you may notice the solutions that other parts of your brain have created.

Often this will happen of it's own accord, and may not need to be codified as a formal technique. Alternatively, when you are making no progress on a problem, it may be worth asking yourself a question, relaxing and letting your thoughts float. Relaxation techniques are explained in section 7.

When you do come across a solution, write it down quickly. Often you may be so relaxed that you forget good ideas!

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Key points: When you have tried to solve a problem for some time, you may find that an idea pops into your mind when you relax or turn your mind to something else.

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Module 2

Tools for Understanding Complex Situations

- Extracting maximum information from facts - *Appreciation*
- Understanding problems in detail - *Drill-Down*
- Identifying possible causes of problems - *Cause & Effect Diagrams*
- Understanding the way factors affect one-another - *Systems Diagrams*
- Analyzing Strengths, Weaknesses, Opportunities and Threats - *SWOT Analysis*
- Making *Forecasts with Spreadsheets*
- Methods of *Risk Analysis*
- Understanding Power in a Business Situation – *Porter's Five Forces*
- Understanding "Big Picture" Forces of Change – *PEST Analysis*
- Excellence in the Things That Matter to Customers – *Value Chain Analysis*

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2. Tools for Understanding Complex Situations

The tools in this section help you understand complicated, difficult situations. Without them problems might seem huge, overwhelming and excessively complex. By using these formal techniques you can ensure that you carry out the best analysis possible. You will have considered all factors involved and identified further information needed. These tools give you a starting point in problem solving where other people would just feel helpless and intimidated by the situation.

We will look at the following tools:

- Extracting maximum information from facts - *Appreciation*
- Understanding problems in detail - *Drill-Down*
- Identifying possible causes of problems - *Cause & Effect Diagrams*
- Understanding the way factors affect one-another - *Systems Diagrams*
- Analyzing Strengths, Weaknesses, Opportunities and Threats - *SWOT Analysis*
- Making *Forecasts with Spreadsheets*
- Methods of *Risk Analysis*
- Understanding Power in Business Situations – *Porter's Five Forces*
- Understanding "Big Picture" Forces of Change – *PEST Analysis*
- Excellence in the Things That Matter to Customers – *Value Chain Analysis*

The first half of the module covers general approaches. Appreciation is a useful technique for extracting good information from dry facts. Drill Down helps you to break large, seemingly unmanageable problems down into achievable parts. It also helps you to see where you need more information. Cause & Effect Diagrams are very useful for making sure that you have considered all factors relating to a problem, while Systems Diagrams are hugely powerful tools for showing how factors interact in complex situations.

The second half of the module discusses specific tools for specific situations. SWOT Analysis helps you to work out a survival and success strategy in a competitive environment. Forecasting with Spreadsheets shows you how to make financial models of your organization or projects. You can use these to work out whether projects are viable and use them to forecast the effects of changes in underlying factors.

Risk Analysis provides a formal framework for identifying the risks you face, and helps you to work out a strategy for controlling them. And Porter's Five Forces, PEST Analysis and Value Chain Analysis are specific tools for understanding power, forces of change, and value to customers.

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Appreciation (2.1)

Function: Extracting maximum information from facts

How to use tool: Appreciation is a very simple but powerful technique for extracting the maximum amount of information from a simple fact.

Starting with a fact, ask the question: "So what?'" - i.e. what are the implications of that fact? Keep on asking that question until you have drawn all possible inferences.

Example: Appreciation is a technique used by military planners, so we will take a military example:

Fact: *It rained heavily last night*

- *So What?*
  The ground will be wet
- *So What?*
  It will turn into mud quickly
- *So What?*
  If many troops and vehicles pass over the same ground, movement will be progressively slower and more difficult as the ground gets muddier and more difficult.
- *So What?*
  Where possible, stick to paved roads. Otherwise expect movement to be much slower than normal.

While it would be possible to reach this conclusion without the use of a formal technique, appreciation provides a framework within which you can extract information quickly, effectively and reliably.

Key points: Asking "so what?" repeatedly helps you to extract all important information implied by a fact.

Drill Down (2.2)

Function: Breaking complex problems down into manageable parts

How to use tool: Drill Down is a useful technique for breaking complex problems down into progressively smaller parts.

To use the technique, start by writing the problem down on the left-hand side of a large sheet of paper. Next, write down the points that make up the next level of detail on the problem a little to the right of this. These may be factors contributing to the problem,

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information relating to it, or questions raised by it. This process of breaking the problem down into its component part is called “Drilling Down”.

For each of these points, repeat the process. Keep on drilling down into points until you fully understand the factors contributing to the problem. If you cannot break them down using the knowledge you have, then carry out whatever research is necessary to understand the point.

Drilling into a question helps you to get a much deeper understanding of it. The process helps you to recognize and understand the factors that contribute to it. Drill Down prompts you to link in information that you had not initially associated with a problem. It also shows exactly where you need further information.

Example: The owner of a windsurfing club is having complaints from its members about the unpleasant quality of the water close to the clubhouse. This seems like a huge problem. She carries out the analysis on the next page:

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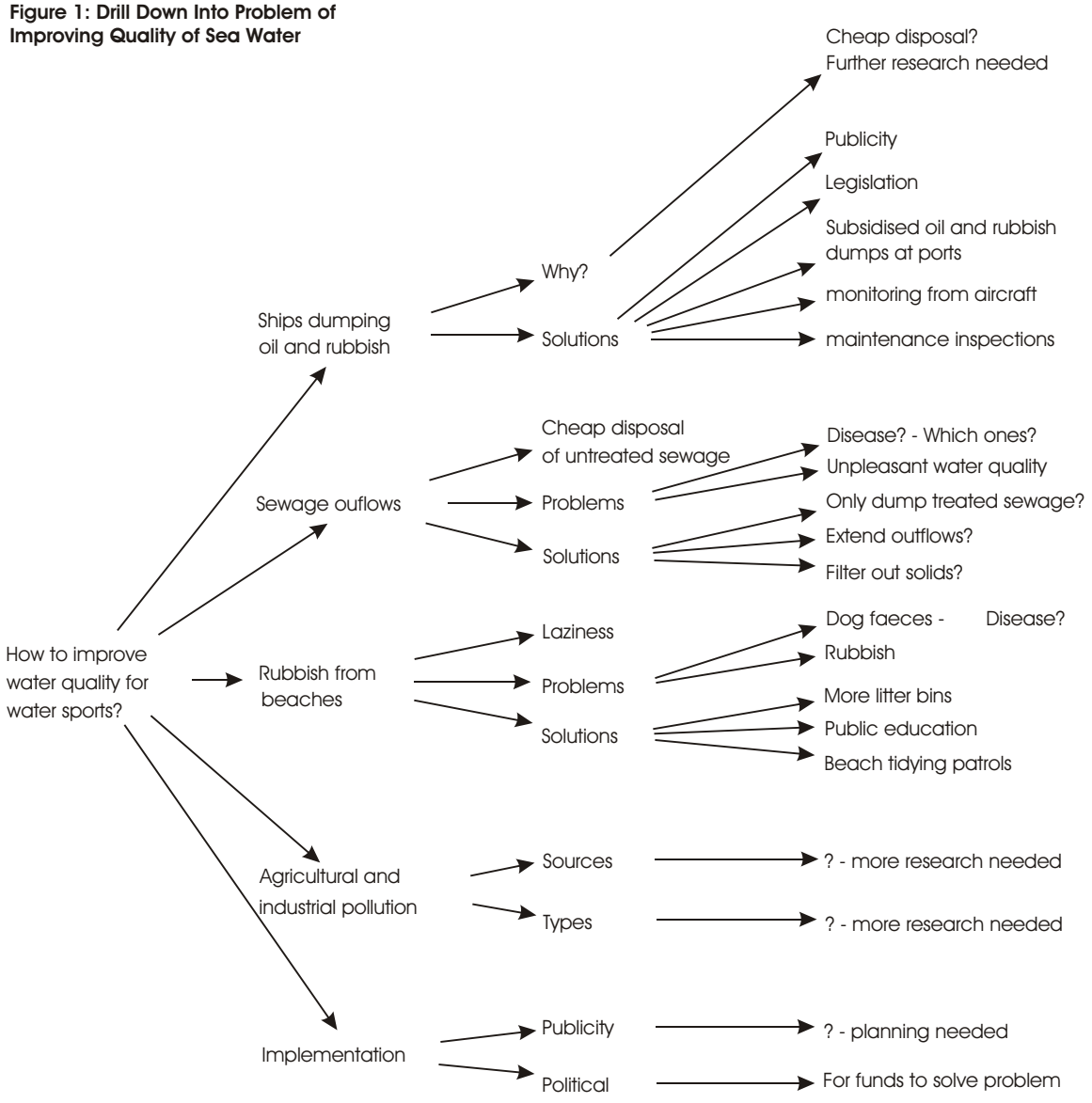
Figure 1: Drill Down Into Problem of Improving Quality of Sea Water



This gives her a starting point in which to begin thinking about solving the problem. It highlights where she does not fully understand the problem, and shows where she needs to carry out further research.

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Key points: "Drill Down" helps you to break a large and complex problem down into its component parts, so that you can develop plans to deal with these parts. It also shows you which points you need to research in more detail.

Cause & Effect Diagrams (2.3)

Function: Identifying the likely causes of problems
Other Names: Fishbone diagrams, Ishikawa diagrams

Why use the tool? Cause & Effect Diagrams help you to think through causes of a problem thoroughly. Their major benefit is that they push you to consider all possible causes of the problem, rather than just the ones that are most obvious.

The approach combines Brainstorming with use of a type of Concept Map (see 5.1).

Cause & Effect Diagrams are also known as "Fish Bone Diagrams". The boxes and lines that comprise them can be thought of as the head and spine of the fish.

How to use tool: Follow these steps to solve a problem with a Cause & Effect diagram:

1. Identify the problem:
Write down the exact problem you face in detail. Where appropriate identify who is involved, what the problem is, and when and where it occurs. Write the problem in a box on the left hand side of a large sheet of paper. Draw a line across the paper horizontally from the box. This gives you space to develop ideas.

Work out the major factors involved:
Next identify the factors that may contribute to the problem. Draw lines off the spine for each factor, and label it. These may be people involved with the problem, systems, equipment, materials, external forces, etc. Try to draw out as many possible factors as possible. If you are trying to solve the problem as part of a group, then this may be a good time for some brainstorming!

Using the 'Fish bone' analogy, the factors you find can be though of as the bones of the fish.

Identify possible causes:
For each of the factors you considered in stage ii, brainstorm possible causes of the problem that may be related to the factor. Show these as smaller lines coming off the 'bones' of the fish. Where a cause is large or complex, then it may be best to break the it down into sub-causes. Show these as lines coming off each cause line.

Analyse your diagram:
By this stage you should have a diagram showing all the possible causes of your problem. Depending on the complexity and importance of the problem, you can now investigate the most likely causes further. This may involve setting up investigations,

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carrying out surveys, etc. These will be designed to test whether your assessments are correct.

Cause & Effect Diagrams were devised by Kaoru Ishakawa in his book 'What is Total Quality Control?'.

Example: The example below shows a Cause & Effect diagram drawn by a manager who is having trouble getting cooperation from a branch office:

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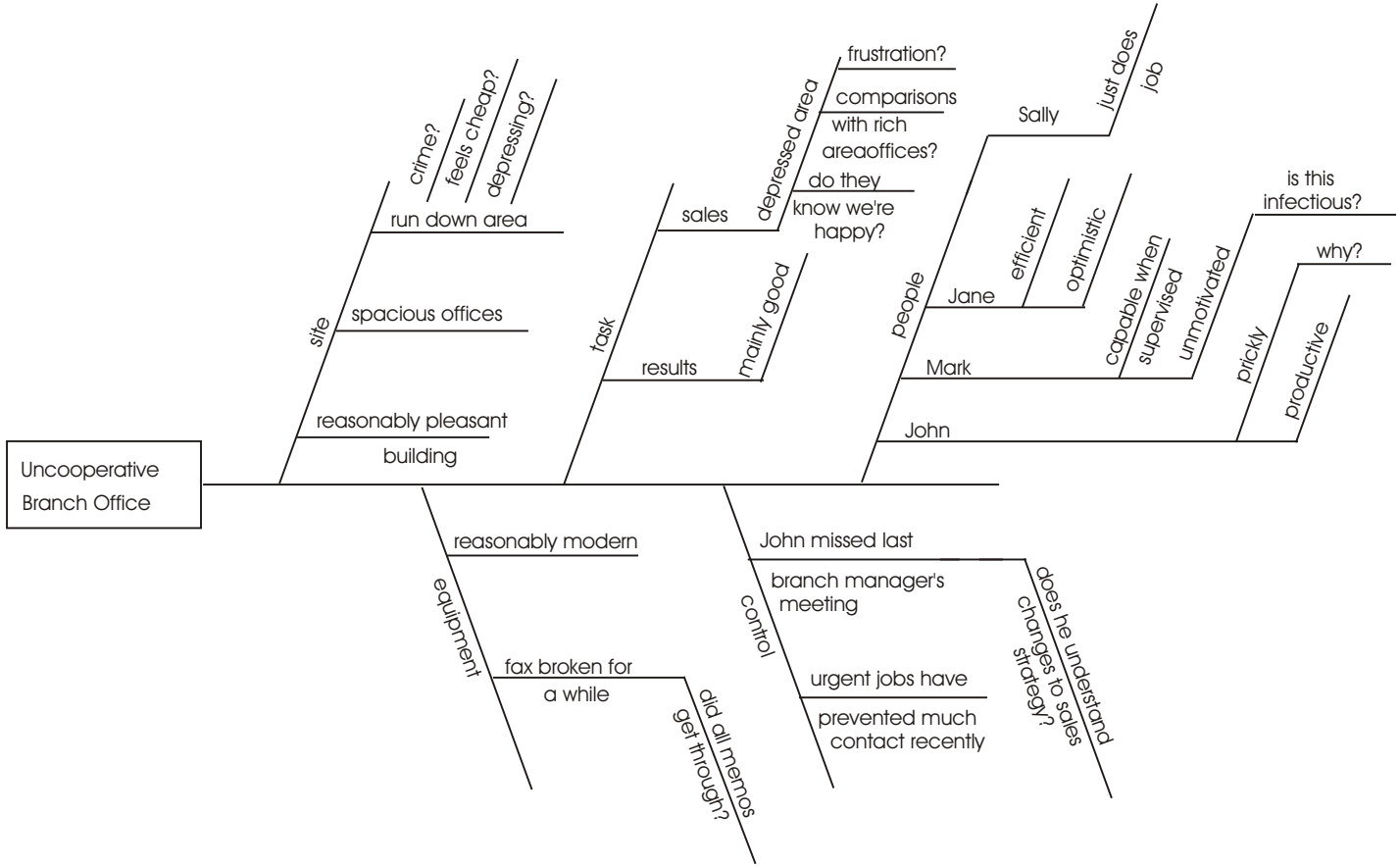
Figure 1: Cause & Effect Diagram Example:
A Manager's Analysis of Problems with a Branch Office



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If the manager had not thought the problem through (in this case using the Cause & Effect Diagram), he might have dealt with the problem by assuming that people were being difficult. Instead he might think that the best approach is to arrange a meeting with the Branch Manager. This would allow him to brief the manger fully, and talk through any problems that he may be facing.

Key points: Cause & Effect diagrams provide a structured way to help you think through all possible causes of a problem. This helps you to carry out a thorough analysis of a situation.

System Diagrams (2.4)

Function: Understanding the way factors affect one-another

Why use the tool? System diagrams are powerful tools that help you to understand how complex systems work. Systems analyzed may be anything from businesses, through biological population models, to the impact of social policy, etc.

System diagrams are particularly helpful in showing you how a change in one factor may impact elsewhere. They are excellent tools for flushing out the long-term impacts of a change. Importantly, a good system diagram will show how changing a factor may feed back to affect itself!

Drawing a system diagram is a good way of starting to build a computer model. The technique helps you to map out the structure of the system to be modeled. It shows the factors and relationships that are important, and helps you to start quantifying the linkages between factors.

How to use tool: Relationships between factors:
At the heart of the use of system diagrams is the idea of linking factors to show a relationship between them.

For example, a company may link the factors of product quality and customer satisfaction. It believes that as the quality of its goods change, so will customers' happiness. We show this as an arrow linking the two factors:

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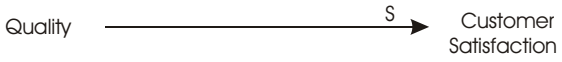

Figure 1: A Simple Same Way Relationship Between Two Factors

The S shows that the factors move in the Same way: As quality improves, so will the happiness of customers. The arrow shows the direction of the relationship: Raising customer happiness does not necessarily raise the quality of the goods!

These relationships can also work the other way. The company may link price with the customers' perceptions of the "good value" of its goods. This is shown below:

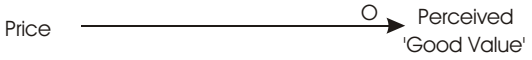

Figure 2: An Opposite Relationship Between Two Factors

The O shows that the relationship works in the opposite way. In this case, as you raise price, customers' perceptions of good value reduce.

Feedback Loops:
Feedback is an important concept in the use of system diagrams: In very many cases changing one factor will impact on another factor, which will then affect the first.

Feedback will either reduce the impact of the change, or will amplify it.

Balancing Loops:
Where feedback reduces the impact of a change, we call this a Balancing Loop. The example below shows an example of a balancing loop, where an under-resourced service company is trying to raise quality:

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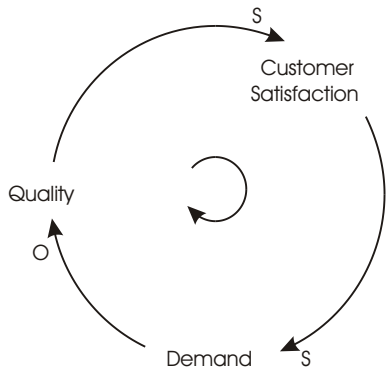

Figure 3: An Example Balancing Loop

In this situation, improving the quality of service leads to improved customer satisfaction, which leads to an increase in demand for the company's service. In trying to meet this demand, the company has less time to devote to individual customers, which reduces its ability to improve quality further.

Note the small circular arrow in the middle of the loop. This shows which way round the loop is running. In complex diagrams with many loops, this arrow will be labeled and will identify loops.

The graph below shows how quality of service might vary with time in the example above:

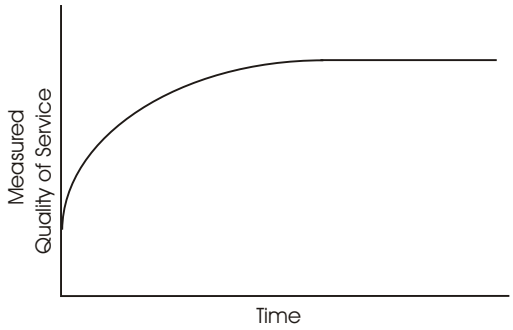

Figure 4: Graph Showing How Quality Changes Over Time in the Balancing Loop in Figure 3.

Reinforcing loops:
Where feedback increases the impact of a change, we call this a Reinforcing Loop. The example below shows an example of a theatre trying to improve its profitability by investing more in productions.

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As more investment is put into a production, the theatre is able to put on more lavish plays with more famous actors. Better plays should bring better reviews, and therefore higher ticket sales. This should lead to higher profitability, and therefore more money available to invest in future productions.

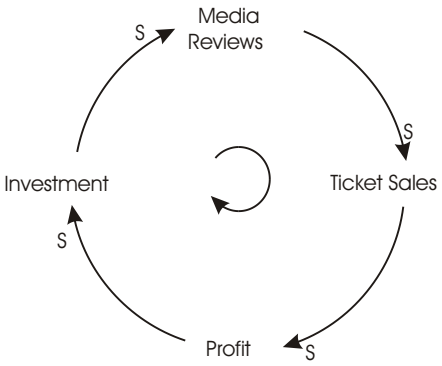

Figure 5: Reinforcing Loop Showing the Effect of Increasing Investment in a Theatre

A graph showing how ticket sales might vary against time is shown below:

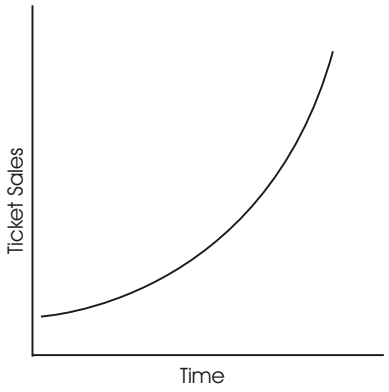

Figure 6: Graph Showing the Effect on Sales of the Reinforcing Loop in Figure 5

Note that this assumes that investment is increasing as time goes on. It also ignores some important facts: First, there are only a certain number of seats in the theatre, and second, the external factors such as competition and market saturation will eventually

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limit growth. On a system diagram showing the way that the theatre operates, these factors would be shown as balancing loops impacting on this reinforcing loop.

External Factors:
The system diagrams we have looked at so far completely ignore the impact of these external factors on them.

In our balancing loop example above, we assumed that demand was raised only as customers became more satisfied. In reality, demand is just as likely to be affected by the state of the economy. This is shown in a modified diagram below:

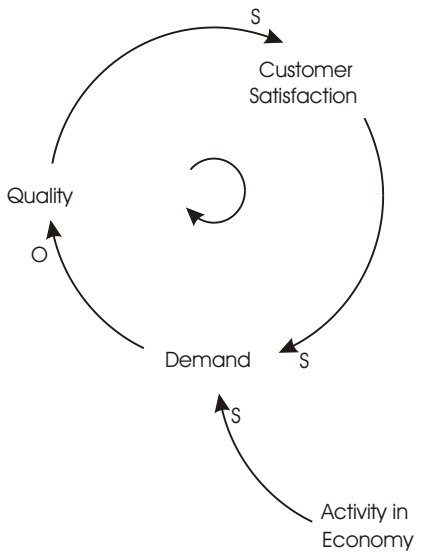

Figure 7: Diagram Showing the Effect of an External Factor on a System

We show an external factor as a labeled relationship arrow pointing to the appropriate part of the system diagram.

Gaps:
In our reinforcing loop example above, we related sales of theatre seats to investment in productions. What we were not able to build into the model was the fact that there are only a limited number of seats in the theatre.

Inevitably, this will cap the growth of ticket sales as the theatre will seriously upset customers if it sells more tickets than it has seats available!

We build this into our model with the idea of a gap. There is a gap between the number of seats available (an external factor we have not yet built into our model), and the number of seats used (tickets sold).

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As the theatre sells more tickets, the size of this gap reduces. At a particular point, it cannot sell any more tickets. Increases in investment beyond this point may not yield any more profit.

We show this by modifying our diagram to show both the external factor of the limit of the number of seats, and to show the gap:

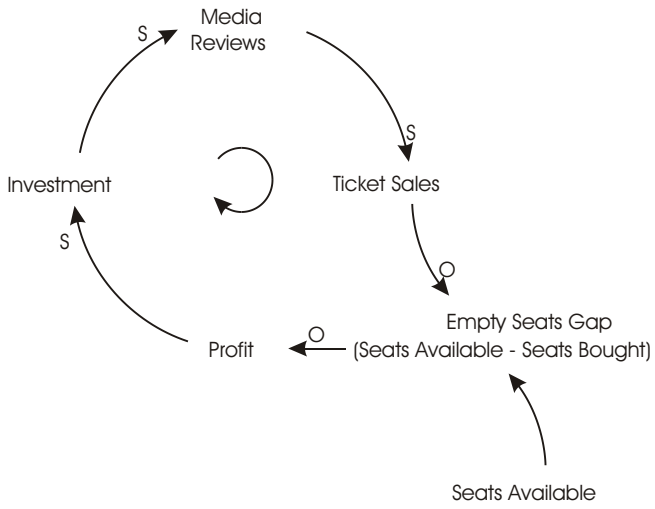

Figure 8: Systems Diagram Showing the Effect of a Gap on a System

When all seats are sold, i.e. *when seats available - seats bought* = 0, then profit will not rise any higher unless other factors are brought into the system.

Note that it is very important to get the gap definition correct for your model.

Delay:
The impact of delay is the final area we need to consider in our system diagrams.

Ideally, when we make a change to a system it should adjust immediately to its new state. In reality, there is almost always a delay before other factors adjust. This delay may occur in a mechanical system simply as a result of inertia and friction. In a human system it will occur as people take time to communicate, get use to new ideas, and implement change.

We can show this delay in a simple model using antelopes and cheetahs. As the number of antelopes rises, more food is available for the cheetahs. More cheetahs will therefore survive, and will be able to breed.

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One part of the delay within this system is given by the length of time it takes for a cheetah to be born and grow to maturity. The other part occurs as starving cheetahs take time to die.

Feedback occurs as cheetahs kill antelopes. The higher the number of cheetahs, the greater will be their impact on the antelope population.

The system below shows this:

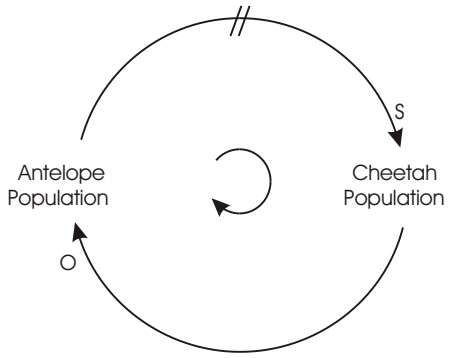

Figure 9: Diagram Showing Delay in a System

Note the double slash on the line showing the relationship between the antelope and cheetah populations. This shows that some form of delay is slowing the change of the related factor.

If there was no delay within the system, we might expect to see a graph showing the number of cheetahs over time like the one below:

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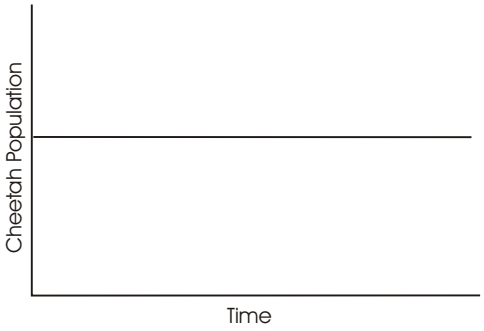

Figure 10: Graph Showing the Adjustment in Cheetah Population in the Example in Figure 9 if there was no Delay

Here adjustment would be immediate. Any change in the antelope population would be instantly matched by an increase in the cheetah population. These additional cheetahs would eat the additional antelopes, and then die immediately.

The delay in the system causes it to behave in a different way:

- First, the cheetah population will take time to increase.
- Next, the large population of cheetahs will continue to breed as food starts to become scarce.
- This number of cheetahs will cause a big reduction in the number of antelopes.
- This will then lead to a crash in cheetah population as animals starve.
- The antelope population will then recover, as there will be fewer cheetahs to restrict their numbers.

If nothing else has any impact on this system, then cheetah numbers may oscillate as shown below:

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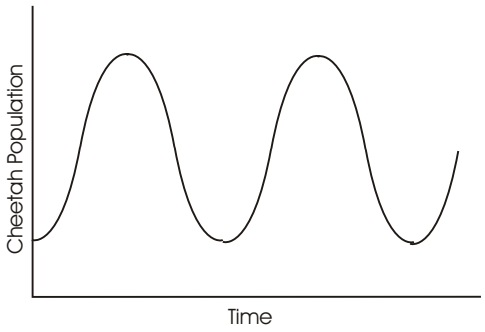

Figure 11: Graph Showing the Effect on Cheetah Populations when Delay is Considered in Figure 9.

This occurs as the cheetah population continually over-adjusts, first in growth, and second in decline. In this system, the longer it takes for a cheetah to starve - i.e. the greater the delay - the greater will be the variations in cheetah populations.

Improving the Systems Model:
The models we have looked at so far have been simple. They have ignored many possible impacts on each system. For example, in our model of antelopes and cheetahs, we have ignored the impact of disease, drought, human activity, etc.

We improve the model by building in as many of these external factors as we can think of. We can then simplify it by eliminating those factors that have a negligible impact.

External factors might be:
- Natural - weather, natural resources, disease, environmental change, etc.
- Technological - new technologies, changes in technology, etc.
- Human - psychological, emotional, ambitions, expectations, etc.
- Political - ideology, corruption, effectiveness, interest, etc.
- Social - values, social inertia, traditions, philosophies, etc.
- Financial - state of the economy, capital available, etc.
- Etc.

Ultimately, you may end up with a model made up of a number of reinforcing loops, balancing loops and external factors. The example below shows a more sophisticated diagram of the antelopes and cheetahs system:

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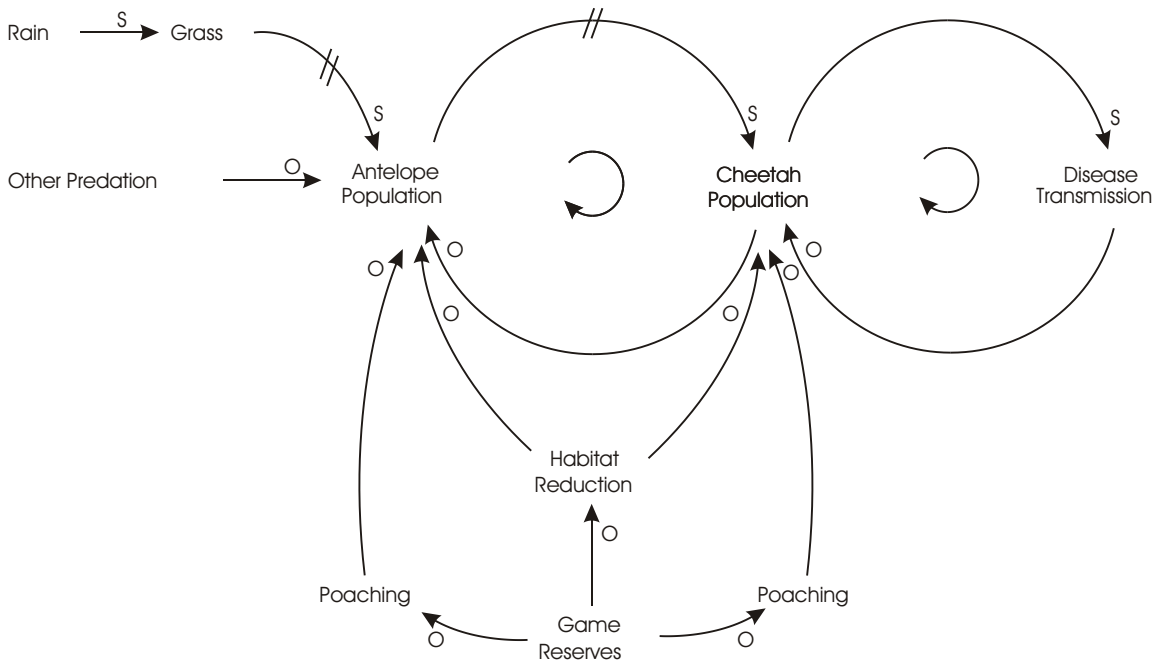

Figure 12: The Completed Systems Model Showing the Way in Which Antelope And Cheetah Populations Vary

Systems Diagrams as the basis of computer models:
Once you have established the relationships between factors on your diagram, you can look to see if you can put numbers to the relationships. In the example above, you may find that if drought halves the amount of grass available to antelopes, than the antelope population reduces by one third.

You can build this relationship into a computer model. A useful way of starting this with simple and moderately complex model is to build the model on a spreadsheet.

You can use this model to make predictions by changing factors within it. This would allow you to assess the likely impact on your system of external changes, and investigate the effect of changes you might make within the system.

Key points:

Systems diagrams allow you to model the way in which complex systems work. They help you to think through the way in which the factors within a system interact and feed back upon themselves.

You should now be able to analyse:

- How factors are related, and how one factor will change when another changes
- How factors may feed back in either balancing loops or reinforcing loops

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- How external factors impact on the system
- How gaps operate
- How delay affects the system
- All the complexities of a system

SWOT Analysis (2.5)

Function: Analyzing Your Strengths, Weaknesses, Opportunities and Threats

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Why use the tool? SWOT Analysis is a very effective way of identifying your Strengths and Weaknesses, and of examining the Opportunities and Threats you face. Carrying out an analysis using the SWOT framework will help you to focus your activities into areas where you are strong, and where the greatest opportunities lie.

How to use tool: To carry out a SWOT Analysis write down answers to the following questions:

Strengths:
- What are your advantages?
- What do you do well?
- What do other people see as your strengths?

Consider this from your own point of view and from the point of view of the people you deal with. Don't be modest. Be realistic. If you are having any difficulty with this, try writing down a list of your characteristics. Some of these will hopefully be strengths!

Weaknesses:
- What could you improve?
- What do you do badly?
- What should you avoid?

Again, consider this from an internal and external basis: Do other people seem to perceive weaknesses that you do not see? Are your competitors doing any better than you? It is best to be realistic now, and face any unpleasant truths as soon as possible.

Opportunities:
- Where are the good opportunities facing you?
- What are the interesting trends you are aware of?

Useful opportunities can come from such things as:
- Changes in technology and markets on both a broad and narrow scale
- Changes in government policy related to your field
- Changes in social patterns, population profiles, lifestyle changes, etc.
- Local Events

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Threats
- What obstacles do you face?
- What is your competition doing?
- Are the required specifications for your job, products or services changing?
- Is changing technology threatening your position?
- Do you have bad debt or cash-flow problems?

Carrying out this analysis will often be illuminating, both in terms of pointing out what needs to be done, and in putting problems into perspective.

You can also apply SWOT analysis to your competitors, as this may produce some interesting insights!

Example: A start-up small consultancy business might carry out the following SWOT analysis:

Strengths:
- We are able to respond very quickly as we have no red tape, no need for higher management approval, etc.
- We are able to give really good customer care, as the current small amount of work means we have plenty of time to devote to customers.
- Michael Johnson has strong reputation within the market.
- We can change direction quickly if we find that our marketing is not working.
- We have little overhead, so can offer good value to customers.

Weaknesses:
- Our company has no market presence or reputation.
- We have a small staff with a shallow skills base in many areas.
- We are vulnerable to vital staff being sick, leaving, etc.
- Our cash flow will be unreliable in the early stages.

Opportunities:
- Our business sector is expanding, with many future opportunities for success.
- Our local council wants to encourage local businesses with work where possible.
- Our competitors may be slow to adopt new technologies.

Threats:
- Will developments in *XYZ* technology change this market beyond our ability to adapt?
- A small change in focus of a large competitor might wipe out any market position we achieve.

The consultancy might therefore decide to specialise in rapid response, good value services to local businesses. Marketing would be in selected local publications, to get the greatest possible market presence for a set advertising budget. The consultancy should keep up-to-date with changes in technology where possible.

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Key points: SWOT analysis is a framework for analyzing your strengths and weaknesses, and the opportunities and threats you face.

This will help you to focus on your strengths, minimize weaknesses, and take the greatest possible advantage of opportunities available.

Cash Flow Forecasting with Spreadsheets (2.6)

Function: Predicting whether a financial decision will be viable, and investigating the impact of changing factors

Why use the tool? Cash Flow forecasts help you to build a model of the way in which cash moves within a project or organization. They help you to predict whether the sales or income you forecast will cover the costs of operation. They also allow you to analyze whether a project will be sufficiently profitable to justify the effort put into it.

Cash Flow forecasts can also be useful for analyzing your own personal finances. This is useful when you are about to make difficult financial decisions.

By carrying out a Cash Flow forecast on a spreadsheet package, you can investigate the impact of changing factors within the forecast. If you have structured the spreadsheet correctly then you will be able to see, more or less instantly, the effect that changes will have.

Normally, we structure Cash Flow Forecasts in a standard way. This is explained below. Other sorts of forecasting can be carried out with spreadsheets. A good way of structuring these is to analyze the system being forecasted with a system diagram (see 2.4). This system diagram will show the relationships between factors. You can then quantify these relationships, and build a model based on them. The structure of the model will depend on the system being modeled.

How to use tool: We structure the Cash Flow Forecast as a table. On the table we have columns for each period (normally a month) within the forecast. Rows show individual cash movements such as sales of a product, sales costs, and particular expenses.

We create the table for the forecast in three stages. Refer to the example in figure 2.6 as we run through the stages:

1. Set Up Column Headings:
Decide the period of time over which you want to run your forecast, and the length of the periods within it. Typically, the forecast will run over 1-2 years, with the periods as months.

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Head up one column with the title “Cash Movement”. Then enter the periods of the forecast as the next column headings. This will give you column headings of, for example, *Cash Movement, January, February, March, April….* etc.

2. Set Up Row Titles:
We organize rows into three main groups:

- Income:
  These rows show income expected during the period. Set up a separate row for each source of income. Examples might be:
  Sales of ABC product
  Sales of BCD service
  Investment income
  Etc.
  Where costs of operation are directly dependent on the amount sold, you may decide to deduct the direct cost of the sales made within this group of rows. Put in a subtotal at the bottom of the group.

- Outgoings:
  These rows show all of your costs, itemized by the type of cost. Examples might be:
  Staff salaries
  Payroll taxes
  Stationery
  Telephones
  Etc.
  Set up a subtotal at the bottom of this group.

- Totals:
  The next row shows the total of the income rows minus the total of the out-going rows for the month. This shows you your profit or loss for the month.

  Underneath this, put in a running total. In this row add your profit or loss for the period to the previous running total. This shows your financial position at the end of the period.

3. Estimate values:
By now you should have a table marked out with column headings and row titles. Now fill in the values of the cells on your table. An easy way of doing this is to fill in the first column, and then use the spreadsheet “fill right” function to copy values across. Then adjust values in the other columns appropriately.

When you are entering projections for sales for a new business, bear in mind you will not sell much until your customers have seen mention of your business several times (often 6 or 7 times). Your estimates for sales will be much more reliable if you base them either on previous years' revenues, on trial marketing, or on good quality market research.

When you are entering values for costs, try, where possible, to base projections on costs from previous years. If this is not possible, base your estimates on real prices quoted. This keeps your estimates as realistic as possible.

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4. Calculate!
On most modern spreadsheet packages, this will happen automatically, providing you have set up totals correctly as described in section 2. As you enter and change the values of cells within the spreadsheet, you should see that the period totals and running totals change appropriately.

Example:

A yachting enthusiast has decided that he wants to set up a yacht hire company. He has researched the costs of set up, and estimated the number of weeks of hire he can sell during the year.

Note that he has been quite optimistic in hoping to sell all the weeks of holiday available during the high season of July and August. He will charge the same price as his competitors for a holiday.

He works out the cash flow forecast below:

Figure 2.6.1: Cash Flow Forecast for ABC Yacht Charter Corporation (All values in US$)

Price of 6 berth boat for 1 week	850.00		Number of boats on hire:			2					
Cash Movement	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Income:												
Boat Hire	0.00	0.00	850.00	1700.00	4250.00	5950.00	7650.00	7650.00	5100.00	2550.00	1700.00	850.00
Travel Insurance	0.00	0.00	85.00	170.00	425.00	595.00	765.00	765.00	510.00	255.00	170.00	85.00
Cancellation Insurance	0.00	0.00	25.50	51.00	127.50	178.50	229.50	229.50	153.00	76.50	51.00	25.50
Support Services	0.00	0.00	127.50	255.00	637.50	892.50	1147.50	1147.50	765.00	382.50	255.00	127.50
Total Income	**0.00**	**0.00**	**1088.00**	**2176.00**	**5440.00**	**7616.00**	**9792.00**	**9792.00**	**6528.00**	**3264.00**	**2176.00**	**1088.00**
Outgoings:												
Salaries	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00
Payroll Taxes	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00
Office Expenses	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Office Rental	230.00	230.00	230.00	230.00	230.00	230.00	230.00	230.00	230.00	230.00	230.00	230.00
Boat Yard Rent	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00
Utilities	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Maintenance	100.00	100.00	132.69	165.38	263.46	328.85	394.23	394.23	296.15	198.08	165.38	132.69
Boat Purchase Loans	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00
Laundry & Cleaning	0.00	0.00	6.54	13.08	32.69	45.77	58.85	58.85	39.23	19.62	13.08	6.54
Insurance	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Brochures	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Advertising	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
Total Expenses	**5550.00**	**5550.00**	**5589.23**	**5628.46**	**5746.15**	**5824.62**	**5903.08**	**5903.08**	**5785.38**	**5667.69**	**5628.46**	**5589.23**
Monthly Total:	-5550.00	-5550.00	-4501.23	-3452.46	-306.15	1791.38	3888.92	3888.92	742.62	-2403.69	-3452.46	-4501.23
Running Total:	**-5550.00**	**-11100.00**	**-15601.23**	**-19053.69**	**-19359.85**	**-17568.46**	**-13679.54**	**-9790.62**	**-9048.00**	**-11451.69**	**-14904.15**	**-19405.38**

Looking at these figures the enthusiast is very worried. Under the business scheme he wants to set up, he stands to lose about $20,000 each year. Either he will have to control costs in a major way, find a different business structure to operate under, or he must find another way of making a living.

He may have just saved a lot of money and stress by using a Cash Flow Forecast!

Key points:

Cash Flow Forecasts are important tools for investigating whether a project or business is viable. They allow you to experiment with changing factors, to see the impact that this will have. Spreadsheet packages are invaluable for cash flow forecasting.

We set up Cash Flow Forecasts in the following stages:

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1. Setting out column headings for periods (normally months) during the forecast.
2. Setting out three main groups of rows:
    - Income rows, with a subtotal
    - Expenditure rows, with a subtotal
    - Period total and running total rows
3. Entering values within cells: Ideally you should do this from real data, or from formal market research information. If this is not possible, then you will have to use the best estimates you can make.
4. Calculation

Risk Analysis & Risk Management (2.7)

Function: How to evaluate and control the risks you face

Why use the tool? Risk Analysis is a formal framework that helps you to assess the risks that you or your organization face. A good risk analysis will help you to decide what actions to take to minimize disruptions to your plans. It will also help you to decide whether the strategies you could use to control risk are cost-effective.

How to use the tool: Here we define risk as "the perceived extent of possible loss". Different people will have different views of the impact of a particular risk: What may be a small risk for one person may destroy the livelihood of someone else.

One way of putting figures to risk is to calculate a value for it as:

risk = probability of event x cost of event

This allows you to compare risks objectively. We use this approach formally in decision making with Decision Trees (see 3.4).

To carry out a risk analysis, follow these steps:

1. Identify Threats:
The first stage of a risk analysis is to identify threats facing you. Threats may be:

- Human - from individuals or organizations, illness, death, etc.
- Procedural - from failures of accountability, internal systems and controls, organization, etc.
- Natural - threats from weather, natural disaster, accident, disease, etc.
- Technical - from advances in technology, technical failure, etc.
- Political - from changes in tax regimes, public opinion, government policy, foreign influence, etc.
- Project - risks of cost over-runs, jobs taking too long, of insufficient product or service quality, etc.
- Financial - from business failure, stock market, interest rates, unemployment, etc.
- Others

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This analysis of threat is important because it is so easy to overlook important threats. Perhaps the best way to identifying all threats is to use a number of approaches:

- Firstly, run through a list such as the one above, to see if any apply.
- Secondly, think through the systems, organizations or structures you operate, and analyse risks to any part of those.
- See if you can see any vulnerability within these systems or structures.
- Ask other people, who might have different perspectives.

2. Estimate Risk:
Once you have identified the threats you face, the next step is to work out the likelihood of the threat being realized and to assess its impact.

One approach to this is to work out the probability of the event occurring, and to multiply this by the amount it will cost you to set things right after it has happened. This gives you a value for the risk.

Your estimates of the probability of the risk occurring and of the cost of the event will depend on your knowledge of your own systems, controls and resources.

3. Managing Risk:
Once you have worked out the value of risks you face, you can start to look at ways of minimizing them. When you are doing this, it is important to choose cost effective approaches. There is no point in spending more to eliminating a risk than the cost of the event if it occurs. In many cases it may be better to accept the risk than to use excessive resources to eliminate it.

Risk may be managed in a number of ways:

- By using existing assets: Here existing resources can be used to counter risk. This may involve improvements to existing methods and systems, changes in responsibilities, improvements to accountability and internal controls, etc.
- By contingency planning: You may decide to accept a risk, but choose to develop a plan to minimize its effects. A good contingency plan will allow you to take action immediately, with the minimum of project control.
- By investing in new resources: Your risk analysis should give you the basis for deciding whether to bring in additional resources to counter the risk.

4. Reviews:
Once you have carried out a risk analysis and management exercise, it may be worth carrying out regular reviews. These might involve formal reviews of the risk analysis, or may involve testing systems and plans appropriately.

Key points: Risk analysis allows you to examine the risks that you or your organization face. It is based on a structured approach to thinking through threats, followed by an evaluation of the probability and cost of events occurring.

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Risk analysis forms the basis for risk management. Here the emphasis is on cost effectiveness. Risk management involves adapting the use of existing resources, contingency planning and good use of new resources.

Porter's Five Forces (2.8)

Function: Understanding the Balance of Power in a Business Situation

Why use the tool? Michael Porter's Five Forces Analysis is a simple but powerful tool for understanding where power lies in a situation. This is useful, because it helps you understand the strength of your current competitive position and the strength of a position you're looking to move into.

With an appropriate understanding of this power, you can take fair advantage of a situation of strength, improve a situation of weakness, and avoid taking wrong steps. This makes it an important part of your planning toolkit.

Conventionally, the tool is used to identify whether new products, services or businesses have the potential to be profitable. However it can be very illuminating when used to understand the balance of power in other situations.

How to use the tool: Five Forces Analysis assumes that there are five important forces that determine competitive power in a situation. These are:-

1. **Supplier Power:** How easy is it for suppliers to drive up prices? This is driven by the number of suppliers of each key input, the uniqueness of their product or service, their strength and control over you, the cost of switching from one to another, and so on. The fewer the supplier choices you have, and the more you need their help, the more power those suppliers have.

2. **Buyer Power:** How easy is it for buyers to drive prices down? Again, this is driven by the number of buyers, the importance of each individual buyer to your business, the cost to them of switching from your products and services to those of someone else, and so on. If you deal with few, powerful buyers, they are often able to dictate terms to you.

3. **Competitive Rivalry:** What is important here is the number and capability of your competitors – if you have many competitors, and they offer equally attractive products and services, then you'll most likely have little power in the situation: If suppliers and buyers don't get a good deal from you, they'll go elsewhere. On the other hand, if no-one else can do what you do, then you can often have tremendous strength.

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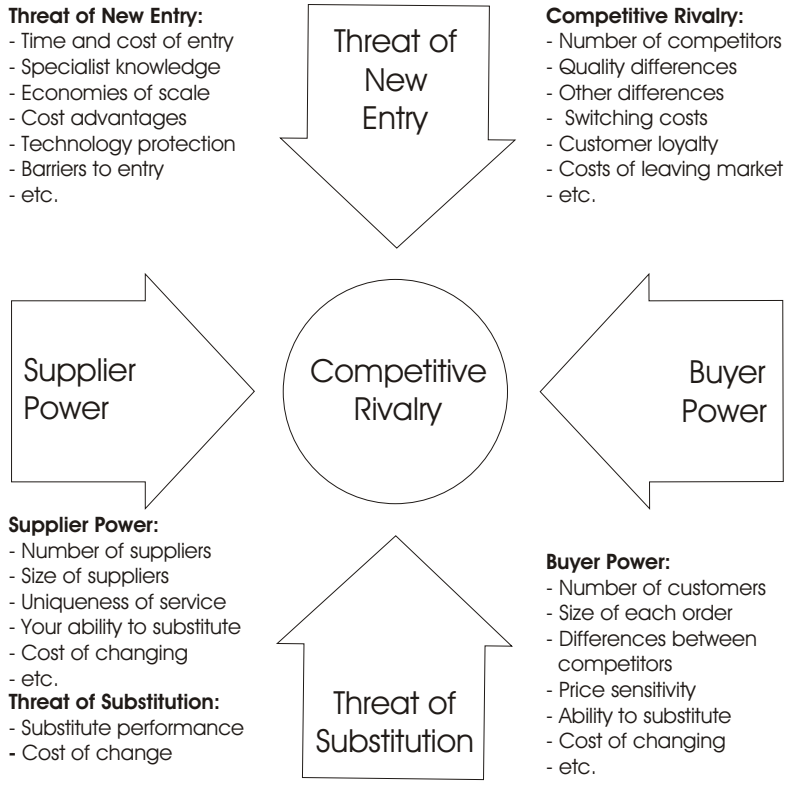
4. **Threat of Substitution:** This is affected by the ability of your customers to find a different way of doing what you do – for example, if you supply a unique software product that automates an important process, people may substitute by doing the process manually or by outsourcing it. If substitution is easy and substitution is viable, then this weakens your power.

5. **Threat of New Entry:** Power is also affected by the ability of people to enter your market. If it costs little in time or money to enter your market and compete effectively, if there are few economies of scale in place, or if you have little protection for your key technologies, then new competitors can quickly enter your market and weaken your position. If you have strong and durable barriers to entry, then you can preserve a favorable position and take fair advantage of it.

These forces are neatly brought together in a diagram like the one below:

Porter's Five Forces



To use the tool to understand your situation, look at each of these forces one-by-one.

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Brainstorm the relevant factors for your market or situation, and then check against the factors listed for the force in the diagram above.

Then mark the key factors on a diagram like the one above, and summarize the size and scale of the force on the diagram. An easy way of doing this is to use, for example, a single "+" sign for a force moderately in your favor, or "--" for a force strongly against you (you can see this in the example below).

Then look at the situation you find using this analysis and think through how it affects you. Bear in mind that few situations are perfect, however use this as a framework for thinking through what you could change to increase your power with respect to each force.

This tool was created by Harvard Business School professor, Michael Porter, to analyze the attractiveness and likely-profitability of an industry. Since publication, it has become one of the most important business strategy tools. The classic article explaining it is "How Competitive Forces Shape Strategy" in Harvard Business Review 57, March – April 1979, pages 86-93.

Example: Martin Johnson is deciding whether to switch career and become a farmer – he's always loved the countryside, and wants to switch to a career where he's his own boss. He creates the following Five Forces Analysis as he thinks the situation through:

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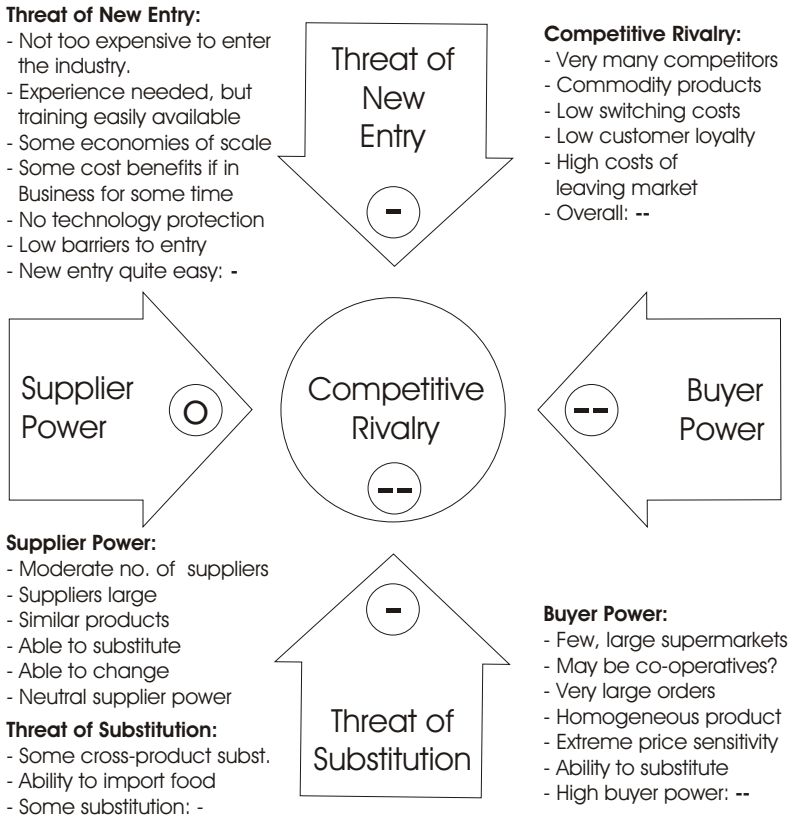
Porter's Five Forces - Buying a Farm



This makes him think again:

- The threat of **new entry** is quite high: if anyone looks as if they're making a sustained profit, new competitors can come into the industry easily, reducing profits;
- **Competitive rivalry** is extremely high: if someone raises prices, they'll be quickly undercut. Intense competition will put strong downward pressure on prices;
- **Buyer Power** is strong, again implying strong downward pressure on prices; and
- There is some **threat of substitution**.

Unless he is able to find some way of changing this situation, this looks like an industry where it's difficult to make any real money. Maybe he'll need to specialize in a sector of the market that's protected from competition, or find a related business that's in a stronger position.

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Key points: Michael Porter's Five Forces Analysis is an important tool for assessing the potential for profitability in an industry. In a broader sense, and with a little adaptation, it is also useful as a way of assessing the balance of power in a situation.

It works by looking at the strength of five important forces that affect competition:

- **Supplier Power:** The power of suppliers to drive up the prices of your inputs;
- **Buyer Power:** The power of your customers to drive down your prices;
- **Competitive Rivalry:** The strength of competition in the industry;
- **The Threat of Substitution:** The extent to which different products and services can be used in place of your own; and
- **The Threat of New Entry:** The ease with which new competitors can enter the market if they see that you are making good profits (and then drive your prices down).

By thinking through how each force affects you, and by identifying the strength and direction of each force, you can quickly assess the strength of the position and your ability to make a sustained profit in the industry.

You can then look at how you can affect each of the forces to move the balance of power more in your favor.

PEST Analysis (2.9)

Function: Understanding "Big Picture" Forces of Change

Why use the tool? PEST Analysis is a simple but important and widely-used tool that helps you understand the big picture of the **P**olitical, **E**conomic, **S**ocio-Cultural and **T**echnological environment you are operating in. PEST is used by business leaders worldwide to build their vision of the future.

It is important for the following main reasons:

- Firstly, by making effective use of PEST Analysis, you ensure that what you are doing is aligned positively with the powerful forces of change that are affecting our world. By taking advantage of change, you are much more likely to be successful than if your activities oppose it;
- Secondly, good use of PEST Analysis helps you avoid taking action that is doomed to failure for reasons beyond your control; and
- Thirdly, PEST is useful when you start operating in a new country or region. Use of PEST helps you break free of unconscious assumptions, and helps you quickly adapt to the realities of the new environment.

How to use the tool: PEST is a simple mnemonic standing for Political, Economic, Socio-Cultural and Technological.

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Using the tool is a three stage process:

- Firstly, you brainstorm the relevant factors that apply to you;
- Secondly, you identify the information that applies to these factors; and
- Thirdly, you draw conclusions from this information.

Tip:
The important point is to move from the second step to the third step: it is sterile just to describe factors without thinking through what they mean. However, be careful not to assume that your analysis is perfect: use it as a starting point, and test your conclusions against the reality you experience.

The following factors may help as a starting point for brainstorming (but make sure you include others that may be appropriate to your situation):

Political:

- Government type and stability
- Freedom of press, rule of law and levels of bureaucracy and corruption
- Regulation and de-regulation trends
- Social and employment legislation
- Tax policy, and trade and tariff controls
- Environmental and consumer-protection legislation
- Likely changes in the political environment

Economic:

- Stage of business cycle
- Current and project economic growth, inflation and interest rates
- Unemployment and labor supply
- Labor costs
- Levels of disposable income and income distribution
- Impact of globalization
- Likely impact of technological or other change on the economy
- Likely changes in the economic environment

Socio-Cultural:

- Population growth rate and age profile
- Population health, education and social mobility, and attitudes to these
- Population employment patterns, job market freedom and attitudes to work
- Press attitudes, public opinion, social attitudes and social taboos
- Lifestyle choices and attitudes to these

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- Socio-Cultural changes

Technological Environment:

- Impact of emerging technologies
- Impact of Internet, reduction in communications costs and increased remote working
- Research & Development activity
- Impact of technology transfer

Example:

We're going to avoid giving an example here, because of the huge potential for causing offense: few societies seem perfect to outsiders, and there are few things as irritating as having an outsider criticize one's own country.

However, a broad principle is that things that make activity more difficult for people or organizations raise the cost of doing business: activity is either blocked altogether, or costs more in time/money as difficulties are circumvented. The higher the cost of doing business in a region, the more project profitability is squeezed or eliminated. And given that businesspeople normally have at least some level of intelligence, businesses and projects that could otherwise operate are never launched - meaning that less economic activity takes place.

And the lower the amount of economic activity, the poorer and less capable societies tend to be.

Another broad principle is wherever there is rapid or major change in an area, there are likely to be new opportunities and threats that arise. Smart people and companies will take advantage of the opportunities and manage the threats.

And do remember that few situations are perfect: it is up to us to make the most of the situation in which we find ourselves.

Key points:

PEST Analysis is a useful tool for understanding the "big picture" of the environment in which you are operating, and the opportunities and threats that lie within it. By understanding your environment, you can take advantage of the opportunities and minimize the threats.

PEST is a mnemonic standing for Political, Economic, Social and Technological. These headings are used firstly to brainstorm the characteristics of a country or region and, from this, draw conclusions as to the significant forces of change operating within it.

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This provides the context within which more detailed planning can take place to take full advantage of the opportunities that present themselves.

Value Chain Analysis (2.10)

Function: Excellence in the Things That Really Matter to Customers

Why use the tool? Value Chain Analysis is a useful tool for working out how you can create the greatest possible value for your customers.

In business, we're paid to take raw inputs, and to "add value" to them by turning them into something of worth to other people. This is easy to see in manufacturing, where the manufacturer "adds value" by taking a raw material of little use to the end-user (for example, wood pulp) and converting it into something that people are prepared to pay money for (e.g. paper). But this idea is just as important in service industries, where people use inputs of time, knowledge, equipment and systems to create services of real value to the person being served - the customer.

And remember that your customers aren't necessarily outside your organization: they can be your bosses, your co-workers, or the people who depend on you for what you do. Or all of these people could be your customers in one way or another, just as long as they (directly or indirectly) pay your wages.

Now, this is really important: In most cases, the more value you create, the more people will be prepared to pay a good price for your product or service, and the more they will they keep on buying from you. On a personal level, if you add a lot of value to your team, you will excel in what you do. You should then expect to be rewarded in line with your contribution.

So how do you find out where you, your team or your company can create value?

This is where the "Value Chain Analysis" tool is useful. Value Chain Analysis helps you identify the ways in which you create value for your customers, and then helps you think through how you can maximize this value: whether through superb products, great services, or jobs well done.

Note:
The idea of the Value Chain was developed by Michael Porter (also creator of the 5 Forces tool) in his book "Competitive Advantage". We strongly recommend Competitive Advantage if you want to take your knowledge further.

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How to use the tool: Value Chain Analysis is a three step process:

1. **Activity Analysis:** Firstly, you identify the activities you undertake to deliver your product or service;
2. **Value Analysis:** Secondly, for each activity, you think through what you would do to add the greatest value for your customer; and
3. **Evaluation and Planning:** Thirdly you evaluate whether it is worth making changes, and then plan for action.

We follow these through one-by-one:-

1. Activity Analysis:
The first step to take is to brainstorm the activities that you, your team or your company undertakes that in some way contribute towards your customer's experience.

At an organizational level, this will include the step-by-step business processes that you use to serve the customer – Michael Porter calls these "Primary Activities". These will include marketing of your products or services; sales and order-taking; operational processes; delivery; support; and so on (this will may also involve many other steps or processes specific to your industry).

At a personal of team level, it will involve the step-by-step flow of work that you carry out.

But this will also involve other things as well (Porter's "Support Activities"). For example:-

- How you recruit people with the skills to give the best service;
- How you motivate yourself or your team to perform well;
- How you keep up-to-date with the most efficient and effective techniques;
- How you select and develop the technologies that give you the edge; and
- How you get feedback from your customer on how you're doing, and how you can improve further.

Tip:
If you carry out the brainstorming behind the Activity Analysis and Value Analysis with your team, you'll almost certainly get a richer answer than if you do it on your own. You may also find that your team is more likely to "buy into" any conclusions you draw from the exercise. After all: the conclusions will be as much theirs as yours.

Once you've brainstormed the activities which add value for your company, list them. A useful way of doing this is to lay them out as a simplified flow chart running down the page – this gives a good visual representation of your "value chain". You can see an example of this in figure 1 below.

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2. Value Analysis:

Now, for each activity you've identified, list the "Value Factors" - the things that your customers' value in the way that each activity is conducted.

For example, if you're thinking about a telephone order-taking process, your customer will value a quick answer to his or her call; a polite manner; efficient taking of order details; fast and knowledgeable answering of questions; and an efficient and quick resolution to any problems that arise.

If you're thinking about delivery of a professional service, your customer will most likely value an accurate and correct solution; a solution based on completely up-to-date information; a solution that is clearly expressed and easily actionable; and so on.

Next to each activity you've identified, write down these Value Factors.

And next to these, write down what needs to be done or changed to provide great value for each value factor.

3. Evaluate Changes and Plan for Action:

By the time you've completed your Value Analysis, you'll probably be fired up for action: you'll have generated plenty of ideas for increasing the value you deliver to customers. And if you could deliver all of these, your service could be fabulous!

Now be a bit careful at this stage: you could easily fritter your energy away on a hundred different jobs, and never really complete any of them.

So firstly, pick out the quick, easy, cheap wins – go for some of these, as this will improve your team's spirits no end.

Then screen the more difficult changes. Some may be impractical. Others will deliver only marginal improvements, but at great cost. Drop these.

And then prioritize the remaining tasks and plan to tackle them in an achievable, step-by-step way that delivers steady improvement at the same time that it keeps your team's enthusiasm going.

Tip:
If you have a strong enough relationship with one or more of your customers, it may be worth presenting your conclusions to them and getting their feedback – this is a good way of either confirming that you're right or of getting a better understanding of what they really want.

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Example: Lakshmi is a software development manager for a software house. She and her team handle short software enhancements for many clients. As part of a team development day, she and her team use Value Chain Analysis to think about how they can deliver excellent service to their clients.

During the Activity Analysis part of the session, they identify the following Primary Activities that create value for clients:-

- Order taking
- Enhancement specification
- Scheduling
- Software development
- Programmer testing
- Secondary testing
- Delivery
- Support

Lakshmi also identifies the following Support Activities as being important:

- Recruitment: Choosing people who will work well with the team
- Training: Helping new team members become effective as quickly as possible, and helping team members learn about new software, techniques and technologies as they are developed.

Lakshmi marks these out in a vertical value chain on her whiteboard (you can see the first three Primary Activities shown in the “Step 1: Activity Analysis” box in Figure 1 below):

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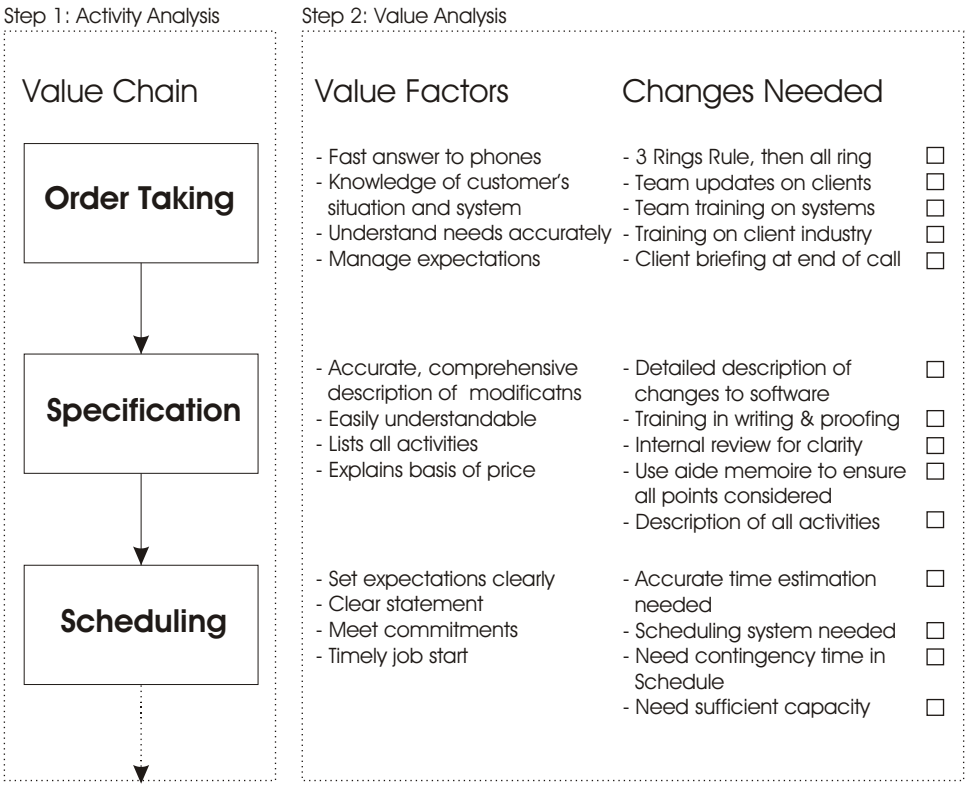
Figure 1: Value Chain Analysis Example



Next, she and her team focus on the Order Taking process, and identify the factors that will give the greatest value to customers as part of this process. They identify the following Value Factors:

- Giving a quick answer to incoming phone calls;
- Having a good knowledge of the customer's business, situation and system, so that they do not waste the customer's time with unnecessary explanation;
- Asking all the right questions, and getting a full and accurate understanding of the customer's needs; and
- Explaining the development process to the customer and managing his or her expectations as to the likely timetable for delivery.

You can see these in the "Value Factors" column of figure 1.

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They then look at what they need to do to deliver the maximum value to the customer. These things are shown in the Figure 1's "Changes Needed" column.

They then do the same for all other processes.

Once all brainstorming is complete, Lakshmi and her team may be able to identify quick wins, reject low yield or high cost options, and agree their priorities for implementation.

Key points:

Value Chain Analysis is a useful way of thinking through the ways in which you deliver value to your customers, and reviewing all of the things you can do to maximize that value.

It takes place as a three stage process:

1. Firstly with **Activity Analysis**, where you identify the activities that contribute to the delivery of your product or service;
2. Secondly with **Value Analysis**, where you identify the things that your customers value in the way you conduct each activity, and then work out the changes that are needed; and
3. Thirdly with **Evaluation and Planning**, where you decide what changes to make and plan how you will make them.

By using Value Chain Analysis and by following it through to action, you can achieve excellence in the things that really matter to your customers.

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Module 3

Techniques for Effective Decision Making

- Selecting the most important changes to make
  - *Pareto Analysis*
- Evaluating the relative importance of different options
  - *Paired Comparison Analysis*
- Selecting between good options - *Grid Analysis*
- Choosing between options by projecting likely outcomes
  - *Decision Trees*
- Weighing the Pros and Cons of a decision - *PMI*
- Analyzing the pressures for and against change
  - *Force Field Analysis*
- Looking at a decision from all points of view
  - *Six Thinking Hats*
- Seeing whether a change is worth making
  - *Cost/Benefit Analysis*

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3. Techniques for Effective Decision-Making

The techniques in this module help you to make the best decisions possible with the information you have available. With these tools, you will be able to map out the likely consequences of decisions, work out the importance of individual factors, and choose the best course of action to take.

Tools we will discuss are:

- Selecting the most important changes to make - *Pareto Analysis*
- Evaluating the relative importance of different options - *Paired Comparison Analysis*
- Selecting between good options - *Grid Analysis*
- Choosing between options by projecting likely outcomes - *Decision Trees*
- Weighing the pros and cons of a decision - *PMI*
- Analyzing the pressures for and against change - *Force Field Analysis*
- Looking at a decision from all points of view - *Six Thinking Hats*
- Seeing whether a change is worth making - *Cost/Benefit Analysis*

In this module we look at decision-making tools in two stages. First, we will look at a set of good techniques that help you to select between different options. This part finishes by discussing Decision Trees, which are excellent decision-making tools. The second set helps you to decide whether a course of action is worth following.

These techniques build on the tools discussed in Module 2 (Tools for Understanding Complex Situations), in that decision-making follows on from an understanding of the situation. Section 1 (Creativity Tools) will help you to explore the alternatives that are open to you.

Do remember, though, that the tools in this module exist only to assist your intelligence and common sense, and these are your most important assets in good decision-making.

Pareto Analysis (3.1)

Function: Selecting the most important changes to make

How to use tool: Pareto Analysis is a simple technique that helps you to choose the most effective changes to make.

It uses the Pareto principle, the idea that by doing 20% of work you can generate 80% of the advantage of doing the entire job[2]. Pareto analysis is a formal technique for finding

[2] This is only one application of this important 80/20 principle. It shows the lack of symmetry that almost always appears between work put in and results achieved. This can be seen in area after area of competitive activity. The figures 80 and 20 are illustrative. For example, 13% of work could generate 92% of returns.

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the changes that will give the biggest benefits. It is useful where many possible courses of action are competing for your attention.

To start using the tool, write out a list of the changes you could make. If you have a long list, group it into related changes.

Then score the items or groups. The scoring method you use depends on the sort of problem you are trying to solve. For example, if you are trying to improve profitability, you will score options on the basis of the profit each group might generate. If you are trying to improve customer satisfaction, you might score on the basis of the number of complaints eliminated by each change.

The first change to tackle is the one that has the highest score. This one will give you the biggest benefit if you solve it. Options with the lowest scores may not even be worth bothering with.

Example:

A manager has taken over a failing service-center. He commissions research to find out why customers think that service is poor.

He gets the following comments back from the customers:

a) Phones are only answered after many rings.
b) Staff seem distracted and under pressure.
c) Engineers do not appear to be well organized. They need second visits to bring extra parts. This means that customers have to take more vacation to be there a second time.
d) They do not know what time they will arrive. This means that customers may have to be in all day for an engineer to visit.
e) Staff members do not always seem to know what they are doing.
f) Sometimes when staff members arrive, the customer finds that the problem could have been solved over the phone.

The manager groups these problems together. He then scores each group by the number of complaints, and orders the list:

• Lack of staff training	items e, f	51 complaints
• Too few staff	items a, b, d	21 complaints
• Poor organization and preparation	item c	2 complaints

By doing the Pareto analysis above, the manager can better see the vast majority of problems (69%) and can see that the problems can be remedied by improving staff member's skills.

Vilfredo Pareto was an Italian economist who noted that approximately 80% of wealth was owned by only 20% of the population. This was true in almost all the societies he studied.

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Once this is done, it may be worth looking at increasing the number of staff members. Alternatively, as staff members become better and start to solve problems over the phone, maybe the need for new staff members will decline.

It looks as if comments on poor organization and preparation may be rare, and could be caused by problems beyond the manager's control.

By carrying out a Pareto Analysis, the manager is able to focus on training as an issue, rather than spreading effort over training, taking on new staff members, and possibly installing a new computer system.

Key points: Pareto Analysis is a simple technique that helps you to identify the most important problem to solve.

To use it:

- List the problems you face, or the options you have available.
- Group options where they are facets of the same larger problem.
- Apply an appropriate score to each group.
- Work on the group with the highest score.

Pareto analysis not only shows you the most important problem to solve, it also gives you a score showing how severe the problem is.

Paired Comparison Analysis (3.2)

Function: Working out the relative importance of different options

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How to use tool: Paired Comparison Analysis helps you to work out the importance of a number of options relative to each other. It is particularly useful when you do not have objective data to base this on.

This makes it easy to choose the most important problem to solve, or select the solution that will give you the greatest advantage. Paired Comparison Analysis helps you to set priorities when there are conflicting demands on your resources.

To use the technique, compare each option with each other option, one-by-one. For each comparison, decide which of the two options is most important, and then assign a score to show how much more important it is. You can then consolidate these comparisons so that each option is given a percentage importance.

Follow these steps to use the technique:

1. List the options you will compare. Assign a letter to each option.
2. Set up a table with these options as row and column headings.

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3. Block out cells on the table where you will be comparing an option with itself. (There will never be a difference in these cells!). These will normally be on the diagonal running from the top left to the bottom right.
4. Also block out cells on the table where you will be duplicating a comparison. Normally, these will be the cells below the diagonal.
5. Within the remaining cells, compare the option in the row with the one in the column. For each cell, decide which of the two options is more important. Write down the letter of the more important option in the cell, and score the difference in importance from 0 (no difference) to 3 (major difference).
6. Finally, consolidate the results by adding up the total of all the values for each of the options. You may want to convert these values into a percentage of the total score.

Example: An entrepreneur is looking at ways in which he can expand his business. He has limited resources, but also has the options he lists below:

- Expand into overseas markets
- Expand in home markets
- Improve customer service
- Improve quality

Firstly he draws up the Paired Comparison Analysis table below:

	Overseas markets (A)	Home market (B)	Customer service (C)	Quality (D)
Overseas markets (A)	Blocked out (Step 3)			
Home market (B)	Blocked out (Step 4)	Blocked out (Step 3)		
Customer service (C)	Blocked out (Step 4)	Blocked out (Step 4)	Blocked out (Step 3)	
Quality (D)	Blocked out (Step 4)	Blocked out (Step 4)	Blocked out (Step 4)	Blocked out (Step 3)

Then he compares options and scores their difference in importance:

	Overseas markets (A)	Home market (B)	Customer service (C)	Quality (D)
Overseas markets (A)		A 2	C 1	A 1
Home market (B)			C 1	B 1
Customer service (C)				C 2
Quality (D)				

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Finally he adds up the A, B, C and D values, and converts each into a percentage of the total. This gives these totals: A=3 (37.5%), B = 1 (12.5%), C = 4 (50%), D = 0.

Here it is most important to improve customer service (C) and then to tackle export markets (A). Quality is not a high priority; perhaps it is good already.

Key points: Paired Comparison Analysis is a good way of weighing up the relative importance of different courses of action. It is useful where priorities are not clear, or are competing in importance.

The tool provides a framework for comparing each course of action against all others, and helps to show the difference in importance between factors.

Grid Analysis (3.3)

Function: Making a choice where many factors must be balanced

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How to use tool: Grid Analysis is a useful technique to use for making a decision. It is most effective where you have a number of good alternatives and many factors to take into account.

The first step is to list your options and then the factors that are important for making the decision. Lay these out in a table, with options as the row labels, and factors as the column headings.

Next work out the relative importance of the factors in your decision. Show these as numbers. We will use these to weight your preferences by the importance of the factor. These values may be obvious, and if they are not, than use a technique such as Paired Comparison Analysis (see 3.2) to calculate them.

The next step is to work your way across your table, scoring each option for each of the important factors in your decision. Score each option from 0 (poor) to 3 (very good). Note that you do not have to have a different score for each option. If none of them are good for a particular factor in your decision, then all options should score 0.

Now multiply each of your scores by the values for your relative importance. This will give them the correct overall weight in your decision.

Finally add up these weighted scores for your options. The option that scores the highest wins!

Example: A windsurfing enthusiast is about to replace his car. He needs one that not only carries a board and sails, but also that will be good for business travel.

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He has always loved open-topped sports cars. No car he can find is good for all three things.

His options are:

- A four wheel drive, hard topped vehicle
- A comfortable family car
- An estate car
- A sports car

Criteria that need to be considered are:

- Cost
- Ability to carry a sail board at normal driving speed
- Ability to store sails and equipment securely
- Comfort over long distances
- Fun!
- Nice look and build quality to car

He draws up the table below, and scores each option by how well it satisfies each factor:

Factors: Weights:	Cost	Board	Storage	Comfort	Fun	Look	Total
Sports Car	1	0	0	1	3	3	
4 Wheel Drive	0	3	2	2	1	1	
Family Car	2	2	1	3	0	0	
Estate Car	2	3	3	3	0	1	

Next he works out the relative weights for each of the factors, multiplies the scores by the weights, and totals them:

Factors: Weights:	Cost 4	Board 5	Storage 1	Comfort 2	Fun 3	Look 4	Total
Sports Car	4	0	0	2	9	12	27
4 Wheel Drive	0	15	2	4	3	4	28
Family Car	8	10	1	6	0	0	25
Estate Car	8	15	3	6	0	4	36

This gives an interesting result, and despite its lack of fun, an estate car may be the best choice.

If he still feels unhappy with the decision, maybe he has under-estimated the importance of one of the factors. Perhaps he should weight “fun” at a 7!

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Key points: Grid Analysis helps you to decide between several options while taking into account the many factors that may be considered.

To use the tool, lay out your options as rows on a table. Set up the columns to show your factors. Allocate weights to show the importance of each of these factors.

Score each choice for each factor using numbers from 0 (poor) to 3 (very good). Multiply each score by the weight of the factor, to show its contribution to the overall selection.

Finally add up the total scores for each option. Select the highest scoring option.

Decision Tree Analysis (3.4)

Function: Choosing Between Options by Projecting Likely Outcomes

How to use tool: Decision Trees are excellent tools for helping you to choose between several courses of action. They provide a highly effective structure within which you can lay out options and investigate the possible outcomes of choosing those options. They also help you to form a balanced picture of the risks and rewards associated with each possible course of action.

Drawing a Decision Tree
You start a Decision Tree with a decision that you need to make. Draw a small square to represent this towards the left of a large piece of paper.

From this box draw out lines towards the right for each possible solution, and write that solution along the line. Keep the lines apart as far as possible so that you can expand your thoughts.

At the end of each line, consider the results. If the result of taking that decision is uncertain, draw a small circle. If the result is another decision that you need to make, draw another square. Squares represent decisions, and circles represent uncertain outcomes. Write the decision or factor above the square or circle. If you have completed the solution at the end of the line, just leave it blank.

Starting from the new decision squares on your diagram, draw out lines representing the options that you could select. From the circles, draw lines representing possible outcomes. Again, make a brief note on the line saying what it means. Keep on doing this until you have drawn out as many of the possible outcomes and decisions as you can see leading on from the original decisions.

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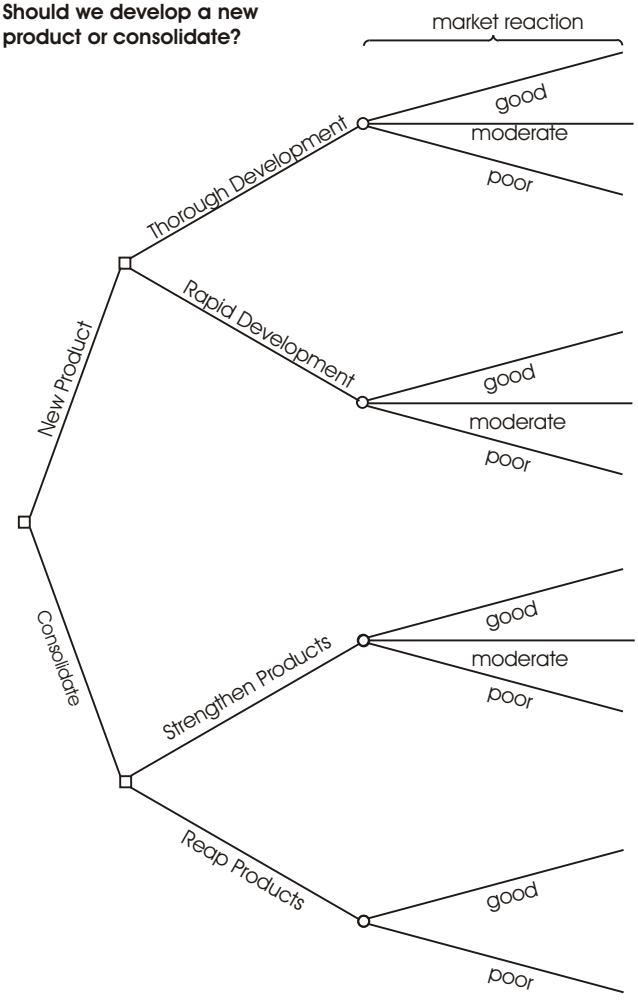
An example of the sort of thing you will end up with is shown in figure 1:

Figure 1:
Example Decision Tree:
Should we develop a new product or consolidate?



Once you have done this, review your tree diagram. Challenge each square and circle to see if there are any solutions or outcomes you have not considered. If there are, draw them in. If necessary, redraft your tree if parts of it are too congested or untidy. You should now have a good understanding of the range of possible outcomes of your decisions.

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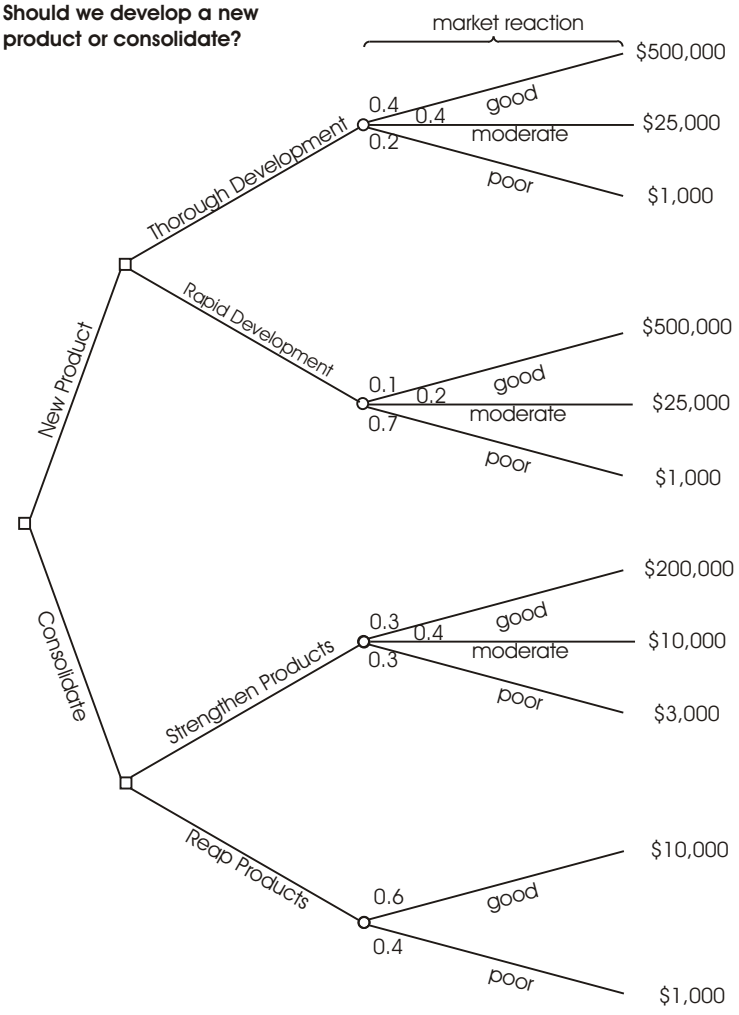
Evaluating Your Decision Tree

Now you are ready to evaluate the decision tree. This is where you can work out which option has the greatest worth to you. Start by assigning a cash value or score to each possible outcome, considering how much you think it would be worth to you.

Next, look at each circle (representing an uncertainty point) and estimate the probability of each outcome. If you use percentages, the total must come to 100% at each circle. If you use fractions, these must add up to 1. If you have data on past events you may be able to make rigorous estimates of the probabilities. Otherwise write down your best guess. This will give you a tree like the one shown in figure 2:

Figure 2
Example Decision Tree: Should we develop a new product or consolidate?



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Calculating Tree Values

Once you have worked out the value of the outcomes, and have assessed the probability of the outcomes of uncertainty, it is time to start calculating the values that will help you make your decision.

Start on the right hand side of the decision tree, and work back towards the left. As you complete a set of calculations on a node (decision square or uncertainty circle), all you need to do is to record the result. You can ignore all the calculations that lead to that result from then on.

Calculating The Value of Uncertain Outcome Nodes

Where you are calculating the value of uncertain outcomes (circles on the diagram), do this by multiplying the value of the outcomes by their probability. The total for that node of the tree is the total of these values.

In the example above, the value for “new product, thorough development” is:

0.4 (probability good outcome) x $500,000 (value) =	$200,000
0.4 (probability moderate outcome) x $25,000 (value) =	$10,000
0.2 (probability poor outcome) x $1,000 (value) =	$200

	$210,200

Figure 3 shows this:

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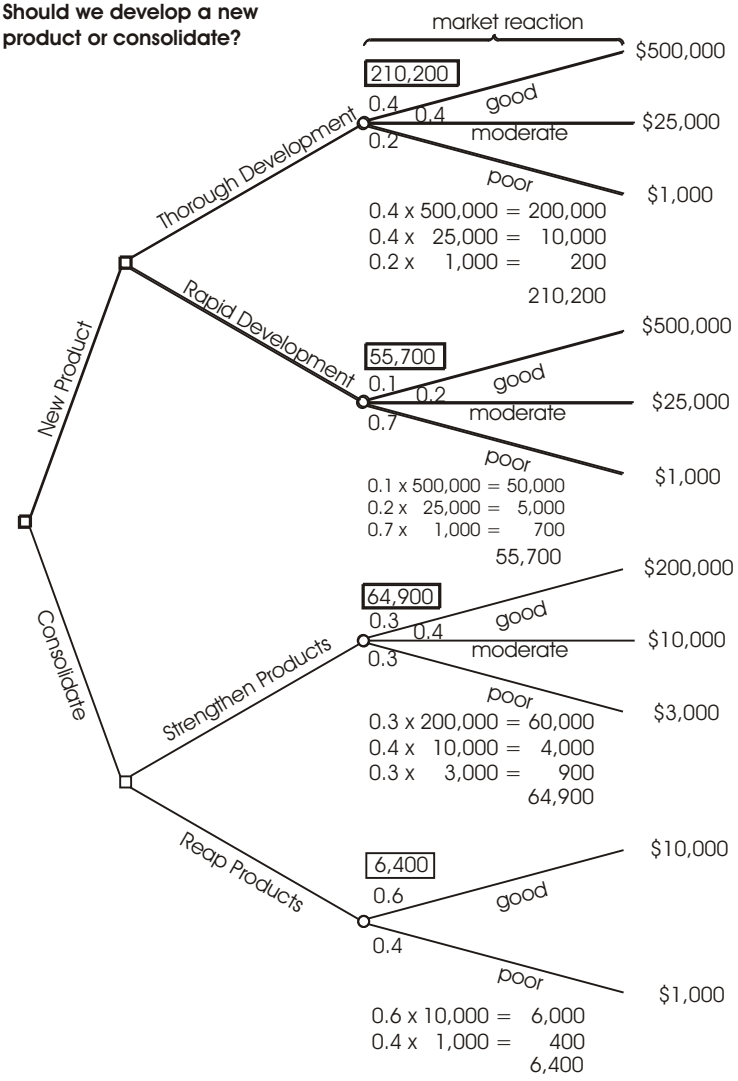
Figure 3
Example Decision Tree: Should we develop a new product or consolidate?



Note that the values calculated for each node are shown in the boxes.

Calculating The Value of Decision Nodes
When you are evaluating a decision node, write down the cost of each option along each decision line. Then subtract the cost from the outcome value that you have already calculated. This will give you a value that represents the benefit of that decision.

Amounts already spent do not count for this analysis.

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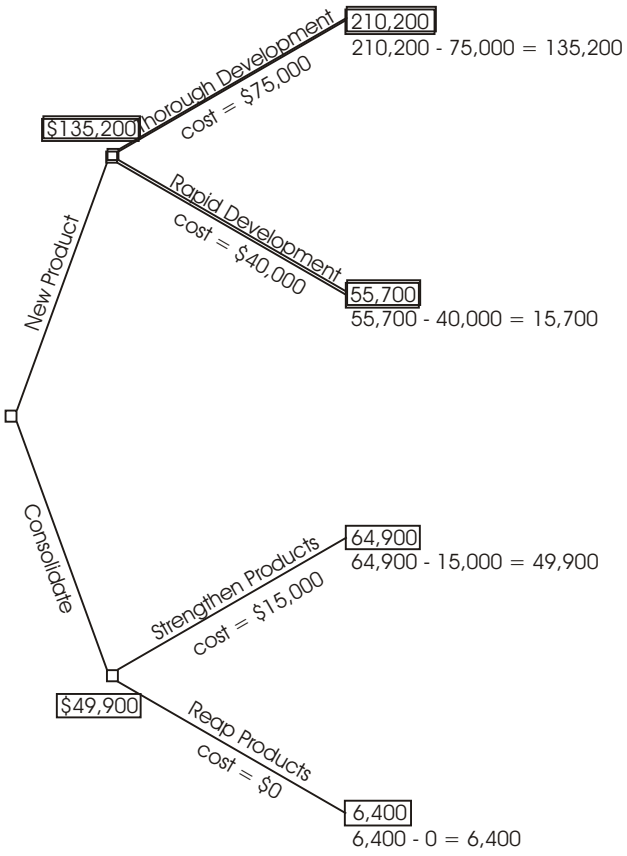
When you have calculated these decision benefits, choose the option that has the largest benefit, and take that as the decision made. This is the value of that decision node.

Figure 4 shows this calculation of decision nodes in our example:

Figure 4:
Example Decision Tree: Should we develop a new product or consolidate?



In this example, the benefit we previously calculated for “new product, thorough development” was $210,000. We estimate the cost of this approach as $75,000. This gives a net benefit of $135,000.

The net benefit of “new product, rapid development” was $15,700. On this branch we therefore choose the most valuable option, “new product, thorough development”, and allocate this value to the decision node.

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Result
By applying this technique we can see that the best option is to develop a new product. It is worth much more to us to take our time and get the product right, than to rush the product to market. It is better just to improve our existing products than to botch a new product, even though it costs us less.

Key points:

Decision trees provide an effective method of decision-making because they:

- Clearly lay out the problem so that all options can be challenged.
- Allow us to analyse fully the possible consequences of a decision.
- Provide a framework to quantify the values of outcomes and the probabilities of achieving them.
- Help us to make the best decisions on the basis of existing information and best guesses.

As with all decision-making methods, decision tree analysis should be used in conjunction with common sense. Decision trees are just one important part of your decision-making tool kit.

PMI (3.5)

Function: Weighing the Pros and Cons of a decision

How to use tool:

PMI stands for “Plus/Minus/Implications”. It is a valuable improvement to the “weighing pros and cons” technique used for centuries.

PMI is an important decision-making tool. Once you have chosen a course of action, it is important to check that it is going to improve the situation. It may actually be best to do nothing!

To use PMI, draw up a table headed up with: “'Plus”, “Minus”, and “Implications”. In the column underneath the “Plus” heading, write down all the positive results of taking the action. Underneath the “Minus” heading, write down all the negative effects. In the “Implications” column write down the implications and possible outcomes of taking the action, whether positive or negative.

By this stage it may already be obvious whether or not you should implement the decision. If it is not, consider each of the points you have written down and assign a positive or negative score to it appropriately. The scores you assign may be quite subjective.

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Once you have done this, add up the score. A strongly positive score shows that an action should be taken, a strongly negative score that it should be avoided.

PMI was devised by Edward de Bono in his book 'Teach Your Children How to Think'. We think it has broader application!

Example:

A young professional is deciding where to live. Her question is: "Should she move to the big city?"

She draws up the PMI table below:

Plus	Minus	Implications
More going on (+5)	Have to sell house (-6)	Easier to find new job? (+1)
Easier to see friends (+5)	More pollution (-3)	Meet more people? (+2)
Easier to get places (+3)	Less space (-3)	More difficult to get own work done? (-4)
	No countryside (-2)	More difficult to get to work? (-4)

She scores the table as 13 (Plus) - 14 (Minus) - 5 (Interesting) = - 6

It would be much better for her to live outside, but close enough to travel in.

Key points:

PMI is a good way of weighing the pros, cons and implications of a decision. When you have selected a course of action, PMI is a good technique to use to check that it is worth taking.

To use the technique, draw up a table with three columns headed "Plus", "Minus" and "Implications". Within the table, write down all the positive points of following the course of action, all the negatives, and all the interesting implications and possible outcomes.

If the decision is still not obvious, you can then score the table to show the importance of individual items. The total score should show whether it is worth implementing the decision.

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Force Field Analysis (3.6)

Function: Analyzing the pressures for and against change

How to use tool: Force Field Analysis is a useful technique for looking at all the forces for and against a decision. In effect, it is a specialized method of weighing pros and cons.

By carrying out the analysis you can plan to strengthen the forces supporting a decision, and reduce the impact of opposition to it.

To carry out a force field analysis, follow these steps:

- List all forces for change in one column, and all forces against change in another column.
- Assign a score to each force, from 1 (weak) to 5 (strong).
- Draw a diagram showing the forces for and against change. Show the size of each force as a number next to it.

For example, imagine that you are a manager deciding whether to install new manufacturing equipment in your factory. You might draw up a force field analysis like the one in Figure 1.

Once you have carried out an analysis, you can decide whether your project is viable. In the example above, you might initially question whether it is worth going ahead with the plan.

Where you have already decided to carry out a project, Force Field Analysis can help you to work out how to improve its probability of success. Here you have two choices:

- To reduce the strength of the forces opposing a project, or
- To increase the forces pushing a project

Often the most elegant solution is the first: just trying to force change through may cause its own problems. People can be uncooperative if change is forced on them.

If you had to implement the project in the example above, the analysis might suggest a number of changes to the initial plan:

- By training staff (increase cost by 1) you could eliminate fear of technology (reduce fear by 2).
- It would be useful to show staff that change is necessary for business survival (new force in favor, +2).
- Staff could be shown that new machines would introduce variety and interest to their jobs (new force, +1).
- You could raise wages to reflect new productivity (cost +1, loss of overtime -2)

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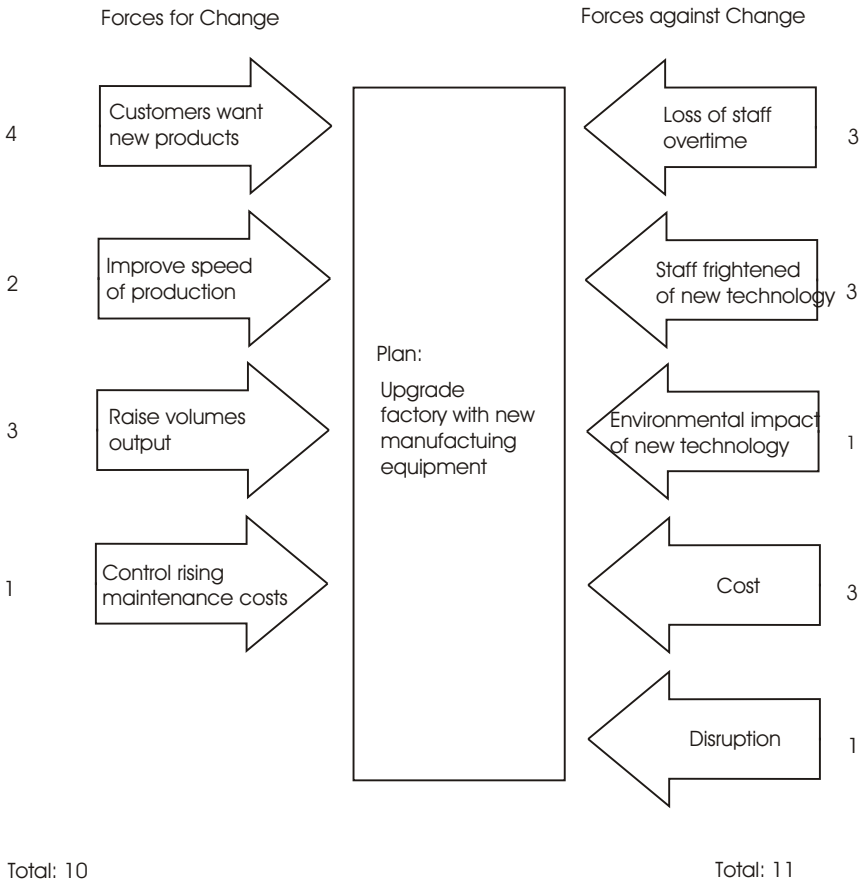
- Slightly different machines with filters to eliminate pollution could be installed (environmental impact -1).

Figure 1
Force Field Analysis Example



These changes would swing the balance from 11:10 (against the plan), to 8:13 (in favor of the plan).

Key points: Force Field Analysis is an effective method for looking at all the forces for and against a plan. It helps you to weigh the importance of these factors and decide whether a plan is worth implementing.

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Where you have decided to carry out a plan, Force Field Analysis helps you identify changes that you could make to improve it.

Six Thinking Hats (3.7)

Function: Looking at a decision from all points of view

How to use tool: Six Thinking Hats is an important and powerful technique used to look at decisions from a number of important perspectives. This forces you to move outside your habitual thinking style, and helps you to get a more rounded view of a situation. This tool was created by Edward de Bono.

Many successful people think from a very rational, positive viewpoint. This is part of the reason that they are successful. Often, though, they may fail to look at a problem from an emotional, intuitive, creative or negative viewpoint. This can mean that they under-estimate public resistance to plans, fail to make creative leaps, and do not make essential contingency plans.

Similarly, pessimists may be excessively defensive. Emotional people may fail to look at decisions calmly and rationally.

If you look at a problem with the Six Thinking Hats technique, then you will solve it using all approaches. Your decisions and plans will mix ambition, skill in execution, public sensitivity, creativity and good contingency planning.

You can use Six Thinking Hats in meetings or on your own. In meetings, it has the benefit of blocking the confrontations that happen when people with different thinking styles discuss the same problem.

Each “Thinking Hat” is a different style of thinking. These are explained below:

- White Hat:
  With this thinking hat you focus on the data available. Look at the information you have, and see what you can learn from it. Look for gaps in your knowledge, and either try to fill them or take account of them.

  This is where you analyse past trends, and try to extrapolate from historical data.

- Red Hat:
  “Wearing” the red hat, you look at problems using intuition, gut reaction, and emotion. Also try to think how other people will react emotionally. Try to understand the responses of people who do not fully know your reasoning.

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- Black Hat:
  Using black hat thinking, look at all the bad points of the decision. Look at it cautiously and defensively. Try to see why it might not work. This is important because it highlights the weak points in a plan. It allows you to eliminate them, alter them, or prepare contingency plans to counter them. Black Hat thinking helps to make your plans tougher and more resilient. It can also help you to spot fatal flaws and risks before you embark on a course of action. Black Hat thinking is one of the real benefits of this technique, as successful people get so used to thinking positively that often they cannot see problems in advance. This leaves them under-prepared for difficulties.

- Yellow Hat:
  The yellow hat helps you to think positively. It is the optimistic viewpoint that helps you to see all the benefits of the decision and the value in it. Yellow Hat thinking helps you to keep going when everything looks gloomy and difficult.

- Green Hat:
  The Green Hat stands for creativity. This is where you can develop creative solutions to a problem. It is a freewheeling way of thinking, in which there is little criticism of ideas. A whole range of creativity tools (see Module 1) can help you here.

- Blue Hat:
  The Blue Hat stands for process control. This is the hat worn by people chairing meetings. When running into difficulties because ideas are running dry, they may direct activity into Green Hat thinking. When contingency plans are needed, they will ask for Black Hat thinking, etc.

A variant of this technique is to look at problems from the point of view of different professionals (e.g. doctors, architects, sales directors, etc.) or different customers.

Example: The directors of a property company are looking at whether they should construct a new office building. The economy is doing well, and the amount of vacant office space is reducing sharply. As part of their decision, they decide to use the 6 Thinking Hats technique during a planning meeting.

Looking at the problem with the White Hat, they analyse the data they have. They examine the trend in vacant office space, which shows a sharp reduction. They anticipate that by the time the office block would be completed, there will be a severe shortage of office space. Current government projections show steady economic growth for at least the construction period.

With Red Hat thinking, some of the directors think the proposed building looks quite ugly. While it would be highly cost-effective, they worry that people would not like to work in it.

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When they think with the Black Hat, they worry that government projections may be wrong. The economy may be about to enter a “cyclical down-turn”, in which case the office building may be empty for a long time. If the building is not attractive, then companies will choose to work in another better-looking building at the same rent.

With the Yellow Hat, however, if the economy holds up and their projections are correct, the company stands to make a great deal of money. If they are lucky, maybe they could sell the building before the next downturn, or rent to tenants on long-term leases that will last through any recession.

With Green Hat thinking, they consider whether they should change the design to make the building more pleasant. Perhaps they could build prestige offices that people would want to rent in any economic climate. Alternatively, maybe they should invest the money in the short term to buy up property at a low cost when a recession comes.

The Blue Hat has been used by the meeting’s Chair to move between the different thinking styles. He or she may have needed to keep other members of the team from switching styles, or from criticizing other peoples' points.

Key points: Six Thinking Hats is a good technique for looking at the effects of a decision from a number of different points of view.

It allows necessary emotion and skepticism to be brought into what would otherwise be purely rational decisions. It opens up the opportunity for creativity within decision-making. The technique also helps, for example, persistently pessimistic people to be positive and creative.

Plans developed using the 6 Thinking Hats technique will be sounder and more resilient than would otherwise be the case. It may also help you to avoid public relations mistakes, and spot good reasons not to follow a course of action before you have committed to it.

Cost/Benefit Analysis (3.8)

Function: Seeing whether a change is worth making

How to use tool: You may have been intensely creative in generating solutions to a problem, and rigorous in your selection of the best one available. This solution may still not be worth implementing, as you may invest a lot of time and money in solving a problem that is not worthy of this effort.

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Cost/Benefit Analysis is a relatively simple[3] and widely used technique for deciding whether to make a change. As its name suggests, to use the technique simply add up the value of the benefits of a course of action, and subtract the costs associated with it.

Costs are either one-off, or may be ongoing. Benefits are most often received over time. We build this effect of time into our analysis by calculating a payback period. This is the time it takes for the benefits of a change to repay its costs. Many companies look for payback over a specified period of time - e.g. three years.

In its simple form, cost/benefit analysis is carried out using only financial costs and financial benefits. For example, a simple cost/benefit analysis of a road scheme would measure the cost of building the road, and subtract this from the economic benefit of improving transport links. It would not measure either the cost of environmental damage or the benefit of quicker and easier travel to work.

A more sophisticated approach to cost/benefit analysis is to try to put a financial value on these intangible costs and benefits. This can be highly subjective - is, for example, a historic water meadow worth $25,000, or is it worth $500,000 because if its environmental importance? What is the value of stress-free travel to work in the morning?

These are all questions that people have to answer, and answers that people have to defend.

The version of cost/benefit analysis we explain here is necessarily simple. Where large sums of money are involved (for example, in financial market transactions), project evaluation can become an extremely complex and sophisticated art. The fundamentals of this are explained in Principles of Corporate Finance by Richard Brealey and Stewart Myers - this is something of a 'bible' on the subject. The book is reviewed at the top of our right hand side bar.

Example:

A sales director is deciding whether to implement a new computer-based contact management and sales processing system. His department has only a few computers, and his salespeople are not computer literate. He is aware that computerized sales forces are able to contact more customers and give a higher quality of reliability and service to those customers. They are more able to meet commitments, and can work more efficiently with fulfillment and delivery staff.

His financial cost/benefit analysis is shown below:

Costs:
New computer equipment:

- 10 network-ready PCs with supporting software @ $1,225 each
- 1 server @ $1,750

[3] Larger projects are evaluated using formal finance/capital budgeting, which takes into account many of the complexities involved with financial decision-making. This is a complex area and is beyond the scope of this module, however books on capital budgeting are shown on the Mind Tools site.

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- 3 printers @ $600 each
- Cabling & Installation @ $2300
- Sales Support Software @ $7500

Training costs:

- Computer introduction - 8 people @ $ 200 each
- Keyboard skills - 8 people @ $ 200 each
- Sales Support System - 12 people @ $350 each

Other costs:

- Lost time: 40 man days @ $ 100 / day
- Lost sales through disruption: estimate: $10,000
- Lost sales through inefficiency during first months: estimate: $10,000

Total cost: $55,800

Benefits:

- Tripling of mail shot capacity: estimate: $20,000 / year
- Ability to sustain telesales campaigns: estimate: $10,000 / year
- Improved efficiency and reliability of follow-up: estimate: $25,000 / year
- Improved customer service and retention: estimate: $15,000 / year
- Improved accuracy of customer information: estimate: $5,000 / year
- More ability to manage sales effort: $15,000 / year

Total Benefit: $90,000/year

Payback time: $55,800 / $90,000 = 0.62 of a year = approx. 8 months

Inevitably the estimates of the benefit given by the new system are quite subjective. Despite this, the Sales Director is very likely to introduce it, given the short payback time.

Key points:

Cost/Benefit Analysis is a powerful, widely used and relatively easy tool for deciding whether to make a change.

To use the tool, first work out how much the change will cost to make. Then calculate the benefit you will from it. Where costs or benefits are paid or received over time, work out the time it will take for the benefits to repay the costs.

Cost/Benefit Analysis can be carried out using only financial costs and financial benefits. You may, however, decide to include intangible items within the analysis. As you must estimate a value for these, this inevitably brings an element of subjectivity into the process.

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Module 4

Project Planning Skills

- Estimating time accurately
- Managing simple projects
- Project planning and scheduling - *Gantt Charts*
- Planning for large or complex projects - *Critical Path Analysis & PERT*
- Effective planning for important projects - *The Planning Cycle*
- Planning Large Projects and Programs
- Stakeholder Management

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4. Project Planning & Management Techniques

This module discusses some of the key skills that you will need to manage projects successfully. It starts by introducing important project planning techniques, and then goes on to show you how to manage the political side of major projects – managing this well is often fundamental to the project's success.

This section will discuss the following tools:

- Estimating time accurately
- Managing simple projects
- Project planning and scheduling - *Gantt Charts*
- Planning for large or complex projects - *Critical Path Analysis & PERT*
- Effective planning for important projects - *The Planning Cycle*
- Planning Large Projects and Programs
- Stakeholder Management

By the end of the module you should have a good grasp of some important project planning techniques. You will know how to plan projects so that they can be completed on time and on budget. When projects run into difficulties (which they very often do), you will be able to prioritize the jobs that must be completed so that you meet the most important deadlines. You will also be able to decide when and how to take remedial action to bring a project back on course.

By the end of this module, you will also know how to manage communication with key project stakeholders so that you can win their support and improve the project's chances of success.

These skills are perfectly sufficient for running many of the projects you will encounter.

As projects become larger, however, a pragmatic general management approach can often be overwhelmed by the sheer complexity of the projects being run. Larger projects benefit from formal, methodology-based project and program management. This is a specialist skill in its own right - appropriate pointers to this are given towards the end of this section.

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Estimating Time Accurately (4.1)

How to use tool:

Accurate time estimation is a skill essential to good project management. It is important to get time estimates right for two main reasons:

1. Time estimates drive the setting of deadlines for delivery of projects, and hence peoples' assessments of your reliability.
2. They determine the pricing of contracts and hence their profitability.

Usually, people vastly underestimate the amount of time needed to implement projects. This is true particularly when they are not familiar with the task to be carried out. They forget to take into account unexpected events or unscheduled high priority work. People also often simply fail to allow for the full complexity involved with a job.

This section discusses how to estimate time on small projects. There are two other techniques used to organize and structure medium and large sized projects: the drawing of Gantt charts (see 4.3) and use of Critical Path Analysis (see 4.4). Both of these techniques reduce large projects down into a set of small projects. This section also explains how to estimate time for each of these project stages.

Fully understanding the problem to solve

The first stage in estimating time accurately is to fully understand what you need to achieve. This involves reviewing the task in detail so that there are no unknowns. Inevitably it is the difficult, tricky problems that take the greatest amount of time to solve.

The best way to review the job is to list all tasks in full detail. A technique such as Drill-Down (see 2.2) is useful for this. Module 2 of this e-book gives you a range of techniques for fully understanding the problem you need to solve.

Estimating time

You can only start to estimate time accurately when you have a detailed list of all the tasks that you must achieve. When you have this, you can make your best guess at how long each task will take to complete.

Ensure that within your estimate you also allow time for project management, detailed project planning, liaison with outside bodies, meetings, quality assurance and any supporting documentation necessary.

Also make sure that you have allowed time for:

- Other high urgency tasks to be carried out which will have priority over this one
- Accidents and emergencies
- Internal meetings
- Holidays and sickness in essential staff
- Contact with other customers, perhaps to arrange the next job
- Break-downs in equipment
- Missed deliveries by suppliers
- Interruptions

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- Quality control rejections
- Etc.

These factors may double (or more than double) the length of time needed to complete a project.

If the accuracy of time estimates is critical, you may find it effective to develop a systematic approach to including these factors. If possible, base this on past experience.

Key points: You can lose a great deal of credibility by underestimating the length of time needed to implement a project. If you underestimate time, not only do you miss deadlines, you also put other project workers under unnecessary stress. Projects will become seriously unprofitable, and other tasks cannot be started.

The first step towards making good time estimates is to fully understand the problem to be solved.

You can then prepare a detailed list of tasks that must be achieved. This list should include all the administrative tasks and meetings you need to carry out as well as the work itself.

Finally, allow time for all the expected and unexpected disruptions and delays to work that will inevitably happen.

Scheduling Simple Projects (4.2)

How to use tool: Simple projects involve only one or a few people over a short time. Typically, these projects will have few tasks dependent on other tasks, and will be relatively simple and easy to coordinate. Examples might be coordinating delivery of resources for a workshop session, implementing a small marketing plan, or delivering a simple software enhancement.

With simple projects, tools like Gantt Charts and Critical Path Diagrams may overcomplicate project scheduling and communication. Unless project team members are trained in their use, they can often 'blind people with science', leading to poor communication and muddled projects.

Appropriate Timetables and Action Plans are often sufficient to coordinate and implement simple projects. These should be explained and negotiated with project staff to improve the plans and get staff understanding, input and buy-in.

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Key points: Simple projects are often best run using simple Timetables and Action Plans. These should be prepared and negotiated with project staff to improve plans and get buy-in.

During the project these will contain sufficient control points and deliveries to monitor project progress and take any appropriate remedial action.

Gantt Charts (4.3)

Function: Project Planning and Scheduling

How to use the tool: Gantt Charts are useful tools for analyzing and planning small or medium sized projects. They:

- Help you to plan out the tasks that need to be completed.
- Give you a basis for scheduling when these tasks will be carries out.
- Allow you to plan the allocation of resources needed to complete the project.
- Help you to work out the critical path for a project where you must complete it by a particular date.

When a project is under way, Gantt charts help you to monitor whether the project is on schedule. If it is not, it allows you to pinpoint the remedial action necessary to put it back on schedule.

Gantt charts are excellent scheduling and planning tools to use up to a particular complexity of project. After this, they begin to become unwieldy. If you find that this is the case, use Critical Path Analysis (see 4.4) in place of Gantt Charts.

Sequential and parallel activities:
An essential concept behind project planning (and Critical Path Analysis) is that some activities are dependent on other activities being completed first. For example, it is not a good idea to start building a bridge before you have designed it!

These dependent activities need to be completed in a sequence, with each stage being more-or-less completed before the next activity can begin. We can call dependent activities “sequential”.

Other activities are not dependent on completion of any other tasks. These may be done at any time before or after a particular stage is reached. These are non-dependent or “parallel” tasks.

To draw up a Gantt chart, follow these steps:

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1. List all activities in the plan
For each task, show the earliest start date, estimated length of time it will take (see 4.1), and whether it is parallel or sequential. If tasks are sequential, show which stages they depend on.

You will end up with a task list like the one below. This example shows the task list for a custom-written computer project. We will use this same example for both this section and the section on Critical Path Analysis and PERT (see 4.4). This will allow you to compare the results of the two approaches.

Figure 4.3.1. Gantt Chart Example: Planning a custom-written computer project
NB: The start week shows when resources become available. Whether a task is parallel or sequential depends largely on context.

List of all activities in plan:
1. High level analysis
   Possible start week 1, 5 days, sequential
2. Selection of hardware platform
   Possible start week 1, 1 day, sequential, dependent on (1)
3. Installation and commissioning of hardware
   Possible start week 3, 2 weeks, parallel, dependent on (2), any time after
4. Detailed analysis of core modules
   Possible start week 1, 2 weeks, sequential, dependent on (1)
5. Detailed analysis of supporting utilities
   Possible start week 1, 2 weeks, sequential, dependent on (4)
6. Programming of core modules
   Possible start week 4, 3 weeks, sequential, dependent on (4)
7. Programming of supporting modules
   Possible start week 4, 3 weeks, sequential, dependent on (5)
8. Quality assurance of core modules
   Possible start week 5, 1 week, sequential, dependent on (6)
9. Quality assurance of supporting modules
   Possible start week 5, 1 week, sequential, dependent on (7)
10. Core module training
    Possible start week 7, 1 day, parallel, dependent on (6), any time after
11. Development of accounting reporting
    Possible start week 6, 1 week, parallel, dependent on (5), any time after
12. Development of management reporting
    Possible start week 6, 1 week, parallel, dependent on (5), any time after
13. Development of management analysis
    Possible start week 6, 2 weeks, dependent on (5), any time after
14. Detailed training
    Possible start week 7, 1 week, sequential, dependent on (1-13)
15. Documentation
    Possible start week 4, 2 weeks, parallel

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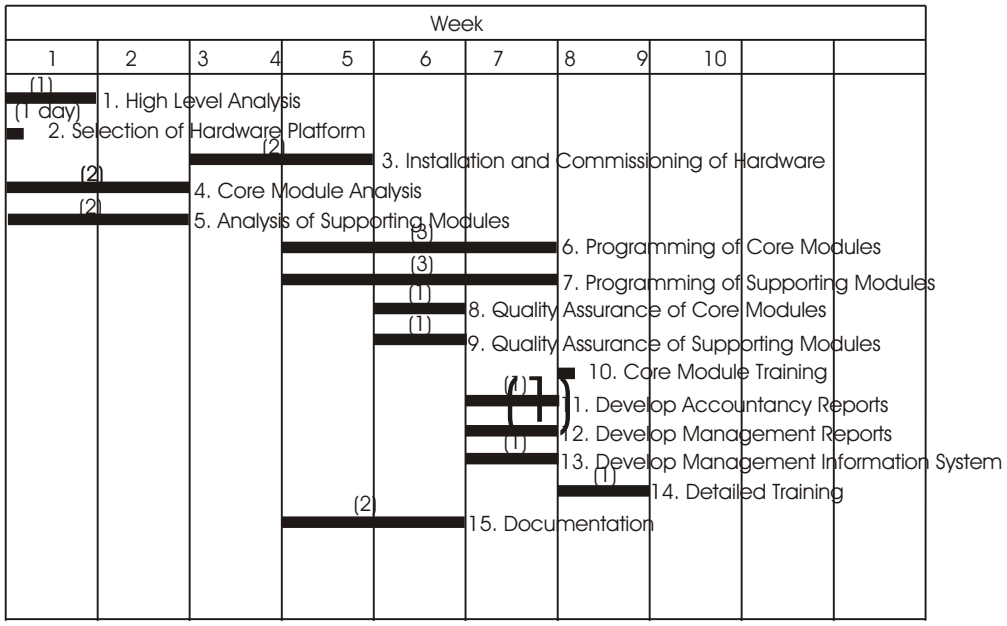
2. Head up graph paper with the days or weeks through to task completion

3. Plot the tasks onto the graph paper
Next draw up a rough draft of the Gantt chart. Plot each task on the graph paper, showing it starting on the earliest possible date. Draw it as a bar, with the length of the bar being the length of the task. Above the task bars, mark the time taken to complete them. Do not worry about task scheduling yet. All you are doing is setting up the first draft of the analysis.

This will produce an untidy diagram like the one below:

Figure 2: Draft Gantt Chart: Example Computer Project



4. Schedule Activities
Now take the draft Gantt chart, and use it to schedule actions. Schedule them in such a way that sequential actions are carried out in the required sequence. Ensure that dependent activities do not start until the activities they depend on have been completed.

Where possible, schedule parallel tasks so that they do not interfere with sequential actions on the critical path. While scheduling, ensure that you make full use of the resources you have available. Also allow some slack time in the schedule for hold-ups, over-runs, quality rejections, failures in delivery, etc.

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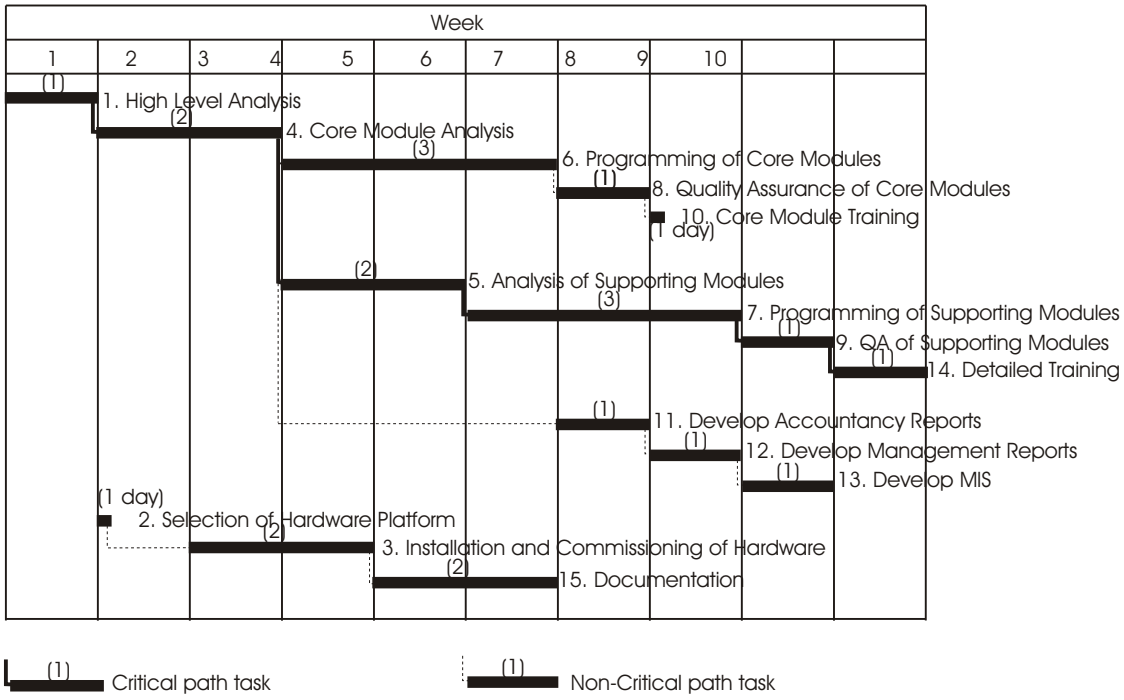
5. Presenting the Analysis

The final stage in this process is to prepare a clean final version of the Gantt chart. This should combine the draft analysis (see above) with your scheduling and analysis of resources. This chart will show when you anticipate that jobs should start and finish.

A redrawn and scheduled version of the example project is shown below:

Critical Path Analysis: Activities Scheduled on a Gantt Chart



By drawing this example Gantt chart, you can see that:

- If all goes well, the project can be completed in 10 weeks
- If you want to complete the task as rapidly as possible, you need:
  - 1 analyst for the first 5 weeks
  - 1 programmer for 6 weeks starting week 4
  - 1 programmer for 3 weeks starting week 6
  - Quality assurance for weeks 7 and 9
  - Hardware to be installed by the end of week 7
- Analysis, and development and installation of supporting modules are essential activities that must be completed on time.
- Hardware installation is a low priority task as long as it is completed by the end of week 7

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Key points:

Gantt charts are very useful tools for planning and scheduling small and medium sized projects. They allow you to assess how long a project should take, determine the resources needed, and lay out the order in which tasks need to be carried out.

When a project is under way, Gantt charts are useful for monitoring its progress. You can immediately see what should have been achieved at a point in time, and can therefore take remedial action to bring the project back on course. This can be essential for the successful and profitable implementation of the project.

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Critical Path Analysis & PERT Charts (4.4)

Function: Planning for large or complex projects

Why use the tool? Critical Path Analysis and PERT are powerful tools that help you to schedule and manage complex projects. They were developed in the 1950s to control large defense projects, and have been used routinely since then.

As with Gantt Charts, Critical Path Analysis (CPA) helps you to plan all tasks that must be completed as part of a project. They both act as a useful basis for the preparation of a schedule and for resource planning. During management of a project, they both allow you to monitor achievement of project goals and help you to see where remedial action needs to be taken to get a project back on course.

The benefit of using CPA over Gantt Charts is that Critical Path Analysis formally identifies the tasks that must be completed on time for the whole project to be delivered to schedule. It also identifies the tasks that can be delayed if resource is to be reallocated to catch up on missed tasks.

A further benefit of Critical Path Analysis is that it helps you to identify the minimum length of time needed to complete a project. Where you need to run an accelerated project, it helps you to identify which project steps you should accelerate to complete the project within the available time. This helps you to minimize cost while still achieving your objective.

The disadvantage of CPA is that the relation of tasks to time is not as immediately obvious as with Gantt Charts. This can make them more difficult to understand for someone who is not familiar with the technique.

How to use the tool: Sequential and parallel activities:

As with Gantt charts, the essential concept behind Critical Path Analysis is that you cannot start some activities until others are finished. These activities need to be completed in a sequence, with each stage being more-or-less completed before the next stage can begin. These are “sequential” activities.

Other activities are not dependent on completion of any other tasks. You can do these at any time before or after a particular stage is reached. These are non-dependent or “parallel” tasks.

1. List all activities in the plan

For each activity, show the earliest start date, estimated length of time it will take, and whether it is parallel or sequential. If tasks are sequential, show which stage they depend on.

You will end up with a task list like the one for Gantt charts shown in figure 4.3.1. We will use the same example as with Gantt charts to compare the two techniques.

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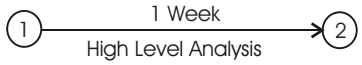
2. Plot the activities as a circle and arrow diagram
Critical Path Analyses are presented using circle and arrow diagrams.

In these, circles show events within the project, such as the start and finish of tasks. Circles are normally numbered to allow you to identify them.

An arrow running between two event circles shows the activity needed to complete that task. A description of the task is written underneath the arrow. The length of the task is shown above it. By convention, all arrows run left to right.

An example of a very simple diagram is shown below:

Figure 2: Simple Circle and Arrow Diagram



This shows the start event (circle 1), and the completion of the "High Level Analysis" task (circle 2). The arrow between them shows the activity of carrying out the High Level Analysis. This activity should take 1 week.

Where one activity cannot start until another has been completed, we start the arrow for the dependent activity at the completion event circle of the previous activity. An example of this is shown below:

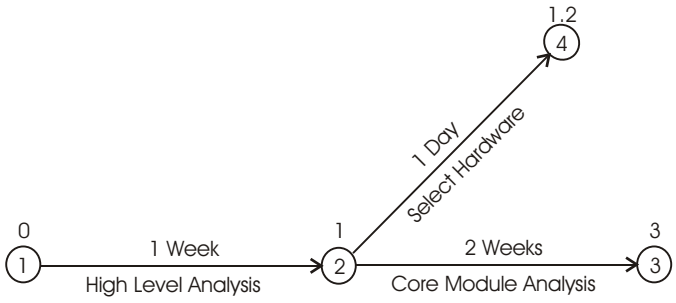


Figure 3: Circle and Arrow Diagram showing two activities that cannot be started until the first activity has been completed.

Here, the activities of "Selecting Hardware" and "Core Module Analysis" cannot be started until "High Level Analysis" has been completed. This diagram also brings out a number of other important points:

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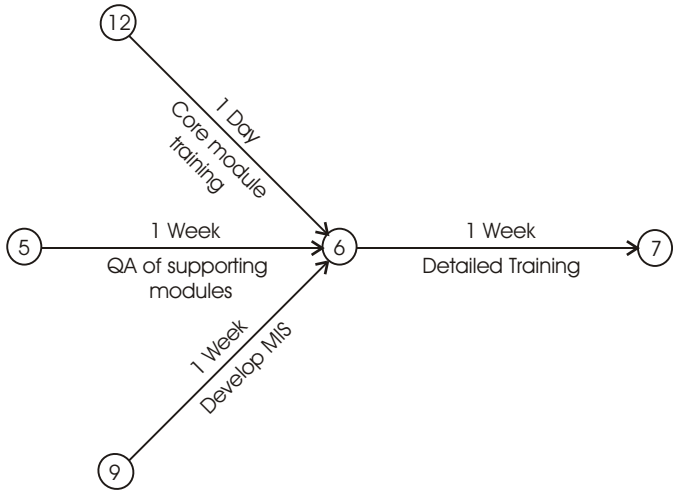
- Within Critical Path Analysis, we refer to activities by the numbers in the circles at each end. For example, the task “Core Module Analysis” would be called “activity 2 to 3’. ‘Select Hardware” would be “activity 2 to 4”.
- Activities are not drawn to scale. In the diagram above, activities are 1 week long, 2 weeks long, and 1 day long. Arrows in this case are all the same length.
- In the example above, you can see numbers above the circles. These show the earliest possible time that this stage in the project will be reached. Here, units are whole weeks.

A different case is shown below:

Figure 4: Circle and Arrow Diagram showing an activity (6 to 7) that cannot start until other activities (12 to 6, 5 to 6, and 9 to 6) have been completed.



Here, activity 6 to 7 cannot start until the other three activities (12 to 6, 5 to 6 and 9 to 6) have been completed.

See figure 4.4.4 for the full circle and arrow diagram for the computer project used as an example.

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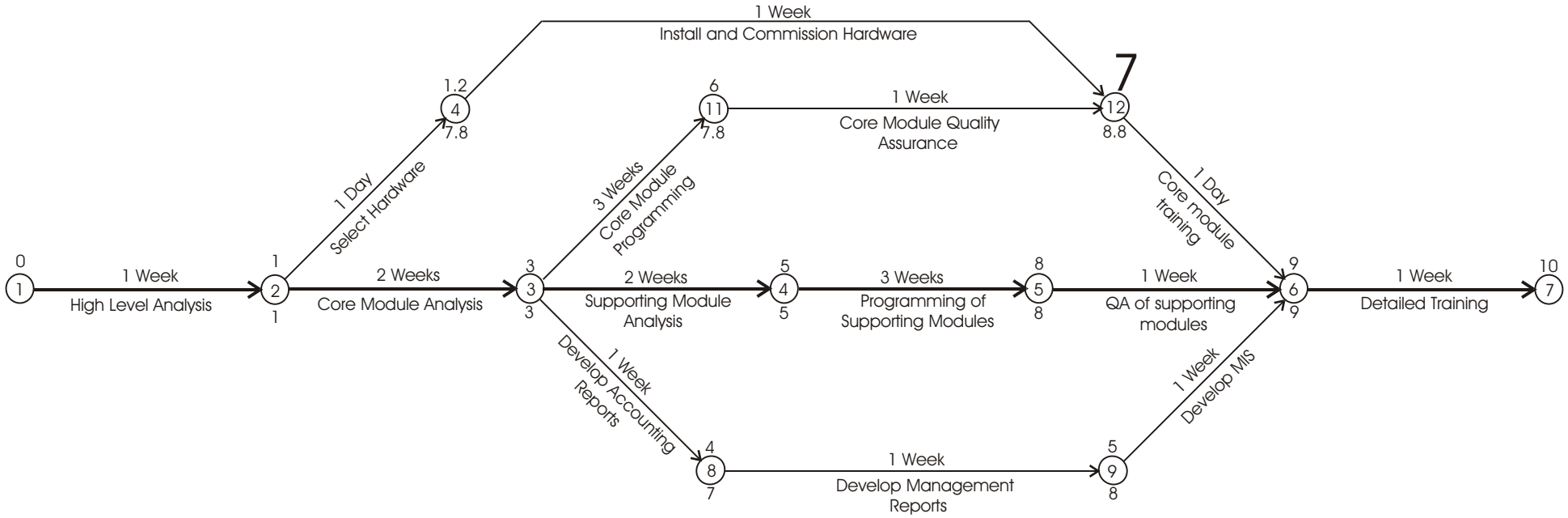
Figure 4; Critical Path Analysis for Example Computer Project



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This shows all the activities that will take place as part of the project. Notice that each event circle has a figure below it as well as a figure above. This shows the latest time that it can be reached with the project still being completed in the minimum time possible. You can calculate this by starting at the last event (in this case number 7), and working backwards.

You can see that event 4 can be completed any time between 1.2[4] weeks in and 7.8 weeks in. The timing of this event is not critical. Events 1 to 2, 2 to 3, 3 to 4, 4 to 5, 5 to 6 and 6 to 7 must be started and completed on time if the project is to be completed in 10 weeks. This is the "critical path" as these activities must be very closely managed to ensure that activities are completed on time. If jobs on the critical path slip, immediate action should be taken to get the project back on schedule. Otherwise, completion of the whole project will slip.

"Crash Action"
You may find that you need to complete a project earlier than your Critical Path Analysis says is possible. In this case you need to take action to reduce the length of time spent on project stages.

You could pile resources into every project activity to bring down time spent on each. This would probably consume huge additional resources.

A more efficient way of doing this would be to look only at activities on the critical path. As an example, it may be necessary to complete the computer project in figure 4.3.4 in 8 weeks rather than 10 weeks. In this case you could look at using two analysts in steps "2 to 3" and "3 to 4", and two programmers instead of one in step "4 to 5". This would shorten the project by two weeks, but would raise the project costs, and doubling resources at any stage usually only improves productivity by 50%. This occurs as time spent on coordinating the project consumes time gained by increasing resource.

Note in this example, that shortening the project by two weeks bring activities '3 to 11', '11 to 12' and '12 to 6' onto the critical path as well.

PERT
PERT (Program Evaluation and Review Technique)

PERT is a variation on Critical Path Analysis that takes a slightly more skeptical view of time estimates made for each project stage. To use it, estimate the shortest possible time each activity will take, the most likely length of time, and the longest time that might be taken if the activity takes longer than expected.

Use the formula below to calculate the time to use for each project stage:

$$\frac{\text{Shortest time} + 4 \times \text{likely time} + \text{longest time}}{6}$$

[4] Using decimals here helps to keep the diagram uncluttered. 1.2 weeks = 1 week and 1 working day.

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This helps to bias time estimates away from the unrealistically short time-scales normally assumed.

Key points:

Critical Path Analysis is an effective and powerful method of assessing:

- What tasks must be carried out
- Where parallel activity can be performed
- The shortest time in which you can complete a project
- Resources needed to execute a project
- The sequence of activities, scheduling and timings involved
- Task priorities
- The most efficient way of shortening time on urgent projects.

An effective Critical Path Analysis can make the difference between success and failure on complex projects. It can be very useful for assessing the importance of problems faced during the implementation of the plan.

PERT is a variant of Critical Path Analysis that takes a more skeptical view of the time needed to complete each project stage.

The Planning Cycle (4.5)

Function: Effective Planning for Important Projects

How to use tool:

The Planning Cycle brings together all aspects of planning into a coherent, unified process. By planning within this structure, you will help to ensure that your plans are fully considered, well focused, resilient, practical and cost-effective. You will also ensure that you learn from any mistakes you make, and feed this back into future decision-making.

By planning within this structure, you will help to ensure that your plans are fully considered, well focused, resilient, practical and cost-effective. You will also ensure that you learn from any mistakes you make, and feed this back into future planning and decision-making.

Planning using this cycle will help you to plan and manage ongoing projects up to a certain level of complexity - this will depend on the circumstance. For projects involving many people over a long period of time, more formal methodologies and approaches are necessary (see 4.6).

The Planning Cycle is shown in figure 4.5.1:

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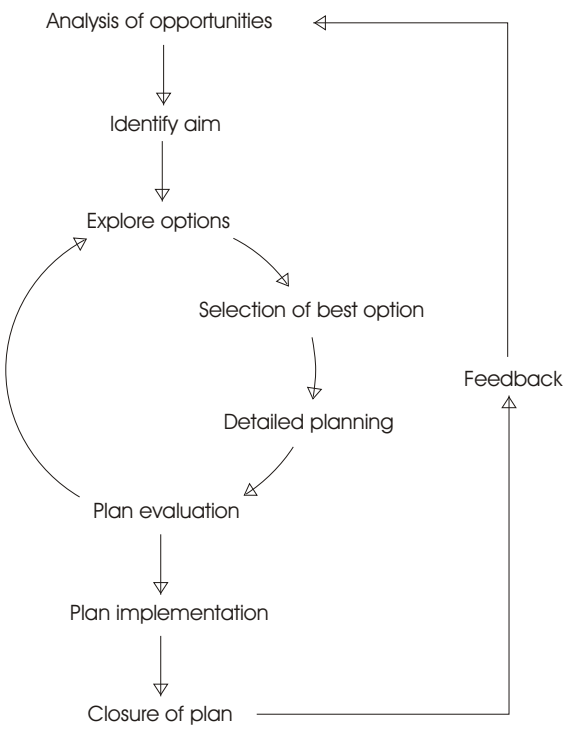
Figure 1. The Planning Cycle



The stages in this planning process are explained below:

1. Analysis of Opportunities:
The first thing to do is to do is to spot what needs to be done. You will crystallize this into a formal aim at the next stage in the process.

One approach to this is to examine your current position, and decide how you can improve it. There are a number of techniques that will help you to do this:

- SWOT Analysis: is a formal analysis of your strengths and weaknesses, and of the opportunities and threats that you face. See section 2.5 for more information on this.
- Risk Analysis: helps you to spot dangerous weaknesses in your organization or within your operation. See 2.7.
- Understanding pressures for change: other people may be pressing you to change the way you do things. Alternatively, your environment may be changing, and you may need to anticipate or respond to this. These may arise from changes in the economy,

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new legislation, competition, changes in people's attitudes, new technologies, or changes in government. In cases where change is forced on you, ensure that you react to the cause of the pressure, not to the symptoms of it.

A different approach is to use any of a whole range of powerful creativity tools (see section 1) to work out where you can make improvements. These creativity tools culminate in the powerful Simplex process described in 1.10.

2. Identifying the Aim of Your Plan
Once you have completed a realistic analysis of the opportunities for change, the next step is to decide precisely what the aim of your plan is. Deciding and defining an aim sharpens the focus of your plan, and helps you to avoid wasting effort on irrelevant side issues.

The aim is best expressed in a simple single sentence. This ensures that it is clear and sharp in your mind.

If you are having difficulty in deciding the aim of your plan, ask yourself:
- What do I want the future to be?
- What benefit do I want to give to my customers?
- What returns do I seek?
- What standards am I aiming at?
- What values do I and my organization believe in?

For large plans, you can present this aim as a “Vision Statement” or “Mission Statement”. Vision Statements express the benefit that an organization will provide to its customers. For example, the vision statement for Mind Tools is: “To enrich the quality of our customers lives by giving them the tools to help them to think in the most productive and effective way possible”. While this is wordy, it explains exactly what this e-book aims to do.

Mission statements give concrete expression to the Vision Statement, explaining how it is to be achieved. The mission statement for this e-book is: “To provide a well structured, accessible, concise survey of the best mind tools available”.

3. Exploring Options
By this stage, you should know where you are and what you want to do. The next thing to do is to work out how to do it. The Creativity Tools module (section 1) of this e-book explains a wide range of powerful creativity tools that will help you to generate options.

At this stage, it is best to spend a little time generating as many options as possible, even though it is tempting just to grasp the first idea that comes to mind. By taking a little time to generate as many ideas as possible, you may come up with less obvious but better solutions. Just as likely, you may improve your best ideas with parts of other ideas.

4. Selecting the Best Option
Once you have explored the options available to you, it is time to decide which one to use. If you have the time and resources available, then you might decide to evaluate all

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options, carrying out detailed planning, costing, risk assessment, etc. for each. Normally, you will not have this luxury.

Two very useful tools for selecting the best option are Grid Analysis (see 3.3) and Decision Trees (see 3.4). Grid Analysis helps you to decide between different options where you need to consider a number of different factors. Decision Trees help you to think through the likely outcomes of following different courses of action.

5. Detailed Planning
By the time you start detailed planning, you should have a good picture of where you are, what you want to achieve, and the range of options available to you. You may well have selected one of the options as the most likely to yield the best results.

Detailed planning is the process of working out the most efficient and effective way of achieving the aim that you have defined. It is the process of determining who will do what, when, where, how and why, and at what cost.

When drawing up the plan, techniques such as use of Gantt charts (see 4.3) and Critical Path Analysis (see 4.4) can be immensely helpful in working out priorities, deadlines and the allocation of resources.

While you are concentrating on the actions that need to be performed, ensure that you also think about the control mechanisms that you will need to monitor performance. These will include activities such as reporting, quality assurance, cost control, etc. that are needed to spot and correct any deviations from the plan.

A good plan will:
- State the current situation.
- Have a clear aim.
- Use the resources available.
- Detail the tasks to be carried out, whose responsibility they are, and their priorities and deadlines.
- Detail control mechanisms that will alert you to difficulties in achieving the plan.
- Identify risks, and plan for contingencies. This allows you to make a rapid and effective response to crises, perhaps at a time when you are at low ebb, or are confused following a setback. Risk Analysis is explained in 2.7.
- Consider transitional arrangements, considering how will you keep things going while you implement the plan?

6. Evaluation of the Plan and Its Impact
Once you have worked out the details of your plan, the next stage is to review it to decide whether it is worth implementing. Here you must be objective; however much work you have carried out to reach this stage, the plan may still not be worth implementing.

This is frustrating after the hard work of detailed planning. It is, however, much better to find this out now than when you have invested time, resources and personal standing in the success of the plan. Evaluating the plan now gives you the opportunity to either

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investigate other options that might be more successful, or to accept that no plan is needed or should be carried out.

Depending on the circumstances, the following techniques can be helpful in evaluating a plan:

- PMI:
  This is a good, simple technique for "weighing the pros and cons" of a decision. It involves listing the plus points in the plan in one column, the minus points in a second column, and the implications of the plan in a third column. Each point can be allocated a positive or negative score. PMI is explained in section 3.5.
- Cost/Benefit Analysis:
  This is useful for confirming that the plan makes financial sense. This involves adding up all the costs involved with the plan, and comparing them with the expected benefits. This is explained in more detail in section 3.8.
- Force Field Analysis:
  Similar to PMI, Force Field Analysis helps you to get a good overall view of all the forces for and against your plan. This allows you to see where you can make adjustments that will make the plan more likely to succeed. See 3.6 for more information.
- Cash Flow Forecasts:
  Where a decision is has mainly financial implications, such as in business and marketing planning, preparation of a Cash Flow Forecast can be extremely useful. It allows you to assess the effect of time on costs and revenue. It also helps in assessing the size of the greatest negative and positive cash flows associated with a plan. When it is set up on a spreadsheet package, a good Cash Flow Forecast also functions as an extremely effective model of the plan. It gives you an easy basis for investigating the effect of varying your assumptions. Cash Flow Forecasting is explained in section 2.6.
- 6 Thinking Hats:
  6 Thinking Hats is a very good technique to use to get a rounded view of your plan and its implications. It provides a context within which you can examine a plan rationally, emotionally, optimistically, pessimistically and creatively. By using this tool you will improve your plan and make it more robust. 6 Thinking Hats is explained in detail in section 3.7.

Any analysis of your plan must be tempered by common sense. If your analysis shows that the plan either will not give sufficient benefit, then either return to an earlier stage in the planning cycle or abandon the process altogether.

7. Implementing Change
Once you have completed your plan and decided that it will work satisfactorily, it is time to implement it. Your plan will explain how! It should also detail the controls that you will use to monitor the execution of the plan.

8. Closing the Plan
Once you have achieved a plan, you can close the project. At this point is often worth carrying out an evaluation of the project to see whether there are any lessons that you

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can learn. This should include an evaluation of your project planning to see if this could be improved.

If you are going to be carrying out many similar projects, it may be worth developing and improving an Aide Memoire (see 6.1.9). This is a list of headings and points to consider during planning. Using it helps you to ensure that you do not forget lessons learned in the past.

Key points:

The Planning Cycle is a process that helps you to make good, well-considered, robust plans.

The first step, the analysis of opportunities, helps you to base the plan firmly in reality. The second, definition of the aim, gives your plan focus.

The third stage is to generate as many different ways for achieving this aim as possible. By spending time looking for these you may find a better solution than the obvious one, or may be able to improve the obvious solution with parts of other ones.

Next, select the best approach, and make a detailed plan showing how to implement it. Evaluate this plan to make sure that it will be worth implementing. If it is not, return to an earlier stage and either improve the plan or make a different one. If no plan looks like producing enough benefit to justify the cost, make no changes at all.

Once you have selected a course of action, and have proved that it is viable, carry it out. Once it is finished, examine it and draw whatever lessons you can from it. Feed this back into future planning.

Planning Large Projects and Programs (4.6)

How to use tool:

The techniques explained so far in this section on Mind Tools support a pragmatic, commonsense approach to planning and managing small and medium-sized projects.

A warning: this approach will only scale up to a certain extent - larger projects will reach a complexity where pragmatic management generates a level of inefficiency and waste which can start to threaten the project.

For larger projects, Project Management becomes a technical discipline in its own right. To run projects as efficiently as possible, Project Managers need to be trained in methodologies such as PRINCE 2 (an increasingly widespread UK government standard) or an equivalent, and need to apply an appropriate subset of these methodologies. PRINCE is powerful is that it completely clarifies people's roles in projects, ensures that lines of communication are clear, makes sure that project risk is actively managed, sets

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up appropriate controls, etc. In this, it embodies and codifies much of project management best practice.

Stakeholder Management (4.7)

Function: Winning Support for Your Projects

by Rachel Manktelow, who has fifteen years experience of helping organizations and business leaders to manage change and work more effectively.

"Stakeholder management is critical to the success of every project in every organization I have ever worked with. By engaging the right people in the right way in your project, you can make a big difference to its success... and to your career."

Introduction: As you become more successful in your career, the actions you take and the projects you run will affect more and more people. The more people you affect, the more likely it is that your actions will impact people who have power and influence over your projects. These people could be strong supporters of your work - or they could block it.

Stakeholder Management is an important discipline that successful people use to win support from others. It helps them ensure that their projects succeed where others fail.

The Stakeholder Management Tool comes in two parts: Firstly we look at “Stakeholder Analysis”, the technique we use to identify the key people who must be won over. We then look at “Stakeholder Planning”. This helps us build the support that helps you succeed.

The benefits of using a stakeholder-based approach are that:

- You can use the opinions of the most powerful stakeholders to shape your projects at an early stage. Not only does this make it more likely that they will support you, their input can also improve the quality of your project
- Gaining support from powerful stakeholders can help you to win more resources - this makes it more likely that your projects will be successful
- By communicating with stakeholders early and frequently, you can ensure that they fully understand what you are doing and understand the benefits of your project - this means they can support you actively when necessary
- You can anticipate what people's reaction to your project may be, and build into your plan the actions that will win people's support.

How to use the tool: Stakeholder Analysis

The first step in Stakeholder Analysis is to identify who your stakeholders are. The next step is to work out their power, influence and interest, so you know who you should focus on. The final step is to develop a good understanding of the most important stakeholders

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so that you know how they are likely to respond, and so that you can work out how to win their support - you can record this analysis on a stakeholder map.

After you have used this tool and created a stakeholder map, you can use the stakeholder planning tool to plan how you will communicate with each stakeholder.

The steps of Stakeholder Analysis are explained below:

1. Identifying Your Stakeholders:
The first step in your stakeholder analysis is to brainstorm who your stakeholders are. As part of this, think of all the people who are affected by your work, who have influence or power over it, or have an interest in its successful or unsuccessful conclusion.

The table below shows some of the people who might be stakeholders in your job or in your projects:

Possible Project Stakeholders:

Your boss	Shareholders	Government
Senior executives	Alliance partners	Trades associations
Your coworkers	Suppliers	The press
Your team	Lenders	Interest groups
Customers	Analysts	The public
Prospective customers	Future recruits	The community
Your family		

Remember that although stakeholders may be both organizations and people, ultimately you must communicate with people. Make sure that you identify the correct individual stakeholders within a stakeholder organization.

2. Prioritize Your Stakeholders:
You may now have a long list of people and organizations that are affected by your work. Some of these may have the power either to block or advance. Some may be interested in what you are doing, others may not care.

Map out your stakeholders using the Power/Interest Grid shown in figure 1, and classify them by their power over your work and by their interest in your work.

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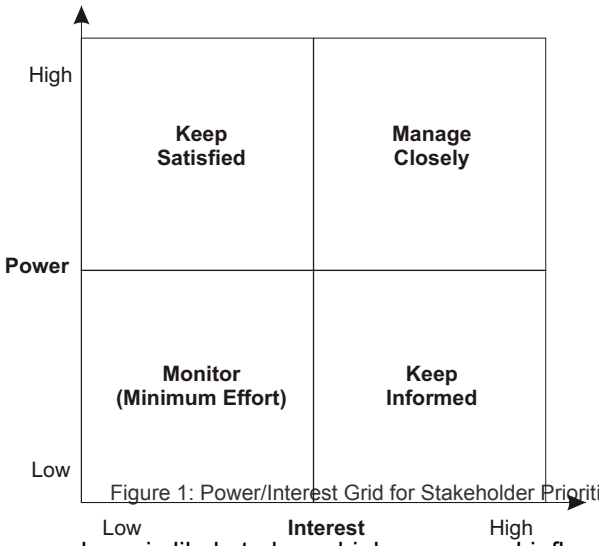

Figure 1: Power/Interest Grid for Stakeholder Prioritization

For example, your boss is likely to have high power and influence over your projects and high interest. Your family may have high interest, but are unlikely to have power over it.

Someone's position on the grid shows you the actions you have to take with them:

- High power, interested people: these are the people you must fully engage and make the greatest efforts to satisfy.
- High power, less interested people: put enough work in with these people to keep them satisfied, but not so much that they become bored with your message.
- Low power, interested people: keep these people adequately informed, and talk to them to ensure that no major issues are arising. These people can often be very helpful with the detail of your project.
- Low power, less interested people: again, monitor these people, but do not bore them with excessive communication.

3. Understanding your key stakeholders:
You now need to know more about your key stakeholders. You need to know how they are likely to feel about and react to your project. You also need to know how best to engage them in your project and how best to communicate with them.

Key questions that can help you understand your stakeholders are:

- What financial or emotional interest do they have in the outcome of your work? Is it positive or negative?
- What motivates them most of all?
- What information do they want from you?
- How do they want to receive information from you? What is the best way of communicating your message to them?
- What is their current opinion of your work? Is it based on good information?
- Who influences their opinions generally, and who influences their opinion of you? Do some of these influencers therefore become important stakeholders in their own right?
- If they are not likely to be positive, what will win them around to support your project?
- If you don't think you will be able to win them around, how will you manage their opposition?
- Who else might be influenced by their opinions? Do these influencers then become stakeholders in their own right?

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A very good way of answering these questions is to talk to your stakeholders directly. People are often quite open about their views, and asking people's opinions is often the first step in building a successful relationship with them.

You can summarize the understanding you have gained on the stakeholder map, so that you can easily see which stakeholders are expected to be blockers or critics, and which stakeholders are likely to be advocates and supporters or your project. A good way of doing this is by color coding: showing advocates and supporters in green, blockers and critics in red, and others who are neutral in orange.

Figure 2 shows an example of this - in this example, you can see that a lot of effort needs to be put into persuading Piers and Michael of the benefits of the project - Janet and Amanda also need to managed well as powerful supporters.

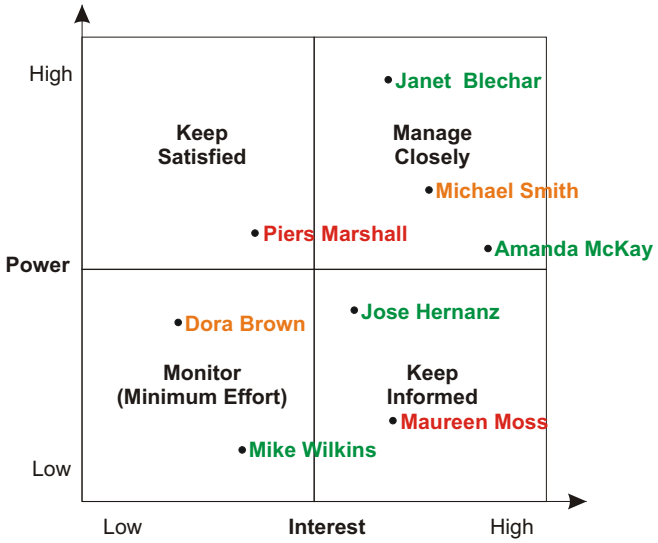

Figure 2: Example Power/Interest Grid with Stakeholders Marked

The next article in this series will explain Stakeholder Planning - this will show you how to plan to win your stakeholders around.

How to use the tool: Stakeholder Planning

Having conducted a Stakeholder Analysis exercise, you will have most of the information you need to plan how to manage communication with your stakeholders. You will have

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identified the stakeholders in your job and in your projects, and will have marked out their positions on a stakeholder map.

The next stage is to plan your communication so that you can win them around to support your projects. Stakeholder Planning is the process by which you do this.

To carry out a Stakeholder Planning exercise, start with a Stakeholder Planning Sheet. This is a table with the following column headings:

- Power
- Interest
- Stakeholder Name
- Key Interests and Issues
- Current Status - Advocate, supporter, neutral, critic, blocker
- Desired Support - High, medium or low
- Desired Project Role (if any)
- Actions Desired (if any)
- Messages Needed
- Actions and Communications

Using this table, work through the planning exercise using the steps below:

1. Update the Planning Sheet With Power/Interest Grid Information:
Based on the Power/Interest Grid you created in your stakeholder analysis, enter the stakeholders' names, their influence and interest in your job or project, and your current assessment of where they stand with respect to it.

2. Plan Your Approach to Stakeholder Management:
The amount of time you should allocate to Stakeholder Management depends on the size and difficulty of your projects and goals, the time you have available for communication, and the amount of help you need to achieve the results you want.

Think through the help you need, the amount of time that will be taken to manage this and the time you will need for communication. Help with the project could include sponsorship of the project, advice and expert input, reviews of material to increase quality, etc.

3. Think Through What You Want From Each Stakeholder:
Next, work through your list of stakeholders thinking through the levels of support you want from them and the roles you would like them to play (if any). Think through the actions you would like them to perform. Write this information down in the ‘Desired Support’, ‘Desired Project Role’ and ‘Actions Desired’ columns.

4. Identify the Messages You need to Convey:
Next, identify the messages that you need to convey to your stakeholders to persuade them to support you and engage with your projects or goals. Typical messages will show

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the benefits to the person or organization of what you are doing, and will focus on key performance drivers like increasing profitability or delivering real improvements.

5. Identify Actions and Communications:
Finally, work out what you need to do to win and manage the support of these stakeholders. With the time and resource you have available, identify how you will manage the communication to and the input from your stakeholders.

Focusing on the high-power/high-interest stakeholders first and the low-interest/low-power stakeholders last, devise a practical plan that communicates with people as effectively as possible and that communicates the right amount of information in a way that neither under nor over-communicates.

Think through what you need to do to keep your best supporters engaged and on-board. Work out how to win over or neutralize the opposition of skeptics. Where you need the active support of people who are not currently interested in what you are doing, think about how you can engage them and raise their level of interest.

Also, consider how what you are doing will affect your stakeholders. Where appropriate, let people know as early as possible of any difficult issues that may arise, and discuss with them how you can minimize or manage any impact.

Tip:
It is usually a good idea to manage people's expectations about likely problems as early as possible. This gives them time to think through how to manage issues, and preserves your reputation for reliability.

Once you have prepared your Stakeholder Plan, all you need to do is to implement it. As with all plans, it will be easier to implement if you break it down into a series of small, achievable steps and action these one-by-one.

Example:

You can create your own example of stakeholder analysis at work - whether for your current role, a job you want to do or a new project.

Conduct a full stakeholder analysis. Ask yourself whether you are communicating as effectively as you should be with your stakeholders. What actions can you take to get more from your supporters or win over your critics?

Key Points:

As the work you do and the projects you run become more important, you will affect more and more people. Some of these people have the power to undermine your projects and your position. Others may be strong supporters of your work.

Stakeholder Management is the process by which you identify your key stakeholders and win their support. Stakeholder Analysis is the first stage of this, where you identify and start to understand your most important stakeholders.

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The first stage of this is brainstorm who your stakeholders are. The next step is to prioritize them by power and interest, and to plot this on a Power/Interest grid. The final stage is to get an understanding of what motivates your stakeholders and how you need to win them around.

Once you have completed your Stakeholder Analysis, the next stage is Stakeholder Planning. This is the process you use to plan how to manage your stakeholders and gain their support for your projects.

Stakeholder Planning can usefully be conducted using a planning sheet like the one described. To prepare your plan, go through the following steps:
1. Update the planning sheet with information from the power/interest grid
2. Think through your approach to stakeholder management
3. Work out what you want from each stakeholder
4. Identify the messages you need to convey
5. Identify actions and communications

Good Stakeholder Management helps you to manage the politics that can often come with major projects. It helps you win support for your projects and eliminates a major source of project and work stress.

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Module 5

Information & Study Skills

- How to take notes effectively - *Concept Maps*
- Fully absorbing written information - *SQ3R*
- *Speed Reading*
- Reading faster by thinking what to read - *Reading Strategies*
- Keeping information fresh in your mind - *Review Techniques*

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5. Information & Study Skills

The techniques in this module will help you to master information. By using them, you will be able to improve:

- Your reading skills, so that you can find the information you need quickly and easily.
- The way you make notes, so that they become clear and easy to understand, and quick to review.
- Your review techniques, so that you can keep information fresh in your mind.

These techniques will help you to assimilate information quickly. This may involve keeping yourself up-to-date on events within your field, absorbing information within reports, or learning specialist information needed to complete a project.

These are also very useful tools for mastering course material where you are studying for exams. They work particularly well in conjunction with the memory techniques described in module 5. Used together, these two sets of tools will give you a formidable advantage in organizing and remembering information. This is often what exams are about.

Techniques discussed are:

- How to take notes effectively - *Concept Maps*
- Fully absorbing written information - *SQ3R*
- *Speed Reading*
- Reading faster by thinking what to read - *Reading Strategies*
- Keeping information fresh in your mind - *Review Techniques*

Concept Maps are powerful tools for recording and organizing information. They do this in a format that is easy to review. Once you understand and start using Concept Maps, you will never again want to take notes using conventional techniques.

The next three techniques (SQ3R, Speed Reading and use of Reading Strategies) help you to assimilate and understand written information quickly and efficiently.

The section on Review Techniques will help you to keep information that you have already learned alive in your mind.

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Concept Maps (5.1)

Function: How to Take Notes Effectively

How to use tool: Concept Maps are very important techniques for improving the way you take notes. By using Concept Maps, you show the structure of the subject and linkages between points, as well as the raw facts contained in normal notes. Concept Maps hold information in a format that your mind will find easy to remember and quick to review.

Concept Maps completely abandon the list format of conventional note taking. They do this in favor of a two-dimensional structure. A good Concept Map shows the "shape" of the subject, the relative importance of individual points, and the way in which one fact relates to other. Concept Maps are more compact than conventional notes, often taking up one side of paper. This helps you to make associations easily. If you find out more information after you have drawn the main Concept Map, then you can easily integrate it with little disruption.

Concept Maps are also useful for:

- Summarizing information
- Consolidating information from different research sources
- Thinking through complex problems, and
- Presenting information that shows the overall structure of your subject

Concept Maps are also very quick to review, as it is easy to refresh information in your mind just by glancing at one.

For people who have good spatial memories, Concept Maps can be effective mnemonics. Remembering the shape and structure of a Concept Map can provide the cues necessary to remember the information within it. They engage much more of the brain in the process of assimilating and connecting facts than conventional notes.

Drawing Basic Concept Maps
This e-book was researched and planned using Concept Maps. They are too large to publish here, however part of one is shown below. This shows research into time management skills:

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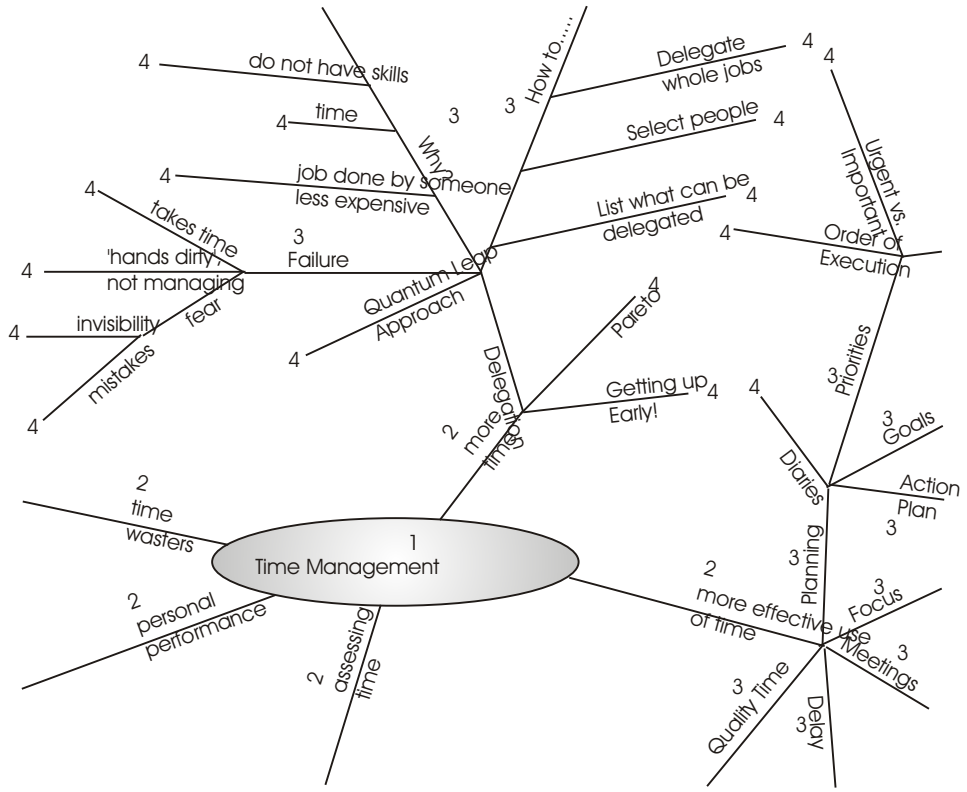

Figure 1 Part of an example Concept Map

To make notes on a subject using a Concept Map, draw it in the following way:

1. Write the title of the subject in the centre of the page, and draw a circle around it. This is shown by the circle marked 1 in the figure 5.1.1.
2. For the major subject sub-headings, draw lines out from this circle. Label these lines with the sub-headings. These are shown by the lines marked 2 in figure 5.1.1.
3. If you have another level of information belonging to the sub-headings above, draw these and link them to the sub-heading lines. These are shown by the lines marked 3 in figure 5.1.1.
4. Finally, for individual facts or ideas, draw lines out from the appropriate heading line and label them. These are shown by the lines marked 4 in figure 5.1.1.

As you come across new information, link it in to the Concept Map appropriately.

A complete Concept Map may have main topic lines radiating in all directions from the centre. Sub-topics and facts will branch off these, like branches and twigs from the trunk of a tree. You do not need to worry about the structure produced, as this will evolve of its own accord.

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Note that the idea of “levels” in 5.1.1. is only used to help show how the Concept Map was created. All we are showing is that major headings radiate from the center, with lower level headings and facts branching off from the higher-level headings.

Improving your Concept Maps
Your Concept Maps are your own property. Once you understand how to make notes in the Concept Map format, you can develop your own conventions to take them further. The following suggestions may help to increase the effectiveness of your Concept Maps:

- Use single words or simple phrases for information:
  Most words in normal writing are padding, as they ensure that facts are conveyed in the correct context, and in a format that is pleasant to read. In your own Concept Maps, single strong words and meaningful phrases can convey the same meaning more potently. Excess words just clutter the Concept Map.
- Print words:
  Joined up or indistinct writing can be more difficult to read.
- Use color to separate different ideas:
  This will help you to separate ideas where necessary. It also helps you to visualize of the Concept Map for recall. Color also helps to show the organization of the subject.
- Use symbols and images:
  When a symbol or picture means something to you, use it. Pictures can help you to remember information more effectively than words.
- Using cross-linkages:
  Information in one part of the Concept Map may relate to another part. Here you can draw in lines to show the cross-linkages. This helps you to see how one part of the subject affects another.

Key points: Concept Maps provide an extremely effective method of taking notes. They show not only facts, but also the overall structure of a subject and the relative importance of individual parts of it. Concept Maps help you to associate ideas and make connections that might not otherwise make.

If you do any form of research or note taking, try experimenting with Concept Maps. You will find them surprisingly effective.

SQ3R (5.2)

Function: Fully absorbing written information

How to use tool: SQ3R is a useful technique for fully absorbing written information. SQ3R helps you to create a good mental framework of a subject, into which you can fit facts correctly. It helps you to set study goals. It also prompts you to use the review techniques that will help to fix information in your mind.

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By using SQ3R to actively read a document, you can get the maximum benefit from your reading time.

The acronym SQ3R stands for the five sequential techniques you should use to read a book:

- Survey
  Survey the document: scan the contents, introduction, module introductions and module summaries to pick up a shallow overview of the text. Form an opinion of whether it will be of any help. If it does not give you the information you want, discard it.
- Question
  Make a note of any questions on the subject that come to mind, or particularly interest you following your survey. Perhaps scan the document again to see if any stand out. These questions can be considered almost as study goals. Understanding the answers can help you to structure the information in your own mind.
- Read
  Now read the document. Read through useful sections in detail, taking care to understand all the points that are relevant. In the case of some texts this reading may be very slow. This will particularly be the case if there is a lot of dense and complicated information. While you are reading, it can help to take notes in Concept Map format (see 5.1).
- Recall
  Once you have read appropriate sections of the document, run through it in your mind several times. Isolate the core facts or the essential processes behind the subject, and then see how other information fits around them.
- Review
  Once you have run through the exercise of recalling the information, you can move on to the stage of reviewing it. This review can be by re-reading the document, by expanding your notes, or by discussing the material with colleagues. A particularly effective method of reviewing information is to have to teach it to someone else!

For more information on reviewing information, see section 5.5.

Key points:

SQ3R is a useful technique for extracting the maximum amount of benefit from your reading time. It helps you to organize the structure of a subject in your mind. It also helps you to set study goals and to separate important information from irrelevant data.

SQ3R is a 5 stage active reading technique. The stages are:

- Survey
- Question
- Read
- Recall
- Review

If you use SQ3R, you will significantly improve the quality of your study time.

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Speed Reading (5.3)

Function: Increasing your reading speed

How to use tool:

Speed Reading helps you to read and understand text more quickly. It is an essential skill in any environment where you have to master large volumes of information quickly, as is the norm in fast-moving professional environments.

The Key Insight

The most important trick about speed reading is to know what information you want from a document before you start reading it: if you only want an outline of the issue that the document discusses, then you can skim the document very quickly and extract only the essential facts. If you need to understand the real detail of the document, then you need to read it slowly enough to fully understand it.

You will get the greatest time savings from speed reading by learning to skim excessively detailed documents.

Technical Issues

Even when you know how to ignore irrelevant detail, there are other technical improvements you can make to your reading style which will increase your reading speed.

Most people learn to read the way young children read - either letter-by-letter, or word-by-word. For most adults, this is probably not the case - think about how your eye muscles are moving now. You will probably find that you are fixing your eyes on one block of words, then moving your eyes to the next block of words, and so on. You are reading blocks of words at a time, not individual words one-by-one. You may also notice that you do not always go from one block to the next: sometimes you may move back to a previous block if you are unsure about something.

A skilled reader will read many words in each block. He or she will only dwell on each block for an instant, and will then move on. Only rarely will the reader's eyes skip back to a previous block of words. This reduces the amount of work that the reader's eyes have to do. It also increases the volume of information that can be examined in a period of time.

A poor reader will become bogged down, spending a lot of time reading small blocks of words. He or she will skip back often, losing the flow and structure of the text and overall understanding of the subject. This irregular eye movement will make reading tiring. Poor readers tend to dislike reading, and may find it harder to concentrate and understand written information.

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Speed reading aims to improve reading skills by:

- Increasing the number of words read in each block
- Reducing the length of time spent reading each block, and
- Reducing the number of times your eyes skip back to a previous sentence.

These are explained below:

Increasing the number of words in each block:
This needs a conscious effort. Try to expand the number of words that you read at a time. Practice will help you to read faster. You may also find that you can increase the number of words read by holding the text a little further from your eyes. The more words you can read in each block, the faster you will read!

Reducing Fixation Time:
The minimum length of time needed to read each block is probably only a quarter of a second. By pushing yourself to reduce the time you take, you will get better at picking up information quickly. Again, this is a matter of practice and confidence.

Reducing Skip-Back:
To reduce the number of times that your eyes skip back to a previous sentence, run a pointer along the line as you read. This could be a finger, or a pen or pencil. Your eyes will follow the tip of your pointer, smoothing the flow of your reading. The speed at which you read using this method will largely depend on the speed at which you move the pointer.

You will be able to increase your reading speed a certain amount on your own by applying speed reading techniques. What you don't get out of self-study is the use of specialist reading machines and the confidence gained from successful speed-reading - this is where a good one-day course can revolutionize your reading skills.

Key points: By speed reading you can read information more quickly. You may also get a better understanding of it as you will hold more of it in short term memory.

To improve the speed of your reading, read more words in each block and reduce the length of time spent reading each block. Use a pointer to smooth the way your eyes move and reduce skip-back.

Reading Strategies (5.4)

Function: Reading more efficiently by reading intelligently

How to use tool: Good reading strategies help you to read in a very efficient way. Using them, you aim to get the maximum benefit from your reading with the minimum effort. This section will show you how to use 6 different strategies to read intelligently.

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Strategy 1: Knowing what you want to know
The first thing to ask yourself is: Why you are reading the text? And, are you reading with a purpose or just for pleasure? What do you want to know after reading it?

Once you know this, you can examine the text to see whether it is going to move you towards this goal. An easy way of doing this is to look at the introduction and the module headings. The introduction should let you know whom the book is targeted at, and what it seeks to achieve. Module headings will give you an overall view of the structure of the subject.

While you are looking at the text, ask yourself if it assumes too much or too little knowledge. Would other material meet your needs more closely?

Strategy 2: Knowing how deeply to study the material
Where you only need the shallowest knowledge of the subject, you can skim material. Here you read only module headings, introductions and summaries.

If you need a moderate level of information on a subject, then you can scan the text. Here you read the module introductions and summaries in detail. You may then speed-read the contents of the modules, picking out and understanding key words and concepts. At this level of looking at the document it is worth paying attention to diagrams and graphs.

Only when you need detailed knowledge of a subject is it worth studying the text. Here, it is best to skim the material first to get an overview of the subject. This gives you an understanding of its structure, into which you can fit the detail gained from a full reading of the material. SQ3R (see 5.2) is a good technique for getting a deep understanding of a text.

Strategy 3: Active Reading
When you are reading a document in detail, it often helps if you highlight, underline and annotate it as you go on. This emphasizes information in your mind, and helps you to review important points later.

Doing this also helps to keep your mind focused on the material and stops it wandering.

This is obviously only something to do if you own the document! If you find that active reading helps, then it may be worth photocopying information in more expensive texts. You can then read and mark the photocopies.

If you are worried about destroying the material, ask yourself how much your investment of time is worth (see 7.1). If the benefit you get by active reading exceeds the value of the e-book, then the e-book is disposable.

Strategy 4: How to study different sorts of material

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Different sorts of documents hold information in different places and in different ways. They have different depths and breadths of coverage. By understanding the layout of the material you are reading, you can extract useful information much more efficiently.

Reading Magazines and Newspapers
These tend to give a very fragmented coverage of an area. They will typically concentrate on the most interesting and glamorous parts of a topic. This helps them to sell copies. They will often ignore less interesting information that may be essential to a full understanding of a subject. Typically, areas of useful information are padded out with large amounts of irrelevant waffle or with advertising.

The most effective way of getting information from magazines is to scan their contents or indexes and turn directly to interesting articles. If you find an article useful, then cut it out and file it in a folder specifically covering that sort of information. In this way you will build up sets of related articles that may begin to explain the subject.

Newspapers tend to be arranged in sections. If you read a paper often, you can learn quickly which sections are useful and which ones you can skip altogether.

Reading Individual Articles
Articles within newspapers and magazines tend to be in three main types:

- News Articles:
  Here the most important information is presented first, with information being less and less useful as the article progresses. News articles are designed to explain the key points first, and then flesh them out with detail.
- Opinion Articles:
  Opinion articles present a point of view. Here the most important information is contained in the introduction and the summary, with the middle of the article containing supporting arguments.
- Feature Articles:
  These are written to provide entertainment or background on a subject. Typically the most important information is in the body of the text.

If you know what you want from an article, and recognize its type, you can extract information from it quickly and efficiently.

Strategy 5: Reading “whole subject” documents
When you are reading a document critically, it is easy to accept the writer's structure of thought. This can mean that you do not notice that important information has been omitted or that irrelevant detail has been included. A good way of recognizing this is to compile your own table of contents before you open the document. You can then use this table of contents to read the document in the order that you want. You will be able to spot omissions quickly.

Strategy 6: Using glossaries with technical documents
If you are reading large amounts of difficult technical material, it may be useful to photocopy or compile a glossary. Keep this beside you as you read. It will probably also

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be useful to note down the key concepts in your own words, and refer to them when necessary.

Usually it is best to make notes as you go. The most effective way of doing this is to use Concept Maps (see 5.1).

Key points: This section shows 5 different strategies and techniques that you can use to read more effectively.

These are:

- Knowing what you need to know, and reading appropriately.
- Knowing how deeply to read the document: skimming, scanning or studying.
- Using active reading techniques to pick out key points and keep your mind focused on the material.
- Using the table of contents for reading magazines and newspapers, and clipping useful articles.
- Understanding how to extract information from different article types.
- Creating your own table of contents for reviewing material.
- Using indexes, tables of contents, and glossaries to help you assimilate technical information.

Reviewing Learned Information (5.5)

Function: Keeping information fresh in your mind

How to use tool: Normally, peoples' memories of things they have learned are clearest immediately after they have learned them. They will then forget more and more information as time goes on. After a few months, they may only be able to recall only a tiny percentage of what was initially learned. This makes relearning information difficult when it needs to be done.

If you review information frequently, however, then you will be able to keep it fresh and alive in your mind. This makes it easy to recall when you need it with a minimum of effort.

This section explains how to review material in a structured and effective way.

The first step is to spend a few minutes reviewing material immediately after the learning session. This helps you to:

- Confirm that you understand the material;
- Reduce the time needed to relearn information when you need it; and
- Improve the quality of future learning, by building on a well-remembered foundation. This helps your mind to make connections and linkages that it would not otherwise make.

A good way of carrying out this review is to rewrite or tidy up notes. You can do this effectively by putting the information learned into a Concept Map (see 5.1).

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After this, reviewing information should be relatively easy and need not take long. Carry out reviews at the following times:

- After one day
- After one week
- After one month
- After four months

Review the topic by taking a few minutes to jot down everything you can remember about the subject, and compare this with your notes.

If you review information often, it should stay fresh in your mind, and will be easily accessible when you need it.

Key points:

By reviewing information, you avoid forgetting information that will be difficult and time-consuming to relearn. You also ensure that you keep information fresh in your mind so that it acts as a foundation for future learning.

The first stage in reviewing information is to rewrite and tidy up notes immediately after learning has taken place. This confirms the structure and detail of information in your mind.

After this, periodically jot down what you can remember on a subject and compare it with your notes. This will show you what you have forgotten and refresh your memory.

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Module 6

Memory Techniques

Remembering:

- Numbers - *Number/Rhyme* and *Number/Shape Mnemonics*
- Letters - *the Alphabet System*
- Lists and Groups - *The Roman Room Method*
- Ordered Lists - *The Journey Method*
- The Structure of Information - *Concept Maps*
- Long Sequences of Information - *The Major System*
- All Aspects of a Type of Problem - *Aide Memoires*
- People's names
- Languages
- Information for exams
- Long Numbers

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6. Tools for Improving Your Memory

The tools in this module help you to improve your memory. They will help you both to remember facts accurately and to remember the structure of a topic or subject.

The module is split into three sections. Firstly we will discuss the powerful tools that you can use to remember:

- Numbers - *Number/Rhyme* and *Number/Shape Mnemonics*
- Letters - *the Alphabet System*
- Lists and Groups - *The Roman Room Method*
- Ordered Lists - *The Journey Method*
- The Structure of Information - *Concept Maps*
- Long Sequences of Information - *The Major System*
- All Aspects of a Type of Problem - *Aide Memories*

Next we will look at how you can extend these tools to code more information.

Finally we will look at more advanced uses of the tools for remembering:

- People's names
- Languages
- Information for exams
- Long Numbers
- Lists

As with other mind tools, the more practice you give yourself with these techniques, the more effective your use of them will be. This section contains many of the memory techniques used by stage memory performers. With enough practice and effort, you may be able to have a memory as good. Even if you do not have the time needed to develop this quality of memory, many of the techniques here are useful in every-day life.

Mnemonics

"Mnemonic" is another word for memory tool. Mnemonics are methods for remembering information that is otherwise quite difficult to recall. A very simple example is the "30 days hath September" rhyme. The basic principle of mnemonics is to use as many of the best functions of your brain as possible to store information.

Our brains evolved to code and interpret complex stimuli such as images, colors, structures, sounds, smells, tastes, touch, positions, emotions and language. We use these to make sophisticated models of the world we live in. Our memories store all of these very effectively. Unfortunately, information we have to remember is almost always presented in only one way: as words printed on a page. While language is one of the most important aspects of human evolution, it is only one of the many skills and resources available to our minds.

This module of Mind Tools will show you how to use all these resources.

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Using Your Whole Mind To Remember

By coding language and numbers in striking images, you can reliably code both information and the structure of information. You can then easily recall these later.

You can do the following things to make your mnemonics more memorable:

- Use positive, pleasant images. The brain often blocks out unpleasant ones.
- Vivid, colorful, sense-laden images are easier to remember than drab ones.
- Use all your senses to code information or dress up an image. Remember that your mnemonic can contain sounds, smells, tastes, touch, movements and feelings as well as pictures.
- Give your image three dimensions, movement and space to make it more vivid. You can use movement either to maintain the flow of association, or to help you to remember actions.
- Exaggerate the size of important parts of the image.
- Use humor! Funny or peculiar things are easier to remember than normal ones.
- Similarly rude rhymes are very difficult to forget!
- Symbols (red traffic lights, pointing fingers, road signs, etc.) can code quite complex messages quickly and effectively.

Designing Mnemonics: Imagination, Association and Location

The three fundamental principles underlying the use of mnemonics are imagination, association and location. Working together, you can use these principles to generate powerful mnemonic systems.

Imagination: is what you use to create and strengthen the associations needed to create effective mnemonics. Your imagination is what you use to create mnemonics that are potent for you. The more strongly you imagine and visualize a situation, the more effectively it will stick in your mind for later recall. The imagery you use in your mnemonics can be as violent, vivid, or sensual as you like, as long as it helps you to remember.

Association: this is the method by which you link a thing to be remembered to a way of remembering it. You can create associations by:

- Placing things on top of each other
- Crashing things together
- Merging images together
- Wrapping them around each other
- Rotating them around each other or having them dancing together
- Linking them using the same color, smell, shape, or feeling

As an example, you might link the number 1 with a goldfish by visualizing a 1-shaped spear being used to spear it.

Location gives you two things: a coherent context into which you can place information so that it hangs together, and a way of separating one mnemonic from another. By setting one mnemonic in a particular town, I can separate it from a similar mnemonic set in a city. For example, by setting one in the town of Horsham and another similar mnemonic with images of Manhattan, we can separate them with no danger of confusion. You can build the flavors and atmosphere of these places into your mnemonics to strengthen the feeling of location.

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The Link Method & Story Method (6.1.1)

Function: Remembering a simple list

How to use tool:

The Link Method is one of the easiest mnemonic techniques available. It is not quite as reliable as a peg technique (see 6.1.2), as images are not tied to specific, unchanging sequences.

It works quite simply by making associations between items in a list, linking them either with a flowing image containing the items, or with a story featuring them. The flow of the story and the strength of the images give you the cues for retrieval.

Taking the first image, create a connection between it and the next item. Then move on through the list linking each item with the next. It is quite possible to remember lists of words using association only. However, it is often best to fit the associations into a story otherwise, by forgetting just one association, you can lose the whole of the rest of the list.

Given the fluid structure of this mnemonic, it is important that the images stored in your mind are as vivid as possible. Significant, coding images should be much stronger that ones that merely support the flow of the story. See the introduction to this module for further information on making images as strong as possible.

The Story Method is similar, except that the images are linked together as part of a story. This makes it easier to remember the order of events and create a memorable mnemonic.

When a word you want to remember does not trigger strong images, use a similar word that will remind you of that word.

Example:

You may want to remember a list of counties in the South of England: Avon, Dorset, Somerset, Cornwall, Wiltshire, Devon, Gloucestershire, Hampshire, and Surrey.

You could do this with two approaches, the link method and the story method:

Remembering with the Link Method
This would rely on a series of images coding information:

- An AVON (Avon) lady knocking on a heavy oak DOoR (Dorset).
- The DOoR opening to show a beautiful SuMmER landscape with a SETting sun (Somerset).
- The setting sun shines down onto a field of CORN (Cornwall).
- The CORN is so dry it is beginning to WILT (Wiltshire).
- The WILTing stalks slowly droop onto the tail of the sleeping DEVil (Devon).
- On the DEVil's horn a woman has impaled a GLOSsy (Gloucestershire) HAM (Hampshire) when she hit him over the head with it.
- Now the Devil feels SoRRY (Surrey) he bothered her.

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Note that there need not be any reason or underlying plot to the sequence of images. Instead, only images and the links between images are important.

Alternatively, you could code this information by imaging the following story vividly:

An AVON lady is walking up a path towards a strange house. She is hot and sweating slightly in the heat of high SUMMER (Somerset). Beside the path someone has planted giant CORN in a WALL (Cornwall), but it's beginning to WILT (Wiltshire) in the heat. She knocks on the DOoR (Dorset), which is opened by the DEVil (Devon). In the background she can see a kitchen in which a servant is smearing honey on a HAM (Hampshire), making it GLOSsy (Gloucestershire) and gleam in bright sunlight streaming in through a window. Panicked by seeing the Devil, the Avon lady screams SoRRY (Surrey), and dashes back down the path.

Key points: The Link Method is probably the most basic memory technique, and is very easy to understand and use. It works by coding information to be remembered into images and then linking these images together.

The story technique is very similar. It links these images together into a story. This helps to keep events in a logical order and can improve your ability to remember information if you forget the sequence of images.

Both techniques are very simple to learn. Unfortunately they are both slightly unreliable as it is easy to confuse the order of images or forget images from a sequence.

The Number/Rhyme Mnemonic (6.1.2)

Function: Remembering short lists of items accurately and in order

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How to use tool: The Number/Rhyme technique is a very simple way of remembering lists in order.

It is an example of a peg system, a system where information is “pegged” to a known sequence (here the numbers one to ten). By doing this you ensure that you do not forget any facts, as gaps in information are immediately obvious. It also makes remembering images easier as you always know part of the mnemonic images.

At a simple level, you can use it to remember things such as a list of English Kings or American Presidents in their precise order. At a more advanced level it can be used, for example, to code lists of experiments to be recalled in a science exam.

The technique works by helping you to build up pictures in your mind, in which you represent numbers by things that rhyme with the number. You can then link these pictures to images of the things to be remembered.

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The usual rhyming scheme is shown below:

1 - Bun
2 - Shoe
3 - Tree
4 - Paw
5 - Hive
6 - Bricks
7 - Heaven
8 - Gate
9 - Line
10 - Hen

If you find that these images do not attract you or stick in your mind, then change them for something more meaningful. Link these images to ones representing the things to be remembered. Often, the sillier the compound image, the more effectively you will remember it - see the introduction to this module to see how you can improve the image to help it stay clearly in your mind.

Example:

For example, you could remember a chronological list of ten Greek philosophers as:

- Parmenides - A BUN topped with grated yellow PARMEsan cheese
- Heraclitus - a SHOE worn by HERACLes (Greek Hercules) glowing with a bright LIghT
- Empedocles - A TREE from which the M-shaped McDonalds arches hang hooking up a bicycle PEDal
- Democritus - think of a PAW print on the voting form of a DEMOCRaTic election.
- Protagoras - A bee HIVE being positively punched through (GORed?) by an atomic PROTon
- Socrates - BRICKS falling onto a SOCk (with a foot inside!) from a CRATe.
- Plato - A plate with angel's wings flapping around a white cloud
- Aristotle - A friend called hARRY clutching a bOTtLE of wine vaulting over a gate
- Zeno - A LINE of ZEN Buddhists meditating
- Epicurus - A HEN's egg being mixed into an EPIleptics's CURe.

Try either visualizing these images as suggested, or if you do not like them, come up with images of your own. Once you have done this, try writing down the names of the philosophers on a piece of paper. You should be able to do this by thinking of the number, then the part of the image associated with the number, and then the whole image. Finally you can decode the image to give you the name of the philosopher. If the mnemonic has worked, you should not only recall the names of all the philosophers in the correct order, but should also be able to spot where you have left them out of the sequence. Try it, It's easier than it sounds.

You can use a peg system like this as a basis for knowledge in an entire area. The example above could form the basis for knowledge of ancient philosophy. You could now

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associate images representing the projects, systems and theories of each philosopher with the images coding the philosophers' names.

Key points: The Number/Rhyme technique is a very effective method of remembering lists. It works by “pegging” the things to be remembered to images rhyming with the numbers 0-9. By driving the associations with numbers you have a good starting point in reconstructing the images, you are aware if information is missing, and you can pick up and continue the sequence from anywhere within the list.

The Number/Shape Mnemonic (6.1.3)

Function: Remembering ordered lists with visual images

How to use tool: The Number/Shape system is very similar to the Number/Rhyme system. It is a very simple and effective way of remembering a list in a specific order. It is another example of a peg system.

The technique works by helping you to build up pictures in your mind, in which the numbers are represented by images shaped like the number. You can then associate these with the things you want to remember using striking images.

One image scheme is shown below:

1 - Candle, spear, stick
2 - Swan (beak, curved neck, body)
3 - (rotate shape though 90 degrees!)
4 - Sail of a yacht
5 - A meat hook, a sea-horse facing right
6 - A golf club
7 - A cliff edge
8 - An egg timer
9 - A balloon with a string attached, flying freely
0 - A hole

If you find that these images do not attract you or stick in your mind, then change them for something more meaningful to you. As with the Number/Rhyme scheme, link these images to ones representing the things to be remembered.

In some cases, these images may be more vivid than those in the number/rhyme scheme, and in other cases you may find the number/rhyme scheme more memorable. There is no reason why you cannot mix the most vivid images of each scheme together into your own compound scheme.

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Once you have mastered this technique, you can multiply it using the images described in the article on Expanding Memory Systems (see 6.2).

Example: We will use a list of more modern thinkers to illustrate the number/shape system:

1 - Spinoza - A large CANDLE wrapped around with someone's SPINe.
2 - Locke - A SWAN trying to pick a LOCK with its wing.
3 - Hume - A HUMan child BREAST feeding.
4 - Berkeley - A SAIL on top of a large hooked and spiked BURR in the LEE of a cliff.
5 - Kant - A CAN of spam hanging from a meat HOOK.
6 - Rousseau - A kangaROO SEWing with a GOLF CLUB.
7 - Hegel - A crooked trader about to be pushed over a CLIFF, HaGgLing to try to avoid being hurt.
8 - Kierkegaard - A large EGG TIMER containing captain KIRK and a GuARD from the starship enterprise, as time runs out.
9 - Darwin - A BALLOON floating upwards, being blown fAR by the WINd.
10 - Marx - A HOLE with white chalk MARks around it's edge.

Key points: The Number/Shape technique is a very effective method of remembering lists. It works by linking things to be remembered with the images representing the numbers 0-9. By using it in conjunction with the Number/Rhyme system, you can build potent images that can make very effective mnemonics.

The Alphabet Technique (6.1.4)

Function: Remembering longer ordered lists accurately

How to use tool: The Alphabet system is a peg memory technique similar to, but more sophisticated than the Number/Rhyme system. It is a good method for remembering longer lists of items in a specific order, in such a way that you can tell if items are missing.

It works by associating images representing letters of the alphabet with images you create for the things to be remembered.

When you are creating images for the letters of the alphabet, create images phonetically, so that the sound of the first syllable of the word is the name of the letter. For example, you might represent the letter “k” with the word “cake”.

Tony Buzan in his book “Using Your Memory” suggests using a system for creating vivid images that you can reconstruct if you forget them. He suggests taking the phonetic letter sound as the first consonant, and then, for the rest of the consonants in the word, using the first letters in alphabetical order that make a memorable word. For example for the

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letter “S” (root 'Es') we would first see if any strong images presented themselves when we tried to create a word starting with “EsA”, “EsB”, “EsC”, “EsD”, “EsE”, etc.). This approach has the advantage of producing an image that you can reconstruct if you forget it. You might, however, judge that this is an unnecessary complication of a relatively simple system. In any case it is best to select the strongest image that comes to mind and stick with it.

One image scheme is shown below:

A - Ace of spades
B - Bee
C - Sea
D - Diesel engine
E - Eel
F - Effluent
G - Jeans
H - H-Bomb, itch
I - Eye
J - Jade
K - Cake
L - Elephant
M - Empty
N - Entrance
O - Oboe
P - Pea
Q - Queue
R - Ark
S - Eskimo
T - Teapot
U - Unicycle
V - Vehicle
W - WC
X – X-Ray
Y - Wire
Z - Zulu

If you find that these images do not attract you or stick in your mind, then change them for something more meaningful to you.

Once you have firmly visualized these images and have linked them to their root letters, you can associate them with information to be remembered.

See the introduction to this module to see how you can improve these pictures to help them stay clearly in your mind.

Example: Continuing our mnemonic example of the names of philosophers, we will use the example of remembering a list of modern thinkers:

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A - Ace - Freud - A crisp ACE being pulled out of a FRying pan (FRiED)
B - Bee - Chomsky - A BEE stinging a CHiMp and flying off into the SKY
C - Sea - Genette - A GENerator being lifted in a NET out of the SEA
D - Diesel - Derrida - A DaRing RIDer surfing on top of a DIESEL train
E - Eagle - Foucault - Bruce Lee fighting off an attacking EAGLE with kung FU
F - Effluent- Joyce - environmentalists JOYfully finding a plant by an EFFLUENT pipe
G - Jeans - Nietzche - A holey pair of JEANS with a kNEe showing through
H - H-Bomb - Kafka - A grey civil service CAFe being blown up by an H-Bomb
Etc.

Key points: The Alphabet Technique links the items to be remembered with images of the letters A-Z. This allows you to remember a medium length list in the correct order. By pegging the items to be remembered to letters of the alphabet you know if you have forgotten items, and know the cues to use to trigger their recall.

The alphabet system takes a certain amount of learning.

The Journey System (6.1.5)

Function: Remembering long lists of information

How to use tool: The journey method is a powerful, flexible and effective mnemonic based around the idea of remembering landmarks on a well-known journey. It combines the narrative flow of the Link Method and the structure and order of the Peg Systems into one very powerful system.

You use the Journey Method by associating information with landmarks on a journey that you know well. This could, for example, be your journey to work in the morning; the route you use to get to the front door when you get up; the route to visit your parents; or a tour around a holiday destination. Once you are familiar with the technique you may be able to create imaginary journeys that fix in your mind, and apply these.

To use this technique most effectively, it is often best to prepare the journey beforehand. In this way the landmarks are clear in your mind before you try to commit information to them. One of the ways of doing this is to write down all the landmarks you can recall in order on a piece of paper. This allows you to fix these landmarks as the significant ones to be used in your mnemonic, separating them from others that you may notice as you get to know the route even better.

To remember a list of items, whether these are people, experiments, events or objects, all you need do is associate these things with the landmarks or stops on your journey.

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This is an extremely effective method of remembering long lists of information. With a sufficiently long journey you could, for example, remember elements on the periodic table, lists of Kings and Presidents, geographical information, or the order of cards in a shuffled pack. The system is extremely flexible: all you need do to remember many items is to remember a longer journey with more landmarks. To remember a short list, only use part of the route!

One advantage of this technique is that you can use it to work both backwards and forwards, and start anywhere within the route to retrieve information.

You can use the technique well with other mnemonics. This can be done either by building complex coding images at the stops on a journey, or by linking to other mnemonics at each stop. You could start other journeys at each landmark. Alternatively, you may use a peg system to organize lists of journeys, etc.

See the introduction to this module for information on how to enhance the images used for this technique.

Example:

You may, as a simple example, want to remember something mundane like a shopping list:

Coffee, salad, vegetables, bread, kitchen paper, fish, chicken breasts,
Pork chops, soup, fruit, bath tub cleaner.

You could associate this list with a journey to a supermarket. My mnemonic images therefore appear as:

1. Front door: spilt coffee grains on the doormat.
2. Rose bush in front garden: growing lettuce leaves and tomatoes around the roses.
3. Car: with potatoes, onions and cauliflower on the driver's seat.
4. End of the road: an arch of French bread over the road.
5. Past garage: with its sign wrapped in kitchen roll.
6. Under railway bridge: from which haddock and cod are dangling by their tails.
6. Traffic lights: chickens squawking and flapping on top of lights.
8. Past church: in front of which a pig is doing karate, breaking boards.
9. Under office block: with a soup slick underneath: my car tires send up jets of tomato soup as I drive through it.
10. Past car park: with apples and oranges tumbling from the top level.
11. Supermarket car park: a filthy bath tub is parked in the space next to my car!

Key points:

The journey method is a powerful, effective method of remembering lists of information, by imagining images and events at stops on a journey.

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As the journeys used are distinct in location and form, one list remembered using this technique is easy to distinguish from other lists. To use this technique you need to invest some time in preparing journeys clearly in your mind. This investment pays off many times over by the application of the technique.

The Roman Room Mnemonic (6.1.6)

Function: Remembering groups of non-ordered information

How to use tool:

The Roman Room technique is an ancient and effective way of remembering information where its structure is not important. As an example, it serves as the basis of one of the powerful mnemonic systems used to learn languages (see 6.3.1).

To use the technique, imagine a room that you know, such as your sitting room, bedroom, office or classroom. Within the room are objects. Associate images representing the information you want to remember with the objects in the room. To recall information, simply take a tour around the room in your mind, visualizing the known objects and their associated images.

The technique can be expanded by going into more detail, and by using information to be remembered to key into smaller objects. Alternatively, you can open doors from your room into other rooms and use the objects in them as well. When you have more experience you may find that you can build extensions to your rooms in your imagination, and fill them with objects that would logically be there.

You can use other rooms to store other categories of information. And, there is no need to restrict this information to rooms. In fact, you could use a landscape or a town you know well, and populate it with memory images.

See the introduction to this module for information on how to enhance the images used for this technique.

Example:

For example, I can use my sitting room as a basis for the technique. In this room I have the following objects: *table, lamp, sofa, large bookcase, small bookcase, CD rack, tape racks, stereo system, telephone, television, video, chair, mirror, black & white photographs, etc.*

I may want to remember a list of World War I war poets: *Rupert Brooke, G.K. Chesterton, Walter de la Mare, Robert Graves, Rudyard Kipling, Wilfred Owen, Siegfried Sassoon, W.B. Yates*

I could visualize walking through my front door. Within this image, someone has painted a picture on it showing a scene from the Battle of the Somme. In the center of the picture is a man sitting in a trench writing in a dirty exercise book.

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I walk into the sitting room, and look at the table. On the top is RUPERT the Bear sitting in a small BROOK (we do not need to worry about where the water goes in our imagination!) This codes for Rupert Brooke.

Someone seems to have done some moving: a CHEST has been left on the sofa. Some jeans (Alphabet System: G=Jeans) are hanging out of one drawer, and some cake has been left on the top (K=Cake). This codes for G K Chesterton.

The lamp has a small statuette of a brick WALL over which a female horse (MARE) is about to jumping. This codes for Walter de la Mare.

Etc.

Key points: The Roman Room technique is similar to the Journey method. It works by pegging images coding for information to known things, in this case to objects in a room.

The Roman Room technique is most effective for storing lists of unlinked information, while the journey method is better for storing lists of ordered items.

The Major System (6.1.7)

Function: Remembering Large Volumes of Related Information

How to use tool: The Major Memory System is one of the most powerful memory systems available. It takes a lot of time to master, but once learned is very powerful. The technique often forms the basis of some of the extraordinary, almost magical memory feats performed by magicians and stage memory performers.

The system works by converting number sequences into nouns, nouns into images, and linking images into sequences. These sequences can be very complex and detailed.

The building blocks of the system are the association of the numbers below with the following consonant sounds:

0 - s, z, soft-c - remember as 'z is first letter of zero'
1 - d, t, th - remember as letters with 1 downstroke
2 - n - remember as having 2 downstrokes
3 - m - has three downstrokes
4 - r - imagine a 4 and an R glued together back-to-back
5 - L - imagine the 5 propped up against a book end (L)h
6 - j, sh, soft-ch, dg, soft-g - g is 6 rotated 180 degrees.
7 - k, hard-ch, hard-c, hard-g, ng - imagine K as two 7s rotated and glued together
8 - f, v - imagine the bottom loop of the 8 as an eFfluent pipe discharging waste (letter image of F in

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alphabet system)
9 - p, b - b as 9 rotated 180 degrees.

These associations should be learned thoroughly before going further with the technique.

Starting to use the Major System
The system operates on a number of levels, depending on the amount of time you are prepared to devote to learning the system.

The first level, which involves coding single digit numbers into small words, functions almost as a poor relation of the number/rhyme system. It is at higher levels that you can unleash the real power of the system. You should, however, learn to use this first level before moving on.

The trick with converting numbers into words is to use only the consonants that code information within the word, while using vowels to pad the consonants out with meaning. If you do have to use other consonants to make up a word, use only those that do not code for numbers - i.e. h, q, w, x, and y.

At the first level, we code each number into a short noun. This is made up of the consonant coding for the number, and vowels that turn the consonant into a word. On a sheet of paper, write the numbers 0 to 9, and apply these rules to create your own memory words. Some examples are shown below:

0 - saw
1 - toe
2 - neigh
3 - ma
4 - ray
5 - law
6 - jaw
7 - key
8 - fee
9 - pie

You can use these words in association much like the other peg technique memory words.

Moving to the second level
Similar rules apply to creating a standard word from two numbers. It is best not to try to use a single number word as a root, as this can confuse the image.

Write down the numbers 01 to 99, and apply the rules to create memory words for yourself. A few examples are shown below:

09 - z, p - zap
17 - t, ch - tech
23 - n, m - name
36 - m, sh - mesh

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41 - r,s - rose
52 - l, n - line
64 - ch, r - chair
75 - k, l - keel
89 - f, p - fop
98 - b, f - beef

Taking the Major System Further
Just using double number words may be enough to make this a sufficiently powerful mnemonic for you. Alternatively you may decide to use triple number words, using the same construction rules as double number words.

Examples are:

182 - d, v, n - Devon
304 - m, s, r - miser
400 - r, c, s - races
651 - j, l, d - jellied
801 - f, z, d - fazed

Even though you can construct words from first principles each time, at this level of complexity it may be worth writing them down to make them easier to remember. You can then run through them many times to strengthen the link in your mind between the numbers and the associated words. This will help you to remember the appropriate word faster.

Using Words to Remember Long Numbers
Once you have come up with words and images to link to your numbers, you can start to apply the technique to remember, for example, long numbers. A good way of doing this is to associate Major System words with stops on a journey (see 6.1.5).

Example:

The number Pi is 3.14159265359 (to 11 decimal places). Using the major system and the journey system together, I can remember this as:

- Passing my *Ma* (3) by the front door of my house
- Seeing Michelangelo's *David* (1,4,1) sleeping under the rose bush in the garden
- Someone has tied a *loop* (5,9) of yellow ribbon onto the steering wheel of my car.
- I see a poster with a photo of a steaming pile of sausages and mashed potato, with the title 'glorious *nosh*' (2,7) at the end of the road.
- A *lama* (5,3) is grazing on grass outside the garage forecourt
- Another loop (5,9) of yellow ribbon has been tied around the railway bridge. This is getting strange!

Note that this is another use of the journey used in the example of 6.1.5.

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Key points: The major memory system works by linking numbers to consonants, and then by linking these into words. By using the images these words create, and linking them together with the journey system, large amounts of information can be accurately memorized.

Using Concept Maps as Memory Aids (6.1.8)

Function: Remembering the structure of information

How to use tool: Concept Maps (see section 5.1 for full information) are not formally mnemonics. They do, however, help you to plan the structure of a topic as a clear "shape" that you can remember easily. By seeing this shape in your mind, you can prompt yourself to remember the information coded within it.

This becomes even easier if you have coded this information using striking images. See the introduction to this module to see how to make information as memorable as possible.

Aide Memoires (6.1.9)

Function: Ensuring that you remember to consider all aspects of a situation

How to use tool: An Aide Memoire (Memory aid) is a structured list of points or headings that should be considered when solving a particular problem. It tends to be specific to the type of problem being faced.

A good aide memoire can be a very powerful planning tool, as it contains a great deal of the experience of the people who developed it. If you use a good aide memoire effectively, you can be reasonably confident that you will have considered all relevant factors. Often this makes the difference between carrying out a task effectively and making a mess of it, particularly when you are under pressure.

Aide Memoires are routinely used in areas as diverse as computer systems analysis, construction of financial proposals and military planning.

Developing an Aide Memoire
If you are solving a common problem, then a good aide memoire may already exist for it. If you cannot find a good pre-prepared one, then you may have to develop it for yourself. This is worthwhile where you need to plan a number of similar jobs.

Developing an aide memoire is an iterative process. First you start by producing what you think is a definitive list of points or headings that should be considered. Use this to plan the job. After the job is complete, review the list, and see if there are any additional points that should be included. Every time an unforeseen problem arises on a project, ask yourself whether you need to prompt yourself on it on your list.

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As your aide memoire improves, so will the quality of your planning.

Example: Systems Analysts use a number of different aide memoires for designing computer software. The one used depends on the size and type of job being executed. An example of a simple one is shown below. This is used during preparation of a specification to ensure that relevant factors are considered.

Customer Requirement
- Stated Requirement and Purpose of Enhancement
- Special Requirements
- Volumes of Data and Processing Time
- Technical Risks and Feasibility
- Implications:
    - Hardware
    - Supporting software
    - System specific considerations
- Project Stages

Project Implementation
- Programmer Instructions
- Quality Assurance
- Documentation
- Training
- Installation
- Follow Up Work

The analyst will run through this list of headings while preparing a specification to ensure that he or she has considered all aspects of a problem. Where headings are not relevant they are ignored. By using and developing the aide memoire, the analyst can be reasonably confident that all appropriate project stages have been taken into consideration. This ensures that a fair price is charged for work done.

Key points: An aide memoire is a standard list of points or headings that show what you should consider while you are planning to solve a problem. By using an aide memoire you ensure that you do not forget important factors.

Aide memoires should be improved continuously. If you find that have not included an important point, then update the list appropriately. This ensures that the next time you use the aide memoire you will remember to think about the point. This will improve the quality and depth of future planning that you carry out.

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Learning a Foreign Language (6.3.1)

Systems Needed: Link Method (6.1.1)
Roman Room Mnemonic (6.1.6)

Foreign languages are the ideal subject area for the use of memory techniques. Learning vocabulary is often a matter of associating a meaningless collection of syllables with a word in your own language. Traditionally, people have associated these words by repetition, by saying the word in their own language and the foreign language time and time and time and time again. You can improve on this tedious way of learning by using three good techniques:

1. Using Mnemonics to link words
This is a simple extension of the link method described in 6.1.1. Here you are using images to link a word in your own language with a word in a foreign language. For example, in learning English/French vocabulary:

- English: rug/carpet - French: tapis - imagine an ornate oriental carpet with a tap as the central design woven in chrome thread
- English: grumpy - French: grognon - a grumpy man groaning with irritation
- English: to tease - French: taquiner - a woman teasing her husband as she takes in the washing.

This technique was formalized by Dr. Michael Gruneberg, and is known as the 'LinkWord' technique. He has produced language books in many language pairs to help students acquire the basic vocabulary needed to get by in the language (usually about 1000 words). It is claimed that using this technique this basic vocabulary can be learned in just 10 hours.

2. The Town Language Mnemonic
This is a very elegant, effective mnemonic that fuses a sophisticated variant of the Roman Room system with the system described above.

This depends on the fact that the basic vocabulary of a language relates to everyday things: things that you can usually find in a city, town or village. To use the technique, choose a town that you are very familiar with. Use objects within that place as the cues to recall the images that link to foreign words.

Nouns in the town
Nouns should be associated to the most relevant locations: For example, the image coding the foreign word for book could be associated with a book on a shelf in the library. You could associate the word for bread with an image of a loaf in a baker's shop. Words for vegetables could be associated with parts of a display outside a greengrocer's. Perhaps there is a farm just outside the town that allows all the animal name associations to be made.

Adjectives in the park
Adjectives can be associated with a garden or park within the town: words such as green, smelly, bright, small, cold, etc. can be easily related to objects in a park. Perhaps there is a pond there, or a small wood, or perhaps people with different characteristics are walking around.

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Verbs in the sports center
Verbs can most easily be associated with a sports centre or playing field. This allows us all the associations of lifting, running, walking, hitting, eating, swimming, driving, etc.

Remembering Genders
In a language where gender is important, a very good method of remembering this is to divide your town into two main zones. In one zone you code information on masculine gender nouns, while in the other zone you code information on feminine nouns. Where the language has a neutral gender, then use three zones. You can separate these areas with busy roads, rivers, etc. To fix the gender of a noun, simply associate its image with a place in the correct part of town. This makes remembering genders easy!

Many Languages, many towns
Another elegant spin-off of the technique comes when learning several languages, as this can be very confusing. With the town mnemonic, all you need do is choose a different city, town or village for each language to be learned. Ideally this might be in the relevant country. Practically, however, you might just decide to use a local town with the appropriate foreign flavor.

3. The hundred most common words
Tony Buzan, in his book “Using your Memory”, points out that just 100 words comprise 50% of all words used in conversation in a language. Learning this core group of 100 words gets you a long way towards being able to speak in that language, albeit at a basic level. The 100 basic words used in conversation are shown below:

1. A,an	2. After	3. Again	4. All	5. Almost
6. Also	7. Always	8. And	9. Because	10. Before
11. Big	12. But	13. (I) can	14. (I) come	15. Either/or
16. (I) find	17. First	18. For	19. Friend	20. From
21. (I) go	22. Good	23. Goodbye	24. Happy	25. (I) have
26. He	27. Hello	28. Here	29. How	30. I
31. (I) am	32. If	33. In	34. (I) know	35. Last
36. (I) like	37. Little	38. (I) love	39. (I) make	40. Many
41. One	42. More	43. Most	44. Much	45. My
46. New	47. No	48. Not	49. Now	50. Of
51. Often	52. On	53. One	54. Only	55. Or
56. Other	57. Our	58. Out	59. Over	60. People
61. Place	62. Please	63. Same	64. (I) see	65. She
66. So	67. Some	68. Sometimes	69. Still	70. Such
71. (I) tell	72. Thank you	73. That	74. The	75. Their
76. Them	77. Then	78. There is	79. They	80. Thing
81. (I) think	82. This	83. Time	84. To	85. Under
86. Up	87. Us	88. (I) use	89. Very	90. We
91. What	92. When	93. Where	94. Which	95. Who
96. Why	97. With	98. Yes	99. You	100. Your

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Summary
The three approaches to learning foreign languages shown here can be very effective. They help to point out:

- The most important words to learn;
- Show how to link words in your own language to words in a foreign language; and
- Show how to structure recall of the language through use of the town mnemonic.

Using Mnemonics In Exams (6.3.2)

Systems Needed: The Number/Rhyme Technique (6.1.2)
The Number/Shape Technique (6.1.3)
The Alphabet Technique (6.1.4)
The Journey Technique (6.1.5)
Concept Maps (5.1)

A very effective way of structuring information for revision is to draw up a full, color-coded Concept Map of a subject. This will help you to see the overall structure of the topic and show you the associations between pieces of information. A good Concept Map can be an effective mnemonic in its own right.

The problem with this is that you can forget the label on a line on a Concept Map. A more reliable method is to take your Concept Map, and break it down into a numbered list of important points. You can then use one of the peg techniques (6.1.2 - 6.1.4) to remember the items on the list. Alternatively you can use the journey technique (6.1.5) for longer lists.

By associating items on a list with a peg system or journey, you can check that you have retrieved all items held by the mnemonic. Supporting facts can be associated into images or sub-mnemonics. These facts can be triggered by the pegs (for the peg system), or at landmarks, if you use the journey system. Alternatively, you can loosely associate this information with the facts coded.

Retrieving all the facts necessary to answer an exam essay question becomes as simple as running through the mnemonic in your mind. As you go, jot down the retrieved facts that are relevant to the question. Once you have written these down, you can apply any other mnemonics you have coded, or note any associated facts and connections that occur to you. This should ensure that you have all possible information available to you, and should help you to produce a good essay plan.

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How to Remember Names (6.3.3)

Systems Needed: Link Method (6.1.1)
Roman Room Mnemonic (6.1.6)

Remembering names needs a slightly different approach from all the others explained so far in this section. The techniques used, though, are quite simple:

1. Face association
Examine a person's face discretely when you are introduced. Try to find an unusual feature, whether ears, hairline, forehead, eyebrows, eyes, nose, mouth, chin, complexion, etc.

Create an association between that characteristic, the face, and the name in your mind. The association may be to link the person with someone else you know with the same name. Alternatively, it may be to associate a rhyme or image of the name with the person's face or defining feature.

2. Repetition
When you are introduced, ask for the person to repeat their name. Use the name yourself as often as possible (without overdoing it!). If it is unusual, ask how it is spelled or where it is comes from, and if appropriate, exchange cards. Keep in mind, the more often you hear and see the name, the more likely it is to sink in. Also, after you have left that person's company, review the name in your mind several times. If you are particularly keen you might decide to write it down and make notes.

Summary
The methods suggested for remembering names are fairly simple and obvious, but are useful. Association either with images of a name or with other people can really help. Repetition and review help to confirm your memory.

An important thing to stress is practice, patience, and progressive improvement.

Remembering Lists of Information (6.3.4)

Systems Needed: Link Method (6.1.1)
The Number/Rhyme Technique (6.1.2)
The Number/Shape Technique (6.1.3)
The Alphabet Technique (6.1.4)
The Journey Technique (6.1.5)

Remembering lists are what many mnemonics are for. You can code almost any information into these mnemonic lists. All that you need is the imagination to come up with the relevant associations.

To memorize short lists, use:
- The Link or Story Methods (6.1.1)
- The Number/Rhyme System (6.1.2), or

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- The Number/Shape Method (6.1.3)

To remember intermediate and long lists, use:
- The simple Journey Method (6.1.5)
- The extended Number/Rhyme Method (6.1.2, and 6.2)
- The extended Number/Shape Method (6.1.3, and 6.2), or
- The Alphabet System, and, if necessary, the extended Alphabet system (6.1.4 and 6.2)

Remembering Numbers (6.3.5)

Systems Needed: Link Method (6.1.1)
The Number/Rhyme Technique (6.1.2)
The Number/Shape Technique (6.1.3)
The Alphabet Technique (6.1.4)
The Journey Technique (6.1.5)
The Major System (6.1.7)

Using mnemonic systems, remembering numbers becomes extremely simple. There are a number of approaches, depending on the types of numbers being remembered:

1. Short numbers
The easiest, but least reliable, way of remembering numbers is to use simple Number/Rhyme images (see 6.1.2) associated in a story (6.1.1).

A better way is to use a simple peg system, where, for example, you can associate digits from the Number/Rhyme System (6.1.2) into positions organized with the Alphabet system (6.1.4).

2. Long numbers (e.g. Pi)
You can store long numbers most effectively with the Journey System (6.1.5). At a simple level, single numbers can be stored at each stop on the journey using Number/Rhyme or Number/Shape images. At a more advanced level you can increase the number of digits stored at each stop by either extending the number systems (see 6.2) or by using the Major System. You can even increase the number of digits stored using the Major System by extending it as described in section 6.2.

By using all the simple techniques together you should be able to store a 10-digit number with relatively little effort. Using the more powerful systems, holding it to 1000 digits might not be too much of a challenge.

3. Telephone Numbers
These can be remembered simply by associating numbers from the Number/Rhyme system with positions in either the alphabet system or the Journey System. You can then associate these with the face or name of the person whose number you are remembering.

For example, to remember that someone's phone number is 735-3458, I can imagine myself traveling to her flat: with my destination firmly in mind, I envisage the following stops on my journey:

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1. Front door: the door has sprouted angel's wings, and is flying up to heaven! (7)
2. Rose bush: a small sapling (tree, 3) is growing its way through the middle of the bush.
3. Car: some bees have started to build a hive (5) under the wheel of my car. I have to move it very carefully to avoid damaging it.
4. End of road: a tree (3) has fallen into the road. I have to drive around it.
5. Past gas station: Someone has nailed a door (4) to the sign. Strange!
6. Under railroad bridge: the bees are building another hive (5) between the girders!
7. Beside the river: A rusty farm gate (8) is blocking the road.

Remembering Playing Cards! (6.3.6)

Systems Needed: The Number/Rhyme or Number/Shape systems (6.1.2, 6.1.3)
The Journey Method (6.1.5)

Once you are familiar with the Journey system, it becomes relatively simple to remember the order of a pack of playing cards.

Before you try to do this, you should prepare a journey in your mind that has 54 stops. Ensure that the stops are fresh and firm in your mind.

The next step is fairly simple. What you need to do is have an image in your mind representing each of the cards. Counting an ace as 1, and the 10 as zero, you can create a Number/Rhyme or Number/Shape image in your mind for the numbers Ace to 10. For the jack, queen and king, the images on the playing card are ready-made mnemonic images. The suits similarly can be represented by the suit symbols. For example, you could represent the two of hearts by a white swan with a red heart painted on its side. The ten of spades could be a hole with the handle of a spade sticking out.

It is a good idea to prepare all the images to be used beforehand, as remembering cards during a card game will have to be done quite rapidly. As cards come up, associate the card images with the stops on your journey.

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Module 7

How to Use Time Effectively - Time Management Skills

- Finding out how much your time is worth - *Costing Your Time*
- Finding out what to spend your time on - *Working out your priorities*
- Checking how you really spend your time - *Activity Logs*
- Planning to solve a problem - *Action Plans*
- Tackling the right tasks first - *Prioritized To Do Lists*
- Deciding what to achieve with your time - *Personal Goal Setting*
- Planning to Make Best Use of Your Time - *Scheduling*

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7. How to use time effectively - Time Management Skills

This module discusses important personal time management skills. These are essential skills for effective people. People who use these techniques routinely are the highest achievers in all walks of life, from business to sport to public service. If you use these skills well, then you will be able to function effectively, even under intense pressure. They help you to get the most out of the limited time you have.

At the heart of time management is an important shift in focus:

Concentrate on results, not on being busy

Many people spend their days in a frenzy of activity, but achieve very little because they are not concentrating on the right things. This is neatly summed up in the Pareto Principle, or 80/20 rule[5]. This shows that typically 80% of unfocussed effort generates only 20% of results. The remaining 80% of results are achieved with only 20% of the effort. By applying the skills in this module you can change this to ensure that you concentrate as much of your effort as possible on the high payoff tasks. This ensures that you achieve the greatest benefit possible with your investment of time.

The tools we will discuss are:
- Finding out how much your time is worth - *Costing Your Time*
- Checking how you really spend your time - *Activity Logs*
- Planning to solve a problem - *Action Plans*
- Tackling the right tasks first - *Prioritized To Do Lists*
- Deciding what your personal priorities should be - *Personal Goal Setting*
- Planning to make best use of your time - *Scheduling*

By the end of the module you should have a much clearer understanding of how to use time to its greatest effect.

Costing your time (7.1)

Function: Finding out how much your time is worth

How to use tool: The first part of your focus on results should be to work out how much your time costs. This helps you to see if you are spending your time profitably.

If you work for an organization, calculate how much you cost it each year. Include your salary, payroll taxes, the cost of office space you occupy, equipment and facilities you use, expenses, administrative support, etc. If you are self-employed, work the annual running costs of your business.

[5] This is just one instance of the immensely useful Pareto Principle. See section 3.1 for more information.

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To this figure, add a “guesstimate” of the amount of profit you should generate by your activity.

If you work normal hours, you will have approximately 200 productive days each year. If you work 7½ hours each day, this equates to 1,500 hours in a year.

From these figures, calculate an hourly rate. This should give a reasonable estimate of how much your time is worth - this may be a surprisingly large amount!

When you are deciding whether or not to take a job on, think about this value” Are you wasting your or your organization’s resources on a low-yield task?

Key points: Calculating how much your time is worth helps you to work out how whether it is worth doing particular jobs. If you have to spend much of your time doing low yield jobs, then you can make a good case for employing an assistant.

Deciding Your Work Priorities (7.2)

Function: Finding Out What to Spend Your Time On

How to use tool: An important part of focusing on results is working out what to focus on! Many people work very hard all day doing little jobs that do not actually affect the quality of their work.

This section concentrates on three areas: clarifying what you enjoy, understanding what your strengths and weaknesses are, and working out both what your job is and what constitutes excellent performance.

Doing what you enjoy
It is important for your own quality of life that you enjoy your job. If you know broadly what you like and dislike, you will be more able to move your job towards doing things that you enjoy. This is important as you are much more likely to do your job effectively if you enjoy it than if you loathe it. Note that sometimes you will have to do unpleasant work!

Concentrating on your strengths
It is also important to know what your talents and weaknesses are. A good way of doing this is to carry out a SWOT analysis (see 2.5). This provides a formal approach to evaluating your strengths and weaknesses, and the opportunities and threats that you face. It makes a lot of sense to find a job that suits your strengths, and where your weaknesses do not matter.

Understanding how to be excellent at your job
One excellent way of ensuring that you concentrate on the right things is to agree them with your boss!

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You should ask the following questions:

- What is the purpose of the job? If possible, express this in a single sentence starting with the word “To”. For example, “To ensure effective distribution in the South East…”
- What are the measures of success? Work out how your boss will decide whether you are good at your job or not. Find out what the key targets to be achieved are, and how achievement will be measured.
- What is exceptional performance? Find out what this is considered to be, and work out how to achieve it.
- What are the priorities and deadlines? You need to know this so that when you are overloaded with work, you know what to focus on.
- What resources are available? This ensures that you are using all the tools at your command.
- What costs are acceptable? This lets you know the boundaries within which you can move.
- How does this relate to other people? What is the broader picture within which you have to work?

If you have answers to these questions, you will know how to do your job in precisely the right way. If you know what exceptional performance is, you can plan to achieve it using all the resources you have available.

Key points: This section gives you three ways of deciding your work priorities:

- Concentrating on what you enjoy
- Using a SWOT analysis to work out your strengths and weaknesses. This helps you to play to your strengths, minimize weaknesses, and move in the right direction.
- Finally it explains how to clarify your job with your boss, and concentrate on doing well in the areas he or she considers to be most important.

By concentrating on the right priorities you will ensure that you are always working as effectively as possible.

Activity Logs (7.3)

Function: Checking how you really spend your time

How to use tool: Activity logs help you to analyse how you actually spend your time. The first time you use an activity log you may be shocked to see the amount of time that you waste! Memory is a very poor guide when it comes to this, as it can be too easy to forget time spent reading junk mail, talking to colleagues, making coffee, eating lunch, etc.

You may also be unaware that your energy levels may vary through the day. In fact, most people function at different levels of effectiveness at different times. Your effectiveness may vary depending on the amount of sugar in your blood, the length of time since you last took a break, routine distractions, stress, discomfort, or a range of other factors. There is also some good evidence that you have daily rhythms of alertness and energy.

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Keeping an Activity Log for several days helps you to understand how you spend your time, and when you perform at your best. Without modifying your behavior any further than you have to, note down the things you do as you do them. Every time you change activities, whether opening mail, working, making coffee, gossiping with colleagues or whatever, note down the time of the change.

As well as recording activities, note how you feel, whether alert, flat, tired, energetic, etc. Do this periodically throughout the day. You may decide to integrate your activity log with a stress diary (see 8.1).

Once you have logged your time for a few days, analyze the log. You may be alarmed to see the length of time you spend doing low value jobs!

You may also see that you are energetic in some parts of the day, and flat in other parts. A lot of this can depend on the rest breaks you take, the times and amounts you eat, and quality of your nutrition. The activity log gives you some basis for experimenting with these variables.

Key points: Activity logs are useful tools for auditing the way that you use your time. They can also help you to track changes in your energy, alertness and effectiveness throughout the day.

By analyzing your activity log you will be able to identify and eliminate time-wasting or low-yield jobs. You will also know the times of day at which you are most effective, so that you can carry out your most important tasks during these times.

Action Plans (7.4)

Function: Small scale planning

How to use tool: An action plan is a list of tasks that you have to carry out to achieve an objective. It differs from a To Do list (see 7.5) in that it focuses on the achievement of a single goal. Wherever you want to achieve something, draw up an action plan. This allows you to concentrate on the stages of that achievement, and monitor your progress towards it.

To draw up an Action Plan, simply list the tasks that you need to carry out to achieve your goal. This is simple, but still very useful!

Key points: An Action Plan is a list of things that you need to do to achieve a goal. To use it, simply carry out each task in the list!

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Prioritized To Do Lists (7.5)

Function: Ensuring you tackle all tasks, in the right tasks order

How to use tool: A To Do List is a list of all the tasks that you need to carry out. It consolidates all the jobs that you have to do into one place. You can then prioritize these tasks into order of importance. This allows you to tackle the most important ones first.

To Do Lists are essential when you need to carry out a number of different tasks or different sorts of task, or when you have made a number of commitments. If you find that you are often caught out because you have forgotten to do something, then you need to keep a To Do List.

Whilst To Do Lists are very simple, they are also extremely powerful, both as a method of organizing yourself and as a way of reducing stress. Often problems may seem overwhelming or you may have a seemingly huge number of demands on your time. This may leave you feeling out of control, and overburdened with work.

Preparing a To Do List
The solution is often simple: Write down the tasks that face you, and if they are large, break them down into their component elements. If these still seem large, break them down again. Do this until you have listed everything that you have to do. Once you have done this, run through these jobs allocating priorities from A (very important) to F (unimportant). If too many tasks have a high priority, run through the list again and demote the less important ones. Once you have done this, rewrite the list in priority order.

You will then have a precise plan that you can use to eliminate the problems you face. You will be able to tackle these in order of importance. This allows you to separate important jobs from the many time-consuming trivial ones.

It may be that you carry unimportant jobs from one To Do List to the next. You may not be able to complete some very low priority jobs for several months. Only worry about this if you need to. For instance, if you are running up against a deadline for them, raise their priority.

If you have not used To Do Lists before, try them now as they are one of the keys to being really productive and efficient.

Key points: Prioritized To Do Lists are fundamentally important to efficient work. If you use To Do Lists, you will ensure that:

- You remember to carry out all necessary tasks.
- That you tackle the most important jobs first, and do not waste time on trivial tasks.
- That you do not get overly stressed by a large number of unimportant jobs.

To draw up a Prioritized To Do List, list all the tasks you must carry out. Mark the importance of the task next to it, with a priority from A (very important) to F (unimportant).

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Redraft the list into this order of importance. Now, carry out the jobs at the top of the list first. These are the most important, most beneficial tasks to complete.

Personal Goal Setting (7.6)

Function: Deciding what you want to achieve with your time

How to use tool:

Goal setting is a formal process for personal planning. By setting goals on a routine basis, you decide what you want to achieve, and then move step-by-step towards the achievement of these goals. The process of setting goals and targets allows you to choose where you want to go in life. By knowing precisely what you want to achieve, you know what you have to concentrate on to do it. You also know what is merely a distraction.

Goal setting is a standard technique used by top-level athletes, successful business-people and achievers in all fields. It gives you long-term vision and short-term motivation. It focuses your acquisition of knowledge and helps you to organize your resources.

By setting sharp, clearly defined goals, you can measure and take pride in the achievement of those goals. You can see forward progress in what might previously have seemed a long pointless grind. By setting goals, you will also raise your self-confidence, as you recognize your ability and competence in achieving the goals that you have set. The process of achieving goals and seeing this achievement gives you confidence that you will be able to achieve higher and more difficult goals.

Goals are set on a number of different levels: First, you decide what you want to do with your life and what large-scale goals you want to achieve. Second, you break these down into the smaller and smaller targets that you must hit so that you reach your lifetime goals. Finally, once you have your plan, you start working towards achieving it.

Starting to Set Personal Goals

This section explains how to set personal goals. It starts with your lifetime goals, and then works through a series of lower level plans culminating in a daily to-do list. By setting up this structure of plans you can break even the biggest life goal down into a number of small tasks that you need to do each day to reach the lifetime goal.

Your Lifetime Goals

The first step in setting personal goals is to consider what you want to achieve in your lifetime, as setting lifetime goals gives you the overall perspective that shapes all other aspects of your decision making.

To give a broad, balanced coverage of all important areas in your life, try to set goals in all of the following categories:

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- Artistic: Do you want to achieve any artistic goals? If so, what?
- Attitude: Is any part of your mind-set holding you back? Is there any part of the way that you behave that upsets you? If so, set a goal to improve your behavior, or find a solution for the problems.
- Career: What level do you want to reach in your career?
- Education: Is there any knowledge you want to acquire in particular? What information and skills will you need to achieve other goals?
- Family: Do you want to be a parent? If so, how are you going to be a good parent? How do you want to be seen by a partner or by members of your extended family?
- Financial: How much do you want to earn by what stage?
- Physical: Are there any athletic goals you want to achieve, or do you want good health deep into old age? What steps are you going to take to achieve this?
- Pleasure: How do you want to enjoy yourself? You should ensure that some of your life is for you!
- Public Service: Do you want to make the world a better place by your existence? If so, how?

Once you have decided your goals in these categories, assign a priority to them from A to F. Then review the goals and re-prioritize until you are satisfied that they reflect the shape of the life that you want to lead. Also ensure that the goals that you have set are the goals that you want to achieve, not what your parents, spouse, family, or employers want them to be.

How to Start to Achieve Your Lifetime Goals

Once you have set your lifetime goals, set a 25-year plan of smaller goals that you should complete if you are to reach your lifetime plan. Then set a 5-year plan, 1-year plan, 6-month plan, and 1-month plan of progressively smaller goals that you should reach to achieve your lifetime goals. Each of these should be based on the previous plan. Finally, set a daily to-do list (see 7.5) of things that you should do tomorrow to work towards your lifetime goals. At an early stage, these goals may be to read books and gather information on the achievement of your goals. This will help you to improve the quality and realism of your goal setting.

Finally, review your plans, and make sure that they fit the way in which you want to live your life.

Staying on Course

Once you have decided your first set of plans, keep the process going by reviewing and updating your to-do list on a daily basis. Periodically review the longer-term plans, and modify them to reflect your changing priorities and experience.

Setting Goals Effectively

The following broad guidelines will help you to set effective goals:

- State each goal as a positive statement: Express your goals positively. “Execute this technique well” is a much better goal than “Don't make this stupid mistake”.

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- Be precise: Set a precise goal, putting in dates, times and amounts so that you can measure achievement. If you do this, you will know exactly when you have achieved the goal, and can take complete satisfaction from having achieved it.
- Set priorities: When you have several goals, give each a priority. This helps you to avoid feeling overwhelmed by too many goals, and helps to direct your attention to the most important ones.
- Write goals down: This crystallizes them and gives them more force.
- Keep operational goals small: Keep the low-level goals you are working towards small and achievable. If a goal is too large, then it can seem that you are not making progress towards it. Keeping goals small and incremental gives more opportunities for reward. Derive today's goals from larger ones.
- Set performance goals, not outcome goals: You should take care to set goals over which you have as much control as possible. There is nothing more dispiriting than failing to achieve a personal goal for reasons beyond your control. These could be bad business environments, poor judging, bad weather, injury, or just plain bad luck. If you base your goals on personal performance, then you can keep control over the achievement of your goals and draw satisfaction from them.
- Set realistic goals: It is important to set goals that you can achieve. All sorts of people (parents, media, society) can set unrealistic goals for you. They will often do this in ignorance of your own desires and ambitions. Alternatively, you may be naïve in setting very high goals. You might not appreciate either the obstacles in the way, or understand quite how many skills you must master to achieve a particular level of performance.
- Do not set goals too low: Just as it is important not to set goals unrealistically high, do not set them too low. People tend to do this where they are afraid of failure or where they are lazy! You should set goals so that they are slightly out of your immediate grasp, but not so far that there is no hope of achieving them. No one will put serious effort into achieving a goal that they believe is unrealistic. However, remember that your belief that a goal is unrealistic may be incorrect. If this could be the case, you can to change this belief by using imagery effectively. See 8.4 for more information on this.

Achieving Goals

When you have achieved a goal, take the time to enjoy the satisfaction of having done so. Absorb the implications of the goal achievement, and observe the progress you have made towards other goals. If the goal was a significant one, reward yourself appropriately.

With the experience of having achieved this goal, review the rest of your goal plans:

- If you achieved the goal too easily, make your next goals harder.
- If the goal took a dispiriting length of time to achieve, make the next goals a little easier.
- If you learned something that would lead you to change other goals, do so.
- If while achieving the goal you noticed a deficit in your skills, decide whether to set goals to fix this.

Failure to meet goals does not matter as long as you learn from it. Feed lessons learned back into your goal-setting program.

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Remember too that your goals will change as you mature, and adjust them regularly to reflect this growth in your personality. If goals do not hold any attraction any longer, then let them go. Goal setting is your servant, not your master. It should bring you real pleasure, satisfaction and a sense of achievement.

Example: The best example of goal setting that you can have is to try setting your own goals. Set aside two hours to think through your lifetime goals in each of the categories. Then work back through the 25-year plan, 5-year plan, 1-year plan, 6-month plan, a 1-month plan. Finally, draw up a To Do list of jobs to do tomorrow to move towards your goals.

Tomorrow, do those jobs, and start to use goal-setting routinely!

Key points: Goal setting is an important method of:

- Deciding what is important for you to achieve in your life
- Separating what is important from what is irrelevant
- Motivating yourself to achievement
- Building your self-confidence based on measured achievement of goals

You should allow yourself to enjoy the achievement of goals and reward yourself appropriately. Draw lessons where appropriate, and feed these back into future performance.

If you do not already set goals, now is a great time to start!

Effective Scheduling (7.7)

Function: Planning to Make the Best Use of Your Time

How to use tool: So far in this section of Mind Tools, we have looked at your priorities and your goals - these define what you aspire to do with your time. Scheduling is where these aspirations meet the reality of the time you have available.

Scheduling is the process by which you look at the time available to you, and plan how you will use it to achieve the goals you have identified. By using a schedule properly, you can:

- Understand what you can realistically achieve with your time;
- Plan to make the best use of the time available;
- Leave enough time for things you absolutely must do;
- Preserve contingency time to handle 'the unexpected'; and

Minimize stress by avoiding over-commitment to yourself and others.

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There are many good scheduling tools available, including diaries, calendars, paper-based organizers, PDAs and integrated software suites like MS Outlook or GoalPro 6. The scheduling tool that is best for you depends on your situation, the current structure of your job, your taste and your budget: The key things are to be able to enter data easily, and to be able to view an appropriate span of time in the correct level of detail.

Scheduling is best done on a regular basis, for example at the start of every week or month. Go through the following steps in preparing your schedule:

1. Start by identifying the time you want to make available for your work. This will depend on the design of your job and on your personal goals in life.

2. Next, block in the actions you absolutely must take to do a good job. These will often be the things you are assessed against.

   For example, if you manage people, then you must make time available for dealing with issues that arise, coaching, and supervision. Similarly, you must allow time to communicate with your boss and key people around you. While people may let you get away with 'neglecting them' in the short-term, your best time management efforts will surely be derailed if you do not set aside time for those who are important in your life.

3. Review your To Do List, and schedule in the high-priority urgent activities, as well as the essential maintenance tasks that cannot be delegated and cannot be avoided.

4. Next, block in appropriate contingency time. You will learn how much of this you need by experience. Normally, the more unpredictable your job, the more contingency time you need. The reality of many people's work is of constant interruption: Studies show some managers getting an average of as little as six minutes uninterrupted work done at a time.

   Obviously, you cannot tell when interruptions will occur. However, by leaving space in your schedule, you give yourself the flexibility to rearrange your schedule to react effectively to issues as they arise.

5. What you now have left is your "discretionary time": the time available to deliver your priorities and achieve your goals. Review your Prioritized To Do List and personal goals, evaluate the time needed to achieve these actions, and schedule these in.

By the time you reach step 5, you may find that you have little or no discretionary time available. If this is the case, then revisit the assumptions you used in the first four steps. Question whether things are absolutely necessary, whether they can be delegated, or whether they can be done in an abbreviated way. Remember that one of the most important ways people learn to achieve success is by maximizing the 'leverage' they can

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achieve with their time. They increase the amount of work they can manage by delegating work to other people, spend money outsourcing key tasks, or use technology to automate as much of their work as possible. This frees them up to achieve their goals.

Also, use this as an opportunity to review your To Do List and Personal Goals. Have you set goals that just aren't achievable with the time you have available? Are you taking on too many additional duties? Or are you treating things as being more important than they really are?

If your discretionary time is still limited, then you may need to renegotiate your workload. With a well-thought through schedule as evidence, you may find this surprisingly easy.

Key points:

Scheduling is the process by which you plan your use of time. By scheduling effectively, you can both reduce stress and maximize your effectiveness.

Before you can schedule efficiently, you need an effective scheduling system. This can be a diary, calendar, paper-based organizer, PDA or a software package like MS Outlook or GoalPro 6. The best solution depends entirely on your circumstances.

Scheduling is then a five-step process:

1. Identify the time you have available.
2. Block in the essential tasks you must carry out to succeed in your job.
3. Schedule in high priority urgent tasks and vital "house-keeping" activities.
4. Block in appropriate contingency time to handle unpredictable interruptions.
5. In the time that remains, schedule the activities that address your priorities and personal goals.

If you have little or no discretionary time left by the time you reach step five, then revisit the assumptions you have made in steps one to four.

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Techniques for Controlling Stress

- Stress Diaries – *Understanding the short term stress in your life*
- Job Analysis – *The first step in managing job overload*
- Performance Planning – *Managing the stress of an important performance*
- Imagery – *Mental stress management*
- Physical Relaxation techniques
- Thought Awareness, Rational Thinking and Positive Thinking
- Rest, Relaxation and Sleep
- Burnout Self-Test – *Checking yourself for burnout*

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8. Techniques for Controlling Stress

This Mind Tools section gives you tools and techniques that help you survive job stress.

The first part helps you to understand stress and what causes it: this is an important starting point for effective stress management. It introduces you to the three main approaches to stress management, and then helps you identify the key sources of stress in your life.

We then look at range of techniques that help you manage these stresses. The Mind Tools approach is, where possible, to tackle stress at source. This means that not only do we help you deal with the symptoms of stress, we help you deal with the underlying causes as well.

The tools we will discuss are:

- Stress Diaries – *Understanding the short term stress in your life*
- Job Analysis – *The first step in managing job overload*
- Performance Planning – *Managing the stress of an important performance*
- Imagery – *Mental stress management*
- Physical Relaxation techniques
- Thought Awareness, Rational Thinking and Positive Thinking
- Rest, Relaxation and Sleep
- Burnout Self-Test – *Checking yourself for burnout*

By the end of the section, you should have a much clearer understanding of stress and the importance of managing it. You will understand how to analyze the points of pressure in your life, and plan to neutralize them. You will also have access to a range of different stress reduction techniques.

Please Note:
Stress can cause severe health problems and, in extreme cases, can even cause death. While stress management techniques are conclusively shown to have a positive effect on reducing stress, readers should take the advice of suitably qualified medical professionals if they have any concerns over stress-related illnesses. Medical professionals should also be consulted before changing diet or levels of exercise.

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Introduction - What Stress Is…

Much research has been conducted into stress over the last hundred years. Some of the theories behind it are now settled and accepted; others are still being researched and debated. During this time, there seems to have been something approaching open warfare between competing theories and definitions: Views have been passionately held and aggressively defended.

What complicates this is that intuitively we all feel that we know what stress is, as it is something we have all experienced. A definition should therefore be obvious…except that it is not.

Definitions

Hans Selye was one of the founding fathers of stress research. His view in 1956 was that "stress is not necessarily something bad – it all depends on how you take it. The stress of exhilarating, creative successful work is beneficial, while that of failure, humiliation or infection is detrimental." Selye believed that the biochemical effects of stress would be experienced irrespective of whether the situation was positive or negative.

Since then, a great deal of further research has been conducted, and ideas have moved on. Stress is now viewed as a 'bad thing', with a range of harmful biochemical and long-term effects. These effects have rarely been observed in positive situations.

Now, the most commonly accepted definition of stress (mainly attributed to Richard S Lazarus) is that stress is a condition or feeling experienced when a person perceives that "demands exceed the personal and social resources the individual is able to mobilize."

This is the main definition used by this section of Mind Tools, although we also recognize that there is an intertwined instinctive stress response to unexpected events. The stress response inside us is therefore part instinct and part to do with the way we think.

Fight-or-Flight

Some of the early research on stress (conducted by Walter Cannon in 1932) established the existence of the well-known "fight-or-flight" response. His work showed that when an organism experiences a shock or perceives a threat, it quickly releases hormones that help it to survive.

In humans, as in other animals, these hormones help us to run faster and fight harder. They increase heart rate and blood pressure, delivering more oxygen and blood sugar to power important muscles. They increase sweating in an effort to cool these muscles, and help them stay efficient. They divert blood away from the skin to the core of our bodies, reducing blood loss if we are damaged. As well as this, these hormones focus our attention on the threat, to the exclusion of everything else. All of this significantly improves our ability to survive life-threatening events.

Not only life-threatening events trigger this reaction: We experience it almost any time we come across something unexpected or something that frustrates our goals. When the threat is small, our response is small and we often do not notice it among the many other distractions of a stressful situation.

Unfortunately, this mobilization of the body for survival also has negative consequences. In this state, we are excitable, anxious, jumpy and irritable. This actually reduces our ability to work effectively with other

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people. With trembling and a pounding heart, we can find it difficult to execute precise, controlled skills. The intensity of our focus on survival interferes with our ability to make fine judgments based on drawing information from many sources. We find ourselves more accident-prone and less able to make good decisions.

There are very few situations in modern working life where this response is useful. Most situations benefit from a calm, rational, controlled and socially sensitive approach.

In the short term, we need to keep this fight-or-flight response under control to be effective in our jobs. In the long term we need to keep it under control to avoid problems of poor health and burnout.

Introducing Stress Management

There are very many proven skills that we can use to manage stress. These help us to remain calm and effective in high pressure situations, and help us avoid the problems of long term stress.

These skills fall into three main groups:

- Action-oriented skills: In which we seek to confront the problem causing the stress, often changing the environment or the situation;
- Emotionally-oriented skills: In which we do not have the power to change the situation, but we can manage stress by changing our interpretation of the situation and the way we feel about it; and
- Acceptance-oriented skills: Where something has happened over which we have no power and no emotional control, and where our focus must be on surviving the stress.

In the rest of this section of Mind Tools, we look at some useful techniques in each of these three groups.

Stress Diaries (8.1)

Function: Understanding the short term stress in your life

Before you can deal effectively with the stress in your life, you need to identify the key sources of stress in it. This helps you to deal with the most important sources of stress first and separate these from the things that are, in reality, minor irritants. Stress Diaries are useful tools for doing this.

Introduction:

Stress Diaries are useful for understanding the causes of short-term stress in your life. They also give you an insight into how you react to stress, and help you to identify the level of stress at which you prefer to operate.

The idea behind Stress Diaries is that, on a regular basis, you record information about the stresses you are experiencing, so that you can analyse these stresses and then manage them. This is useful because often these stresses flit in and out of our minds without getting the attention and focus that they deserve.

As well as helping you capture and analyse the most common sources of stress in your life, Stress Diaries help you to understand:

- The causes of stress in more detail;
- The levels of stress at which you operate most efficiently; and
- How you react to stress, and whether your reactions are appropriate and useful.

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Stress Diaries, therefore, give you the information that you need to manage stress.

Using the tool:

Stress Diaries are useful in that they gather information regularly and routinely, over a period of time. This helps you to separate the common, routine stresses from those that only occur occasionally. They establish a pattern that you can analyse to extract the information that you need.

Make regular entries in your Stress Diary (for example, every hour). If you have any difficulty remembering to do this, set an alarm to remind you to make your next diary entry.

Also make an entry in your diary after each incident that is stressful enough for you to feel that it is significant.

Every time you make an entry, record the following information:

- The date and time of the entry.
- How happy[6] you feel now, using a subjective assessment on a scale of -10 (the most unhappy you have ever been) to +10 (the happiest you have been). As well as this, write down the mood you are feeling.
- How efficiently you are working now (a subjective assessment, on a scale of 0 to 10). A 0 here would show complete inefficiency, while a 10 would show the greatest efficiency you have ever achieved.
- How stressed you feel now, again on a subjective scale of 0 to 10. As before, 0 here would be the most relaxed you have ever been, while 10 would show the greatest stress you have ever experienced.
- The most recent stressful event you have experienced
- The symptom did you feel (e.g. “butterflies in your stomach”, anger, headache, raised pulse rate, sweaty palms, etc.).
- The fundamental cause of the stress (being as honest and objective as possible).
- How well you handled the event: Did your reaction help solve the problem, or did it inflame it?

You will reap the real benefits of having a stress diary in the first few weeks. After this, the benefit you get will reduce each additional day. If, however, your lifestyle changes, or you begin to suffer from stress again in the future, then it may be worth using the diary approach again. You will probably find that the stresses you face have changed. If this is the case, then keeping a diary again will help you to develop a different approach to deal with them.

Analyze the diary at the end of this period.

Analyzing the Diary

Analyze the diary in the following ways:

[6] Be careful not to say to yourself “I am stressed, therefore I must be unhappy” – this may not be the case. Recording this helps you to explore the levels of stress you are happy to tolerate.

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- First, look at the different stresses you experienced during the time you kept your diary. List the types of stress that you experienced by frequency, with the most frequent stresses at the top of the list.

  Next, prepare a second list with the most unpleasant stresses at the top of the list and the least unpleasant at the bottom.

  Looking at your lists of stresses, those at the top of each list are the most important for you to learn to control.

  Working through the stresses, look at your assessments of their underlying causes, and your appraisal of how well you handled the stressful event. Do these show you areas where you handled stress poorly, and could improve your stress management skills? If so, list these.

- Second, compare the values you entered for “Happiness” and “Efficiency” against the values for “Feeling of Stress”. You may find, for example, that you are most efficient when you are moderately stressed.

- Next, look through your diary at the situations that cause you stress. List these.

- Finally, look at how you felt when you were under stress. Look at how it affected your happiness and your efficiency, understand how you behaved, and think about how you felt.

Having analyzed your diary, you should understand more about what the most important and frequent sources of stress are in your life. You should appreciate the levels of stress at which you are happiest. You should also know the sort of situations that cause you stress so that you can prepare for them and manage them well.

As well as this, you should now understand more about how you react to stress, and the symptoms that you show when you are stressed. When you experience these symptoms in the future, this should be a trigger for you to use appropriate stress management techniques.

Key points:

Stress Diaries help you understand the routine, short-term stresses that you experience in your life. They help you to identify the most important, and most frequent, stresses that you experience, so that you can concentrate your efforts on these. They also help you to identify areas where you need to improve your stress management skills, and help you to understand the levels of stress at which you are happiest, and most efficient.

To keep a stress diary, make a regular diary entry with the headings above. For example, you may do this every hour. Also make entries after stressful events.

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Analyze the diary to identify the most frequent and most serious stresses that you experience. Use it also to identify areas where you can improve your management of stress.

Job Analysis, Short-Form (8.2)

Function: The first step in managing job overload

We have all experienced that appalling sense of having too much work to do and too little time to do it in. We can choose to ignore the problem and work unreasonably long hours to stay on top of our workload. The risks here are that we become exhausted, that we have so much to do that we do a poor quality job, and that we neglect other areas of our life. Each of these can lead to intense stress.

The alternative is to work more intelligently, by focusing on the things that are important for job success and reducing the time we spend on low priority tasks. Job Analysis is the first step in doing this.

Introduction: Keeping a stress diary is an effective way of finding out what causes you stress.

The first of the "action-oriented" skills that we look at is Job Analysis. Job Analysis is a key technique for managing job overload – an important source of stress.

To do an excellent job, you need to fully understand what is expected of you. While this may seem obvious, in the hurly-burly of a new, fast-moving, high-pressure role, it is oftentimes something that is easy to overlook.

By understanding the priorities in your job, and what constitutes success within it, you can focus on these activities and minimize work on other tasks as much as possible. This helps you get the greatest return from the work you do, and keep your workload under control.

Job Analysis is a useful technique for getting a firm grip on what really is important in your job so that you are able to perform excellently. It helps you to cut through clutter and distraction to get to the heart of what you need to do.

Note that this tool takes two forms - the short-form we discuss here assumes that your organization is already well organized and that its job descriptions, review criteria and incentives are well-aligned and correct. The long-form (discussed within Managing Stress for Career Success), helps you to deal with jobs where this is not the case – here, inconsistent job design can cause enormous stress.

Using the tool: Keeping a stress diary is an effective way of finding out what causes you stress, the level of stress you prefer, and your effectiveness under pressure.

To conduct a job analysis, go through the following steps:

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1. Review formal job documentation:
- Look at your job description. Identify the key objectives and priorities within it.
- Look at forms for periodic performance reviews. These show precisely the behaviors that will be rewarded and, by implication, show those that will be punished.
- Find out what training is available for the role. Ensure that you attend appropriate training so that you know as much as possible about what you need to know.
- Look at incentive schemes to understand the behaviors that these reward.

2. Understand the organization's strategy and culture:
Your job exists for a reason – this will ultimately be determined by the strategy of the organizational unit you work for. This strategy is often expressed in a mission statement. In some way, what you do should help the organization achieve its mission (if it does not, you have to ask yourself how secure the job is!). Make sure you understand and perform well the tasks that contribute to the strategy.

Similarly, every organization has its own culture – its own, historically developed values, rights and wrongs, and things that it considers to be important. If you are new to an organization, talk through with established, respected members of staff to understand these values.

Make sure that you understand this culture. Make sure that your actions reinforce the company's culture, or at least do not go against it. Looked at through the lens of culture, will the company value what you do?

Check that your priorities are consistent with this mission statement and the company culture.

3. Find out who the top achievers are, and understand why they are successful:
Inside or outside the organization, there may be people in a similar role to you who are seen as highly successful. Find out how they work, and what they do to generate this success. Look at what they do, and learn from them. Understand what skills make them successful, and learn those skills.

4. Check that you have the people and resources to do the job:
The next step is to check that you have the staff support, resources and training needed to do an excellent job. If you do not, start work on obtaining them.

5. Confirm priorities with your boss:
By this stage, you should have a thorough understanding of what your job entails, and what your key objectives are. You should also have a good idea of the resources that you need, and any additional training you may need to do the best you can.

This is the time to talk the job through with your boss, and confirm that you share an understanding of what constitutes good performance in the role.

It is also worth talking through serious inconsistencies, and agreeing how these can be managed.

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6. Take Action:
You should now know what you have to do to be successful in your job. You should have a good idea of the most important things that you have to do, and also the least important.

Where you can drop the less-important tasks, do so. Where you can de-prioritize them, do so.

Where you need more resource or training to do your job, negotiate for this.

Remember to be a little sensitive in the way you do this: Good teamwork often means helping other people out with jobs that do not benefit you. However, do not let people take advantage of you: Be assertive in explaining that you have your own work to do. If you cannot drop tasks, delegate them or negotiate longer time scales.

Key points:

Job analysis is a five-step technique for:

- Understanding and agreeing how to achieve peak performance in your job;
- Ensuring that you and your boss agree on the areas you should concentrate on when time gets tight; and the areas that can be de-emphasized during this time; and
- Making sure that you have the resources, training and staff needed to do a good job.

By using the Job Analysis technique, you should gain a good understanding of how you can excel at your job. You should also understand your job priorities.

This helps you to manage the stress of job overload by helping to decide which jobs you should drop.

Performance Planning (8.3)

Function: Planning to manage the stress of an important performance

We all know the feeling of sickness in our stomach before an important presentation or performance. We have all experienced the sweaty palms, the raised heart rate, and the sense of agitation that we feel as these events approach. This is even worse when we have experienced problems in the run up to the event. This article helps you deal with this by helping you to prepare well for future performances.

How to use tool:

The Thought Awareness, Rational Thinking and Positive Thinking technique that we look at later may be enough to help you manage the fears, anxieties and negative thoughts that may arise in a small performance.

For larger events, it is worth preparing a Performance Plan. This is a pre-prepared plan that helps you to deal effectively with any problems or distractions that may occur, and perform in a positive and focused frame of mind.

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Using the Tool: To prepare your Performance Plan, begin by making a list all of the steps that you need to do from getting prepared for a performance through to its conclusion.

Start far enough in advance to sort out any equipment problems. List all of the physical and mental steps that you need to take to:

- Prepare and check your equipment, and repair or replace it where it does not work;
- Make travel arrangements;
- Pack your equipment and luggage;
- Travel to the site of your performance;
- Set up equipment;
- Wait and prepare for your performance; and
- Deliver your performance.

Next, work through each of these steps. Think though:

- Everything that could reasonably go wrong at each step with equipment and arrangements; and
- Any distractions and negative thinking that could undermine your confidence or stop you having a positive, focused frame of mind at the start of and during your performance.

Work through all of the things that could go wrong. Look at the likelihood of the problem occurring. Many of the things you have listed may be extremely unlikely. Where appropriate, strike these out and ignore them from your planning.

Look at each of the remaining contingencies. These will fall into three categories:

- Things you can eliminate by appropriate preparation, including making back-up arrangements and acquiring appropriate additional or spare equipment;
- Things you can manage by avoiding unnecessary risk; and
- Things you can manage with a pre-prepared action or with an appropriate stress management technique

For example, if you are depending on using a data projector for a presentation, you can arrange for a back up projector to be available, purchase a replacement bulb, and/or print off paper copies of the presentation in case all else fails. You can leave earlier than strictly necessary so that you have time for serious travel delays. You can also think through appropriate alternatives if your travel plans are disrupted. If you are forced to wait before your event in an uncomfortable or unsuitably distracting place, prepare the relaxation techniques you can use to keep a calm, positive frame of mind. Research all of the information you will need to take the appropriate actions quickly, and ensure that you have the appropriate resources available.

Also, prepare the positive thinking you will use to counter fears and negative thoughts both before the event and during it. Use stress anticipation skills to ensure that you are properly prepared to manage stress. Then use thought awareness, rational thinking and positive thinking skills to prepare the positive thoughts that you will use to protect and build your confidence.

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Write your plan down on paper in a form that is easy to read and easy to refer to. Keep it with you as you prepare for, and deliver, your performance. Refer to it whenever you need it in the time leading up to the event, and during it.

Key points: Performance Plans help you to prepare for an important performance. They bring together practical contingency planning with mental preparation to ensure that you are fully prepared to handle any situations and eventualities that may realistically occur.

This gives you the confidence that comes from knowing you are as well prepared for an event as is practically possible to be. It also helps you to avoid the unpleasant stresses that come from poor preparation, meaning that you can deliver your performance in a relaxed, positive and focused frame of mind, whatever problems or upsets may have occurred.

Imagery (8.4)

Function: Mental stress management

Sometimes we are not able to change our environment to manage stress – this may be the case where we do not have the power to change a situation, or where we are about to give an important performance. Imagery is a useful skill for relaxing in these situations.

Introduction: Imagery is a potent method of stress reduction, especially when combined with physical relaxation methods such as deep breathing.

You will be aware of how particular environments can be very relaxing, while others can be intensely stressful. The principle behind the use of imagery in stress reduction is that you can use your imagination to recreate, and enjoy, a situation that is very relaxing. The more intensely you imagine the situation, the more relaxing the experience will be.

This sounds unlikely. In fact, the effectiveness of imagery can be shown very effectively if you have access to biofeedback equipment. By imagining a pleasant and relaxing scene (which reduces stress) you can objectively see the measured stress in your body reduce. By imagining an unpleasant and stressful situation, you can see the stress in your body increase. This very real effect can be quite alarming when you see it happen the first time!

Using the tool: One common use of imagery in relaxation is to imagine a scene, place or event that you remember as safe, peaceful, restful, beautiful and happy. You can bring all your senses into the image with, for example, sounds of running water and birds, the smell of cut grass, the taste of cool white wine, the warmth of the sun, etc. Use the imagined place as a retreat from stress and pressure.

Scenes can involve complex images such as lying on a beach in a deserted cove. You may “see” cliffs, sea and sand around you, “hear” the waves crashing against rocks, “smell” the salt in the air, and “feel” the warmth of the sun and a gentle breeze on your

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body. Other images might include looking at a mountain view, swimming in a tropical pool, or whatever you want. You will be able to come up with the most effective images for yourself.

Other uses of imagery in relaxation involve creating mental pictures of stress flowing out of your body, or of stress, distractions and everyday concerns being folded away and locked into a padlocked chest.

Imagery in Preparation and Rehearsal

You can also use imagery in rehearsal before a big event, allowing you to run through the event in your mind.

Aside from allowing you to rehearse mentally, imagery also allows you to practice in advance for anything unusual that might occur, so that you are prepared and already practiced in handling it. This is a technique used very commonly by top sports people, who learn good performance habits by repeatedly rehearsing performances in their imagination. When the unusual eventualities they have rehearsed using imagery occur, they have good, pre-prepared, habitual responses to them.

Imagery also allows you to pre-experience achievement of your goals, helping to give you the self-confidence you need to do something well. This is another technique used by successful athletes.

Key points:

With imagery, you substitute actual experience with scenes from your imagination. Your body reacts to these imagined scenes almost as if they were real, calming you down and letting adrenaline disperse.

To relax with imagery, imagine a warm, comfortable, safe and pleasant place, and enjoy it in your imagination.

Imagery can be shown to work by using biofeedback devices that measure body stress. By imagining pleasant and unpleasant scenes, you can actually see or hear the changing levels of stress in your body diminish.

Physical Relaxation Techniques (8.5)

Physical relaxation techniques are as effective as mental techniques in reducing stress. In fact, the best relaxation can often be achieved by using physical and mental techniques together.

How to use tool:

This tool introduces three useful physical relaxation techniques that can help you reduce muscle tension and manage the effects of the fight-or-flight response on your body. This is particularly important if you need to think clearly and perform precisely when you are under pressure.

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The techniques we will look at are Deep Breathing, Progressive Muscular Relaxation and “The Relaxation Response”.

Deep Breathing

Deep breathing is a simple, but very effective, method of relaxation. It is a core component of everything from the "take ten deep breaths" approach to calming someone down, right through to yoga relaxation and Zen meditation. It works well in conjunction with other relaxation techniques such as Progressive Muscular Relaxation, relaxation imagery and meditation to reduce stress.

To use the technique, take a number of deep breaths and relax your body further with each breath. That's all there is to it!

Progressive Muscular Relaxation

Progressive Muscular Relaxation is useful for relaxing your body when your muscles are tense.

The idea behind PMR is that you tense up a group of muscles so that they are as tightly contracted as possible. Hold them in a state of extreme tension for a few seconds. Then, relax the muscles normally. Then, consciously relax the muscles even further so that you are as relaxed as possible.

By tensing your muscles first, you will find that you are able to relax your muscles more than would be the case if you tried to relax your muscles directly.

Experiment with PMR by forming a fist, and clenching your hand as tight as you can for a few seconds. Relax your hand to its previous tension, and then consciously relax it again so that it is as loose as possible. You should feel deep relaxation in your hand muscles.

The Relaxation Response

‘The Relaxation Response’ is the name of a book published by Dr Herbert Benson of Harvard University in 1968. In a series of experiments into various popular meditation techniques, Dr. Benson established that these techniques had a very real effect on reducing stress and controlling the fight-or-flight response. Direct effects included deep relaxation, slowed heartbeat and breathing, reduced oxygen consumption and increased skin resistance.

This is something that you can do for yourself by following these steps:

- Sit quietly and comfortably.
- Close your eyes.
- Start by relaxing the muscles of your feet and work up your body relaxing muscles.
- Focus your attention on your breathing.
- Breathe in deeply and then let your breath out. Count your breaths, and say the number of the breath as you let it out (this gives you something to do with your mind, helping you to avoid distraction).

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Do this for ten or twenty minutes.

An even more potent alternative approach is to follow these steps, but to use relaxation imagery instead of counting breaths in step 5. Again, you can prove to yourself that this works using the biofeedback equipment.

Key points: "Deep Breathing," "Progressive Muscular Relaxation," and the steps leading to the "Relaxation Response" are three good techniques that can help you to relax your body and manage the symptoms of the fight-or-flight response.

These are particularly helpful for both handling nerves prior to an important performance, and reducing stress generally.

Thought Awareness, Rational Thinking and Positive Thinking (8.6)

Quite often, our experience of stress comes from our perception of the situation. Sometimes that perception is right, but quite often it is not. Often we are unreasonably harsh with ourselves or instinctively jump to wrong conclusions about people's motives. This can send us into a downward spiral of negative thinking that can be hard to break.

Thought Awareness, Rational Thinking and Positive Thinking is the most basic of a number of tools that can be used to change this negative thinking.

Introduction: We have already mentioned that the most common accepted definition of stress is that it occurs when a person perceives that "demands exceed the personal and social resources the individual is able to mobilize." In becoming stressed, people must make two main judgments: First, they must feel threatened by the situation, and second, they must judge whether their capabilities and resources are sufficient to meet the threat. How stressed someone feels depends on how much damage they think the situation can do them, and how closely their resources meet the demands of the situation.

Perception is key to this as situations are not stressful in their own right. Rather it is our interpretation of the situation that drives the level of stress that we feel.

Quite obviously, sometimes we are right in what we say to ourselves. Some situations may actually be dangerous, may threaten us physically, socially or in our career. Here, stress and emotion are part of the early warning system that alerts us to the threat from these situations.

Very often, however, we are overly harsh and unjust to ourselves in a way that we would never be with friends or co-workers. This, along with other negative thinking, can cause intense stress and unhappiness and can severely undermine self-confidence.

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How to use tool:

You are thinking negatively when you fear the future, put yourself down, criticize yourself for errors, doubt your abilities, or expect failure. Negative thinking damages confidence, harms performance and paralyzes mental skills.

A major problem with this is that negative thoughts tend to flit into our consciousness, do their damage and flit back out again with their significance, having barely been noticed. Since we do not challenge them, they can be completely incorrect and wrong. Yet, this does not diminish their harmful affect.

Thought Awareness is the process by which you observe your thoughts and become aware of what is going through your head.

One approach to it is to observe your stream of consciousness as you think about a stressful situation. Do not suppress any thoughts: Instead, you just let them run their course while you watch them, and write them down as they occur.

Another more general approach to Thought Awareness comes with logging stress in your Stress Diary. One of the benefits of using the Stress Diary is that you log all of the unpleasant things in your life that cause you stress for one or two weeks. This will include negative thoughts and anxieties, and can also include difficult or unpleasant memories and situations that you perceive as negative. All of these can be looked at using the techniques in this module. By logging your negative thoughts for a reasonable period of time, you will quickly see patterns in your negative thinking. When you analyze your diary at the end of the period, you should be able to see the most common and the most damaging thoughts. Tackle these as a priority.

Thought awareness is the first step in the process of managing negative thoughts, as you cannot manage thoughts that you are unaware of.

Rational Thinking

The next step in dealing with negative thinking is to challenge the negative thoughts that you identified using the Thought Awareness technique. Look at every thought you wrote down and rationally challenge it. Ask yourself whether the thought is reasonable: Does it stand up to fair scrutiny?

As an example, by analyzing your Stress Diary you might identify that you have frequently had the following negative thoughts:

- Feelings of inadequacy
- Worries that your performance in your job will not be good enough
- An anxiety that things outside your control will undermine your efforts
- Worries about other people's reactions to your work

Starting with these, you might challenge these negative thoughts in the ways shown:

- **Feelings of inadequacy:** Have you trained and educated yourself as well as you reasonably should to do the job? Do you have the experience and resources you need to do it? Have you planned, prepared and rehearsed appropriately? If you have done all of these, are you setting yourself unattainably high standards for doing the job?

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- **Worries about performance:** Do you have the training that a reasonable person would think is needed to do a good job? Have you planned appropriately? Do you have the information and resources you need? Have you cleared the time you need and cued up your support team appropriately? Have you prepared appropriately? If you have not, then you need to do these things quickly. If you have, then you are well positioned to give the best performance that you can.
- **Problems with issues outside your control:** Have you conducted appropriate contingency planning? Have you thought through and managed all likely risks and contingencies appropriately? If so, you will be well prepared to handle potential problems.
- **Worry about other people's reactions:** If you have put in good preparation, and you do the best you can, then that is all that you need to know. If you perform as well as you reasonably can, then fair people are likely to respond well. If people are not fair, then this is something outside your control. Often, the best thing to do is to rise above unfair comments.

Tip:
If you find it difficult to look at your negative thoughts objectively, imagine that you are your best friend or a respected coach or mentor. Look at the list of negative thoughts and imagine the negative thoughts were written by someone you were giving objective advice to, and think how you would challenge these thoughts.

When you challenge negative thoughts rationally, you should be able to see quickly whether the thoughts are wrong or whether they have some substance to them. Where there is some substance, take appropriate action. In these cases, negative thinking has been an early warning system showing where you need to direct your attention.

Positive Thinking & Opportunity Seeking

Where you have used Rational Thinking to identify incorrect negative thinking, it can often be useful to prepare rational positive thoughts and affirmations to counter them. It can also be useful to look at the situation and see if there are any useful opportunities that are offered by it.

Affirmations help you to build self-confidence. By basing your affirmations on the clear, rational assessments of facts that you made using Rational Thinking, you can use them to undo the damage that negative thinking may have done to your self-confidence.

Tip:
Your affirmations will be strongest if they are specific, are expressed in the present tense and have strong emotional content.

Continuing the examples above, positive affirmations might be:

- **Feelings of inadequacy:** "I am well trained for this. I have the experience, the tools and the resources I need. I have thought through and prepared for all possible issues. I can do a superb job."

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- **Worries about performance:** "I have researched and planned well for this, and I thoroughly understand the problem. I have the time, resources and help I need. I am well prepared to do an excellent job."
- **Problems issues outside your control:** "We have thought through everything that might reasonably happen and have planned how we can handle all likely contingencies. Everyone is ready to help where necessary. We are very well placed to react flexibly and effectively to unusual events."
- **Worry about other people's reaction:** "I am well-prepared and am doing the best I can. Fair people will respect this. I will rise above any unfair criticism in a mature and professional way."

If appropriate, write these affirmations down so that you can use them when you need them.

As well as allowing you to structure useful affirmations, part of Positive Thinking is to look at opportunities that the situation might offer to you. In the examples above, successfully overcoming the situations causing the original negative thinking will open up opportunities. You will acquire new skills, you will be seen as someone who can handle difficult challenges, and you may open up new career opportunities.

Make sure that identifying these opportunities and focusing on them is part of your positive thinking.

Tip:
In the past people have advocated positive thinking almost recklessly, as if it is a solution to everything. Positive thinking should be used with common sense. First, decide rationally what goals you can realistically attain with hard work, and then use positive thinking to reinforce these.

Key points:

This set of tools helps you to manage and counter the stress of negative thinking.

Thought Awareness helps you to understand the negative thinking, unpleasant memories and misinterpretation of situations that may interfere with your performance and damage your self-confidence.

Rational Thinking is the technique that helps you to challenge these negative thoughts and either learn from them or refute them as incorrect.

Positive thinking is then used to create positive affirmations that you can use to counter negative thoughts. These affirmations neutralize negative thoughts and build your self-confidence. It is also used to find the opportunities that are almost always present to some degree in a difficult situation.

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Rest, Relaxation and Sleep (8.7)

Function: The first step in managing job overload

Up to now we have looked at ways of managing specific, short-term stresses.

Within Managing Stress for Career Success, we also look at long-term stress. A key facet of this is the way that people can sustain intense levels of stress for a while, but then burn out.

How to use tool: We will look at burnout in more detail in the next article. It is something that typically affects people who are highly committed to the work they do, probably much like you. When these people are faced by a stressful situation, more-often-than-not they respond with complete commitment, by working intensely hard at resolving it. To do this, they will work all hours, cancel vacations and cut back on sleep, all to make more time to tackle the problem.

If this is short-lived, then negative effects will be minimal and success will often be spectacular. If this hard work is sustained for a long time without relief, these people increasingly risk burnout.

We rest and sleep because we need to.

Rest and Relaxation

Rest is what we do to let stress subside. Rest at the end of a day, and at the end of a week, helps us to calm down.

Doing fun things that we enjoy in our leisure time compensates us for the unpleasant stress we experience at work, bringing some balance back into life. This is particularly important if we routinely experience unpleasant levels of stress.

A good way of getting rest and reducing long-term stress is to take up an enjoyable, non-rushed sport or hobby. If you spend all your working day competing, then can be very pleasant to be completely noncompetitive for some of your free time. Slow physical activities such as sailing or walking are good for this, as are others where there is little or no pressure for performance. Reading novels, watching television or socializing can also be very restful.

Vacations are particularly important, and you really do need to take these. Where possible, take two weeks off rather than just one week. A common observation that people make is that they really do not start to relax properly until the end of their first week of vacation.

Make sure that you take your vacations and that you use them to relax. Also, make sure that you get enough good quality rest during the week to keep on enjoying life to its fullest.

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Sleep

The average person needs approximately eight hours sleep a night (although this can vary between three hours and eleven hours, depending on the person and his or her age).

If we are regularly short of sleep, then our concentration and our effectiveness suffer and our energy levels decline. We have all experienced this.

This diminishes our effectiveness in our job, and can therefore increase stress. As our concentration wanders, we start to make mistakes. As our energy declines, we become less proactive in what we do, reducing our control over events. This means that a situation that is already difficult and stressful can become worse, needing even more sacrifice to bring it back under control.

Make sure that you get enough sleep. If you have become used to being tired all the time, you will be amazed by how sharp and energetic you will feel once you start sleeping normally.

Burnout Self-Test - Checking Yourself for Burnout

Function: Checking yourself for burnout

Burnout occurs when passionate, committed people become disillusioned with a job or career from which they have previously derived much of their identity and meaning. It comes as the things that inspire passion and enthusiasm lose their meaning, and tedious or unpleasant things crowd in.

This tool helps you to check yourself for burnout. It is an excerpt from Managing Stress for Career Success, the Mind Tools stress management masterclass.

How to use tool: This next tool is a useful self-check for burnout. By using it on a regular basis, it can help you keep a check on yourself to see whether you are at risk of burnout.

There are two easy ways of using the test. Either:

- Work through Figure 2 (below) on paper and calculate values manually, or
- Download the template from http://www.mindtools.com/courses/SMMC/BurnoutSelfTest.xls, and fill in values appropriately on the Microsoft Excel spreadsheet. This will automatically calculate scores for you and interpret these scores, showing the score and interpretation in row 30.

To use this technique, either work through the template or print off and work through the table below.

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Checking Yourself for Burnout
For each question, put a tick in the column that most applies. Put one tick only in each row.

	Question	Not At All	Rarely	Some	Often	Very
1	Do you feel run down and drained of physical or emotional energy?					
2	Do you find that you are prone to negative thinking about your job?					
3	Do you find that you are harder and less sympathetic with people than perhaps they deserve?					
4	Do you find yourself getting easily irritated by small problems, or by your co-workers and team?					
5	Do you feel misunderstood or unappreciated by your co-workers?					
6	Do you feel that you have no one to talk to?					
7	Do you feel that you are achieving less than you should?					
8	Do you feel under an unpleasant level of pressure to succeed?					
9	Do you feel that you are not getting what you want out of your job?					
10	Do you feel that you are in the wrong organization or the wrong profession?					
11	Are you becoming frustrated with parts of your job?					
12	Do you feel that organizational politics or bureaucracy frustrate your ability to do a good job?					
13	Do you feel that there is more work to do than you practically have the ability to do?					
14	Do you feel that you do not have time to do many of the things that are important to doing a good quality job?					

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	Question	Not At All	Rarely	Some	Often	Very Often
15	Do you find that you do not have time to plan as much as you would like to?					
Total of weighted scores (see instructions):						

Score 1 for every tick in the "Not At All" column, 2 for every tick in the "Rarely" column, and so on up to 5 for every tick in the "Very Often" column. Add up your total and check your result using the table below.

If you choose to use the manual method, then calculate the total of the scores as described in the instructions (note that this uses a slightly different scoring method from the spreadsheet*)*. Apply the score to the table below to get the interpretation:

Score	Interpretation
15 – 18	No sign of burnout here
19 – 32	Little sign of burnout here, unless some factors are particularly severe
33 – 49	Be careful - you may be at risk of burnout, particularly if several scores are high
50 – 59	You are at severe risk of burnout - do something about this urgently
60 - 75	You are at very severe risk of burnout – do something about this urgently

Note:
This tool uses an informal approach to assessing burnout. It has not been validated through controlled scientific tests: Interpret the results with common sense. Also, make allowances for any recent events that may have a disproportionate influence on your mood at the time you take the test!

developed by Christina Maslach, one of the leading researchers in the field of burnout. Copies can be purchased at the following site: http://www.cpp-db.com/detail/detailprod.asp?pc=35.

Key points:

This tool helps you to assess your likelihood of burnout.

To use the tool, fill in the table above and score appropriately, or download the template from http://www.mindtools.com/courses/SMMC/BurnoutSelfTest.xls and fill this in.

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Module 9

Communication Skills

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Communication Skills

by James Manktelow and Kellie Fowler

The articles in this chapter help you to understand effective communication and then show you how to communicate your message in the best possible way. After completing this section, you should have a better understanding of how to communicate effectively – to individuals and groups, via spoken communications, written communications, and even electronic communications.

The purpose of communication is to get your message across to others. This is a process that involves both the sender of the message and the receiver. This process leaves room for error, with messages often misinterpreted by one or more of the parties involved. This causes unnecessary confusion and counter productivity.

In fact, a message is successful only when both the sender and the receiver perceive it in the same way.

By successfully getting your message across, you convey your thoughts and ideas effectively. When not successful, the thoughts and ideas that you convey do not necessarily reflect your own, causing a communications breakdown and creating roadblocks that stand in the way of your goals – both personally and professionally.

In a recent survey of recruiters from companies with more than 50,000 employees, communication skills were cited as the single more important decisive factor in choosing managers. The survey, conducted by the University of Pittsburgh's Katz Business School, points out that communication skills, including written and oral presentations, as well as an ability to work with others, are the main factor contributing to job success.

In spite of the increasing importance placed on communication skills, many individuals continue to struggle with these skills, unable to communicate their thoughts and ideas effectively – whether in verbal or written format. This inability makes it nearly impossible for them to compete effectively in the workplace, and stands in the way of career progression.

Getting your message across is paramount to progressing. To do this, you must understand what your message is, what audience you are sending it to, and how it will be perceived. You must also weigh-in the circumstances surrounding your communications, such as situational and cultural context.

Communications Skills - The Importance of Removing Barriers:

Communication barriers can pop-up at every stage of the communication process (which consists of sender, message, channel, receiver, feedback and context - see the diagram below) and have the potential to create misunderstanding and confusion.

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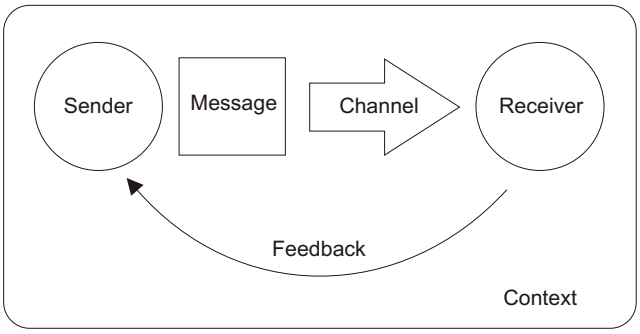
The Communications Process



To be an effective communicator and to get your point across without misunderstanding and confusion, your goal should be to lessen the frequency of these barriers at each stage of this process with clear, concise, accurate, well-planned communications. We follow the process through below:

Sender...

To establish yourself as an effective communicator, you must first establish credibility. In the business arena, this involves displaying knowledge of the subject, the audience and the context in which the message is delivered.

You must also know your audience (individuals or groups to which you are delivering your message). Failure to understand who you are communicating to will result in delivering messages that are misunderstood.

Message...

Next, consider the message itself. Written, oral and nonverbal communications are effected by the sender's tone, method of organization, validity of the argument, what is communicated and what is left out, as well as your individual style of communicating. Messages also have intellectual and emotional components, with intellect allowing us the ability to reason and emotion allowing us to present motivational appeals, ultimately changing minds and actions.

Channel...

Messages are conveyed through channels, with verbal including face-to-face meetings, telephone and videoconferencing; and written including letters, emails, memos and reports.

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Receiver...

These messages are delivered to an audience. No doubt, you have in mind the actions or reactions you hope your message prompts from this audience. Keep in mind, your audience also enters into the communication process with ideas and feelings that will undoubtedly influence their understanding of your message and their response. To be a successful communicator, you should consider these before delivering your message, acting appropriately.

Feedback...

Your audience will provide you with feedback, verbal and nonverbal reactions to your communicated message. Pay close attention to this feedback as it is crucial to ensuring the audience understood your message.

Context...

The situation in which your message is delivered is the context. This may include the surrounding environment or broader culture (i.e. corporate culture, international cultures, etc.).

Removing Barriers At All These Stages

To deliver your messages effectively, you must commit to breaking down the barriers that exist in each of these stages of the communication process.

Let's begin with the message itself. If your message is too lengthy, disorganized or contains errors, you can expect it to be misunderstood and misinterpreted. Use of poor verbal and body language can also confuse the message.

Barriers in context tend to stem from senders offering too much information too fast. When in doubt here, less is oftentimes more. It is best to be mindful of the demands on other people's time, especially in today's ultra-busy society. Once you understand this, you need to work to understand your audience's culture, making sure you can converse and deliver your message to people of different backgrounds and cultures within your own organization, in this country and even abroad. We look at communicating within your own organization in the next article.

Communicating In Your Organization (9.1)

How to use tool: To ensure successful communications within your organization, it is best to start with the very basics: your knowledge of verbal and non-verbal communications. In the workplace, these types of communications are continually exchanged, oftentimes without much planning or even the thought that such communications are taking place.

The Importance of Non-Verbal Communication

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For instance, it's not always just what you say. It's also how you "say" it – taking into account your eyes, your posture, your overall body language, even your appearance at the time the communication is exchanged, and the voice in which you offer the exchange.

In verbal communication, an active dialogue is engaged with the use of words. At the same time, however, non-verbal communication takes place, relying on nonverbal cues, such as gestures, eye contact, facial expressions, even clothing and personal space.

Nonverbal cues are very powerful, making it crucial that you pay attention to your actions, as well as the nonverbal cues of those around you. If, during your meeting, participants begin to doodle or chat amongst themselves, they are no longer paying attention to you: Your message has become boring or your delivery is no longer engaging.

Once again, you need to be mindful of cultural differences when using or interpreting nonverbal cues. For instance, the handshake that is so widely accepted in Western cultures as a greeting or confirmation of a business deal is not accepted in other cultures, and can cause confusion.

While eye contact, facial expressions, posture, gestures, clothing and space are obvious nonverbal communication cues, others strongly influence interpretation of messages, including how the message is delivered. This means paying close attention to your tone of voice, even your voice's overall loudness and its pitch.

Be mindful of your own nonverbal cues, as well as the nonverbal cues of those around you. Keep your messages short and concise. This means preparing in advance whenever possible. And for the impromptu meeting, it means thinking before you speak.

Giving People Time…

Setting aside a specific time for meetings and regular communications is a great idea. This allows time for everyone involved to prepare. Also, keep in mind that listening is oftentimes much more productive when working to communicate effectively, and can very well be more important than talking. Allow everyone involved the time they need to communicate effectively.

Enhancing your communications:

- Because gestures can both compliment and contradict your message, be mindful of these.
- Eye contact is an important step in sending and receiving messages. Eye contact can be a signal of interest, a signal of recognition, even a sign of honesty and credibility.
- Closely linked to eye contact are facial expressions, which can reflect attitudes and emotions.
- Posture can also be used to more effectively communicate your message.
- Clothing is important. By dressing for your job, you show respect for the values and conventions of your organization.
- Be mindful of people's personal space when communicating. Do not invade their personal space by getting too close and do not confuse communications by trying to exchange messages from too far away.

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In the next article, find out how to make sure that your spoken communications are always understood.

Spoken Communications (9.2)

Function: Ensuring your words are *always* understood

How to use tool: While we discussed many of the cues used to ensure your spoken words are understood in the previous section (Communicating in Your Organization), there are many other things you should do to ensure that your verbal messages are understood time and time again.

Although somewhat obvious and deceptively simple, these include:

- Keep the message clear
- Be prepared
- Keep the message simple
- Be vivid when delivering the message
- Be natural
- Keep the message concise

Preparation is underrated. In fact, it is one of the most important factors in determining your communication successes. When possible, set meeting times and presentation times well in advance, allowing yourself the time you need to prepare your communications. As you prepare, be mindful of the entire communication process (sender, message, channel, receiver, feedback and context). By paying close attention to each of these stages and preparing accordingly, you ensure your communications will be more effective and better understood.

Of course, not all communications can be scheduled. In this case, preparation may mean having a good, thorough understanding of the office going-ons, enabling you to communicate with the knowledge you need to be effective, both through verbal and written communications.

Being prepared: Guidelines for Thinking Ahead:

Ask yourself: Who? What? How? When? Where? Why?

Who are you communicating to? What are their interests, presuppositions and values? What do they share in common with others; how are they unique?

What do you wish to communicate? One way of answering this question is to ask yourself about the 'success criteria'. How do you know if and when you have successfully communicated what you have in mind?

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How can you best convey your message? Language is important here, as are the nonverbal cues discussed earlier. Choose your words and your nonverbal cues with your audience in mind. Plan a beginning, middle and end. If time and place allow, consider and prepare audio-visual aids.

When? Timing is important here. Develop a sense of timing, so that your contributions are seen and heard as relevant to the issue or matter at hand. There is a time to speak and a time to be silent. 'It's better to be silent than sing a bad tune.'

Where? What is the physical context of the communication in mind? You may have time to visit the room, for example, and rearrange the furniture. Check for availability and visibility if you are using audio or visual aids.

Why? In order to convert hearers into listeners, you need to know why they should listen to you – and tell them if necessary. What disposes them to listen? That implies that you know yourself why you are seeking to communicate – the value or worth or interest of what you are going to say.

Be concise. Be brief. Use short words and sentences. Support these with short, easy-to-understand examples, which help demonstrate your message.

Written Communications (9.3)

Function: Before you write it down, know this

How to use tool: Many people are intimated by writing. Even so, there are times when writing is the best way to communicate, and oftentimes the only way to get your message across.

Write With Necessary Caution...

When writing, be mindful of the fact that once something is in written form, it cannot be taken back. Communicating through words can be more concrete than verbal communications, with less room for error and even less room for mistakes. This presents written communicators with new challenges, including spelling, grammar, punctuation, even writing style and actual wording.

Thankfully, today's technology makes memo, letter and proposal writing much easier by providing reliable tools that check and even correct misspelled words and incorrect grammar use. Unfortunately, these tools are not fail proof and will require your support, making your knowledge in this area important.

The Importance of "Style"...

Some of the most basic tips to remember when writing include:

- Avoid the use of slang words.
- Try not to use abbreviations (unless appropriately defined).
- Steer away from the use of symbols (such as ampersands (&)).
- Clichés should be avoided, or at the very least, used with caution.

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- Brackets are used to play down words or phrases.
- Dashes are generally used for emphasis.
- Great care should ALWAYS be taken to spell the names of people and companies correctly.
- Numbers should be expressed as words when the number is less than 10 or is used to start a sentence (example: Ten years ago, my brother and I…). The number 10, or anything greater than 10, should be expressed as a figure (example: My brother has 13 Matchbox cars.)
- Quotation marks should be placed around any directly quoted speech or text and around titles of publications.
- Keep sentences short.

While the above tips cover the most common mistakes made when writing letters, memos and reports, they in no way cover everything you need to know to ensure your written communications are accurate and understood.

While this takes some practice, there are many sources available to assist with writing style, including "The Elements of Style", by Strunk and White. One glance in any newsroom or on the desk of even the most accomplished writers and you are sure to find this small, easy-to-read, easy-to-understand, no-nonsense guide to writing. It is clear, concise and perhaps the best book of its kind. If you plan on writing a great deal of letters or even proposals, it is strongly recommended that you picky up this nifty guide, which by the way, will fit in your shirt pocket.

Letter Writing Hints...

When writing letters, it is best to address the letter to an individual. And, when beginning the letter with a personal name, be sure to end it with an appropriate closing, such as 'Sincerely yours'. If you cannot obtain an individual's name, consider ending it with a more generic (less personal) closing, such as 'With kindest regards'.

For normal business letters, your letter should start with an overall summary, showing in the first paragraph why the letter is relevant to the reader. It's not a good practice to make the reader go past the first paragraph to find out why the letter was sent to them.

The body of the letter needs to explain the reason for the correspondence, including any relevant background and current information. Make sure the information flows logically, ensuring you are making your points effectively.

The closing of the letter is the final impression you leave with the reader. End with an action point, such as 'I will call you later this week to discuss this further'.

The Importance of Careful Proofing

Perhaps the most important thing to remember when writing a letter is to check it thoroughly when it is completed. Even when you think it is exactly what you want, read it one more time. This "unwritten" rule holds true for everything you write – memos, letters, proposals, etc.

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Use both the grammar and spell check on your computer, paying very, very close attention to every word highlighted. Do not place total faith on your computer here. Instead, you should have both a printed dictionary and thesaurus nearby to double-check everything your computers editing tools highlight, as these tools are certainly not always reliable, for a variety of reasons.

When checking your written communications, make sure the document is clear and concise. Is there anything in the written communication that could be misinterpreted? Does it raise unanswered questions or fail to make the point you need to get across?

Can you cut down on the number of words used? For instance, don't use 20 words when you can use 10. While you do not want to be curt or abrupt, you do not want to waste the reader's time with unnecessary words or phrases.

Is your written communication well organized? Does each idea proceed logically to the next? Make sure your written communications are easy to read and contain the necessary information, using facts where needed and avoiding information that is not relevant. Again, outline the course of action you expect, such as a return call or visit.

Close appropriately, making sure to include your contact information. While this may seem obvious, it is sometimes overlooked and can make your written communications look amateurish. This can diminish your chances of meeting your written communication's goals.

In the next article we look at a special case of written communication - use of email.

Communicating By Email (9.4)

Function: Communicate effectively in the electronic age

How to use tool: As with all written communications, your emails should be clear and concise. Sentences should be kept short and to the point.

This starts with the emails subject line. Use the subject line to inform the receiver of EXACTLY what the email is about. Keep in mind, the subject line should offer a short summary of the email and allows for just a few words. Because everyone gets emails they do not want (i.e. Spam), appropriate use of the subject line increases the chances your email will be read and not discarded into the deleted email file without so much as a glance.

Because emails have the date and time they were sent, it is not necessary to include this information in your email correspondences. However, the writing used in the email should liken that used is other business writings. The email should be clear and concise, with the purpose of the email detailed in the very first paragraph.

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The body of the email should contain all pertinent information (see writing tips in Written Communications) and should be direct and informative.

Make sure to include any call to action you desire, such as a phone call or follow-up appointment. Then, make sure you include your contact information, including your name, title, phone and fax numbers, as well as snail-mail address. If you have additional email addresses, you may want to include these, as well.

If you regularly correspond using email, make sure to clean out your email inbox at least once each day. Of course, the exception here may be on days you do not work, such as weekends and holidays.

Make sure you return emails in a timely manner. This is a simple act of courtesy and will also serve to encourage senders to return your emails in a timely manner.

Internal email should be treated as regular email, following the same rules as outlined above. However, internal email should be checked regularly throughout the working day and returned in a much quicker manner as much of these detail timely projects, immediate updates, meeting notes, etc. Nonetheless, internal emails, just like emails, should not be informal. Remember, these are written forms of communication that can be printed out and viewed by others than those originally intended for.

Running Effective Meetings (9.5)

How to use tool:

While meetings are wonderful tools for generating ideas, expanding on thoughts and managing group activity, this face-to-face contact with team members and colleagues can easily fail without adequate preparation and leadership.

The Importance of Preparation

To ensure everyone involved has the opportunity to provide their input, start your meeting off on the right foot by designating a meeting time that allows all participants the time needed to adequately prepare.

Once a meeting time and place has been designated, make yourself available for questions that may arise as participants prepare for the meeting. If you are the meeting leader, make a meeting agenda, complete with detailed notes. In these notes, outline the goal and proposed structure of the meeting, and share this with the participants. This will allow all involved to prepare and to come to the meeting ready to work together to meet the goal(s) at hand.

The success of the meeting is hinged on the skills displayed by the meeting leader. To ensure the meeting is successful, the leader should:

- Generate an agenda to all involved in the meeting
- Start the discussion and encourage active participation
- Work to keep the meeting at a comfortable pace – not moving too fast or too slow

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- Summarize the discussion and the recommendations at the end of each logical section
- Circulate minutes to all participants

While these tips will help ensure your meeting is productive and well-received, there are other important areas that need to be touched on to make sure your meeting and negotiation skills are fine-tuned and ready to take to the boardroom.

Managing a Meeting

Choosing the right participants is key to the success of any meeting. Make sure all participants can contribute and choose good decision-makers and problem-solvers. Try to keep the number of participants to a maximum of 12, preferably fewer. Make sure the people with the necessary information for the items listed in the meeting agenda are the ones that are invited.

If you are the leader, work diligently to ensure everyone's thoughts and ideas are heard by guiding the meeting so that there is a free flow of debate with no individual dominating and no extensive discussions between two people. As time dwindles for each item on the distributed agenda, you may find it useful to stop the discussion, then quickly summarize the debate on that agenda item and move on the next item on the agenda.

When an agenda item is resolved or action is agreed upon, make it clear who in the meeting will be responsible for this. In an effort to bypass confusion and misunderstandings, summarize the action to be taken and include this in the meeting's minutes.

Issuing Minutes

Minutes record the decisions of the meeting and the actions agreed. They provide a record of the meeting and, importantly, they provide a review document for use at the next meeting so that progress can be measured - this makes them a useful disciplining technique as individuals' performance and non-performance of agreed actions is given high visibility.

The style of the minutes issued depends on the circumstances - in situations of critical importance and where the record is important, then you may need to take detailed minutes. Where this is not the case, then minutes can be simple lists of decisions made and of actions to be taken (with the responsible person identified). Generally, they should be as short as possible as long as all key information is shown - this makes them quick and easy to prepare and digest.

It is always impressive if the leader of a meeting issues minutes within 24 hours of the end of the meeting - it's even better if they are issued on the same day.

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Win-Win Negotiation (9.6)

Function: Finding a Fair Compromise

How to use tool: Negotiation skills help you to resolve situations where what you want conflicts with what someone else wants. The aim of negotiation is to explore the situation to find a solution that is acceptable to both parties.

There are different styles of negotiation, depending on circumstances. Where you do not expect to deal with people ever again and you do not need their goodwill, then it may be appropriate to 'play hardball', seeking to win a negotiation while the other person loses out. Many people go through this when they buy or sell a house – this is why house-buying can be such a confrontational and difficult experience. Similarly, where there is a great deal at stake in a negotiation (for example, in large sales negotiations), then it may be appropriate to prepare in detail and use a certain amount of subtle gamesmanship to gain advantage.

Both of these approaches are usually wrong for resolving disputes with people you have an ongoing relationship with: if one person plays hardball, then this disadvantages the other person – this may, quite fairly, lead to reprisal later. Similarly, using tricks and manipulation during a negotiation can severely undermine trust and damage teamwork. While a manipulative person may not get caught out if negotiation is infrequent, this is not the case when people work together on a frequent basis. Honesty and openness are the best policies in this case.

Preparing for a successful negotiation…

Depending on the scale of the disagreement, a level of preparation may be appropriate for conducting a successful negotiation.

For small disagreements, excessive preparation can be counter-productive because it takes time that is better used elsewhere. It can also be seen as manipulative because just as it strengthens your position, it can weaken the other person's.

If a major disagreement needs to be resolved, then it can be worth preparing thoroughly. Think through the following points before you start negotiating:

- Goals: what do you want to get out of the negotiation? What do you expect the other person to want?
- Trades: What do you and the other person have that you can trade? What do you each have that the other might want? What might you each be prepared to give away?
- Alternatives: if you don't reach agreement with the other person, what alternatives do you have? Are these good or bad? How much does it matter if you do not reach agreement? Does failure to reach an agreement cut you out of future opportunities? What alternatives might the other person have?
- Relationships: what is the history of the relationship? Could or should this history impact the negotiation? Will there be any hidden issues that may influence the negotiation? How will you handle these?

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- 'Expected outcomes': what outcome will people be expecting from this negotiation? What has the outcome been in the past, and what precedents have been set?
- The consequences: what are the consequences for you of winning or losing this negotiation? What are the consequences for the other person?
- Power: who has what power in the relationship? Who controls resources? Who stands to lose the most if agreement isn't reached? What power does the other person have to deliver what you hope for?
- Possible solutions: based on all of the considerations, what possible compromises might there be?

Style is critical…
For a negotiation to be 'win-win', both parties should feel positive about the situation when the negotiation is concluded. This helps to maintain a good working relationship afterwards. This governs the style of the negotiation – histrionics and displays of emotion are clearly inappropriate because they undermine the rational basis of the negotiation and because they bring a manipulative aspect to them.

Despite this, emotion can be an important subject of discussion because people's emotional needs must fairly be met. If emotion is not discussed where it needs to be, then the agreement reached can be unsatisfactory and temporary. Be as detached as possible when discussing your own emotions – perhaps discuss them as if they belong to someone else.

Negotiating successfully…
The negotiation itself is a careful exploration of your position and the other person's position, with the goal of finding a mutually acceptable compromise that gives you both as much of what you want as possible. People's positions are rarely as fundamentally opposed as they may initially appear - the other person may quite often have very different goals from the ones you expect!

In an ideal situation, you will find that the other person wants what you are prepared to trade, and that you are prepared to give what the other person wants.

If this is not the case and one person must give way, then it is fair for this person to try to negotiate some form of compensation for doing so – the scale of this compensation will often depend on the many of the factors we discussed above. Ultimately, both sides should feel comfortable with the final solution if the agreement is to be considered win-win.

Speaking to an Audience (9.7)

Function: Communicate Complex Ideas Successfully

How to use tool: Speaking to an audience can be fun and exciting. However, lack of preparation or not clearly defining the presentation's goals and its audience can make even the best-intended presentation a complete disaster.

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Preparation - The Key to Successful Speaking...
To ensure your presentation is effective, first determine your objective. Ask yourself:

- Why am I giving the presentation?
- What do I want the audience to take away from the presentation?

Second, determine your audience. Their familiarity with the presentation topic will determine the level at which you present your speech.

How to Structure Your Presentation

Once you have determined your presentation's objective and overall goal, as well as the audience, it's time to structure your presentation. You will need to start this process by determining the length of the presentation.

Take the allotted time and break it into smaller segments, with each segment tackling a specific task (all of which reflect the overall objective of the presentation). For example, the fist segment should be the presentation introduction. In this segment, you should give an overview of your presentation, or a short summary of your speech, explaining the topic, why you are covering this topic, and what you hope to accomplish.

The next segment should tackle the first item on your agenda, with the following segment tackling the following item on your agenda, and so on.

Once you have developed the introduction and outlined the following segments, spend some time thinking about the conclusion of the presentation. The introduction of the presentation and the conclusion of the presentation are the most important parts and should have the strongest impact.

Achieving Clarity and Impact

Keep your presentation short and simple. Your audience will not remember every point of your presentation, so highlight the most important parts. The longer the presentation, the higher the risk of boredom.

When in doubt, use the "tell 'em" structure:

- Tell them what you are going to tell them (For instance, "In this presentation I will show you…").
- Tell them the key points, expanding and illustrating each one, clearly and concisely.
- Tell them what you have told them (For instance, "In closing…" or "In summary…") and conclude.

Reinforce Your Message With Visual Aids

Next, consider the use of visual aids. Slide projectors, data projectors, video machines and computers should be tested out beforehand to make sure they are operating correctly and that you know how to use them.

Make sure you do not cram too much information onto any single visual. A good rule of thumb to follow is to keep each visual to six lines or less. Also, make sure any type or

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graphics are large enough the audience can see it clearly (from all seats) and make sure the colors used are easy on the eyes, taking into account the lighting.

You should also be aware that much of your authority will be judged by the visual quality of your slides - you need to make sure that their design supports the style of your message, and that your slide design and presentation is up to the standards expected by your audience.

When using overheads, these should be clearly marked and arranged in order beforehand. Flip charts should be prepared in advance when possible. When used during the presentation to take notes, make print large enough for all participants to see.

When using these various visuals, do not turn your back to the audience. Position yourself so you can use the visuals while facing your audience.

Arranging the Room

If possible, visit the room in which you will make the presentation well in advance. Determine seating (circle seating encourages interaction, rows of seats discourages interaction, etc.) and determine how the visual aids you choose will work. Consider lighting, space, even the temperature of the room. Consider placing notepads and pencils at each seat if participants need to take notes. Or, you may want to have glasses at each seat with a few pitchers of water if the presentation is going to last more than half of an hour. If you do this, make sure you allow time for bathroom breaks.

While you do not need to memorize your entire presentation, make yourself very, very familiar with it through several practice runs. Rehearse the presentation in its entirety as often as you can before delivering it to a live audience. The more you rehearse, the more confident you will be and the more fluent you will seem to your audience - if you know your subject matter and have adequately prepared, you will be able to deliver your message loud and clear.

When in doubt or nervous, stay focused on your purpose – helping your audience understand your message. Direct your thoughts to the subject at hand. The audience has come to hear your presentation and you will succeed!

Tips and Techniques

Tips to help make your presentation a smashing success:

- Avoid too many statistics and confusing information in your presentation. Instead, put this information in a handout for participants to refer to at a later date.
- If you forget your words, pause for a moment and remember your objective. While the words may not come right back to you, this will help keep you on track and may even help you to think of additional thoughts and ideas your audience will benefit from hearing.
- Visualize yourself succeeding.
- Before the presentation, focus on the needs of the audience.
- If necessary, calm your nerves with an appropriate relaxation technique (for example, see 8.4 and 8.5).

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- Take a public speaking course at a local college or university. These are oftentimes offered as night courses and are usually very inexpensive, while providing you with important skills that will enhance your confidence in this area.
- Videotape yourself going through the presentation. All you need to do this is a video camera and a tripod. Then, run through the video and make changes according to your thoughts on the taped presentation.

Many of these points are summarized in our next tool, the Presentation Planning Checklist.

Presentation Planning Checklist (9.8)

Function: Making sure you have remembered all key points

How to use tool: The following presentation checklist will help you deliver successful presentation. This is adapted in part from "Business Communications: A Cultural and Strategic Approach" by Michael J. Rouse and Sandra Rouse.

Presentation:

- Does your introduction grab participant's attention and explain your objectives?
- Do you follow this by clearly defining the points of the presentation?
- Are these main points in logical sequence?
- Do these flow well?
- Do the main points need support from visual aids?
- Does your closing summarize the presentation clearly and concisely?
- Is the conclusion strong?
- Have your tied the conclusion to the introduction?

Delivery:

- Are you knowledgeable about the topic covered in your presentation?
- Do you have your notes in order?
- Where and how will you present (indoors, outdoors, standing, sitting, etc.)?
- Have you visited the presentation site?
- Have you checked your visual aids to ensure they are working and you know how to use them?

Appearance:

- Make sure you are dressed and groomed appropriately and in keeping with the audience's expectations.
- Practice your speech standing (or sitting, if applicable), paying close attention to your body language, even your posture, both of which will be assessed by the audience.

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Visual Aids:

- Are the visual aids attractive, easy to read and easy to understand?
- Are they tied into the points you are trying to communicate?
- Can they be easily seen from all areas of the room?

Communicating Internationally (9.9)

Function: Cross-culture communication made easy

How to use tool: With more and more companies globalizing, employees in various international locations now have day-to-day communications with each other. Given different cultural contexts, this brings new communication challenges to the workplace.

Even when these employees speak the same language (for instance, correspondences between English-speakers in the U.S. and English-speakers in the UK), there are some cultural differences that should be considered in an effort to optimize communications between the two parties.

In such cases, effective communication strategy begins with the understanding that the sender of the message and the receiver of the message are from different cultures and backgrounds. Of course, this introduces a certain amount of uncertainty, making communications even more complex.

Without getting into cultures and sub-cultures, it is perhaps most important to realize that a basic understanding of cultural diversity is the key to effective cross-cultural communications. Without intently studying the individual cultures and languages, we must all learn how to better communicate with individuals and groups whose first language, or language of choice, does not match our own.

Learning the basics about culture and at least something about the language of communication in the host country are necessary. This is necessary even for the basic level of understanding required to engage in appropriate greetings and physical contact, which can be a tricky area inter-culturally. For instance, kissing a business associate is not considered an appropriate business practice in the U.S, but in Paris, one peck on each cheek is an acceptable greeting. And, the handshake that is widely accepted in the U.S. is not recognized in all other cultures.

While many companies now offer training in the different cultures where the company conducts business, it is important that employees being thrust into communicating across cultures practice patience and work on their own to increase their knowledge and understanding of the different culture. This requires the ability to see that a person's own behaviors and reactions are oftentimes culturally driven.

Perhaps simply showing a genuine interest, paired with patience and understanding, is the best answer here.

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Module 10

Leadership Skills

Leadership Motivation Assessment

Leadership Motivation Tools

Information Gathering

Winning Expert Power

Task Allocation

Understanding Developmental Needs

Cross Cultural Management

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Leadership Skills

by James Manktelow, Felix Brodbeck and Namita Anand

> *"At the age of seven, a young boy and his family were forced out of their home. The boy had to work to support his family. At the age of nine, his mother passed away. When he grew up, the young man was keen to go to law school, but had no education.*
>
> *At 22, he lost his job as a store clerk. At 23, he ran for state legislature and lost. The same year, he went into business. It failed, leaving him with a debt that took him 17 years to repay. At 27, he had a nervous breakdown.*
>
> *Two years later, he tried for the post of speaker in his state legislature. He lost. At 31, he was defeated in his attempt to become an elector. By 35, he had been defeated twice while running for Congress. Finally, he did manage to secure a brief term in Congress, but at 39 he lost his re-election bid.*
>
> *At 41, his four-year-old son died. At 42, he was rejected as a prospective land officer. At 45, he ran for the Senate and lost. Two years later, he lost the vice presidential nomination. At 49, he ran for Senate and lost again.*
>
> *At 51, he was elected the President of the United States of America.*
>
> *The man in question: Abraham Lincoln."*
>
> —— *Author Unknown*

Many of us are acquainted with this eloquent example of persistence in achieving victory. We read it, stop for a moment and then sigh and say: "Wow! That's the stuff real leaders are made off."

And in saying this, it's all too easy for us to think about leaders like Lincoln almost as "mythological creatures", separate from the rest of humanity and empowered by some mysterious quality that smoothes their path towards inevitable success. This is the view of leadership that many people have traditionally taken: That leaders are marked out for leadership from early on in their lives, and that if you're not a leader, there's little that you can do to become one.

However, that's not the way we see it now. The modern view is that through patience, persistence and hard work, you can acquire the qualities of an effective leader. And that, just as long as you make the effort needed, you can lead successfully.

This section of Mind Tools helps you make a start in finding and developing these leadership qualities within yourself.

Our first tools look at your motivation to lead – without a strong motivation to lead, you'll struggle to be an effective leader. The Leadership Motivation Assessment helps you understand the strength of your

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motivation to lead, while our Self-Motivation Tools article gives you some useful techniques you can use to build it further.

We then move on to look at vision creation. This is a complex subject, however we look at one important facet of it: Information Gathering. Good information is essential if you are to build a compelling, robust vision of the future that people can believe in and want to follow. And this is also part of Winning Expert Power, one of the profoundly honest sources of strength and power that you can draw on as a leader, and subject of the next article.

After this, we look at the important execution skill of "Task Allocation" - picking the right team - and then, in the "Understanding Developmental Needs" article, we help you think about how you can understand the different needs of different team members. And we round the articles out by looking at "Cross-Cultural Management" – an essential skill in our rapidly-globalizing world.

Leadership Motivation Assessment (10.1)

Function: Understanding Your Motivation to Lead

Introduction: If you want to be an effective leader, it's fundamentally important that you have a strong motivation to lead. After all, being an effective, good leader needs hard work, and if you have doubts over whether you want to lead or not, you'll struggle to put this work in. Even more, you'll find it hard to be authentic in the way you work with your team.

This assessment helps you evaluate your motivation to lead. It helps you see whether you need to work on your motivation to lead.

Using the Tool: There are two easy ways of using this assessment. Either:

1. Work through Figure 2.2.1 below on paper and calculate values manually; or
2. Download our Microsoft Excel spreadsheet and fill values in (download this from http://www.mindtools.com/courses/HTL/Figure2-2-1.xls). This will automatically calculate scores for you.

To work through on paper, use the table and scoring instructions on the next page.

See the next tool if you find that you need to increase your motivation to lead.

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Instructions for Manual Completion: Show the extent to which you agree with each of the following statements on a scale running from 1 (strongly disagree) to 5 (strongly agree).

Figure 2.2.1. Leadership Motivation Assessment		Score
1.	I am energized when people count on me for ideas.	
2.	As a practice, I ask people challenging questions when we are working on projects together.	
3.	I take delight in complimenting people that I work with when progress is made.	
4.	I find it easy to be the cheerleader for others, when times are good and when times are bad.	
5.	Team accomplishment is more important to me than my own personal accomplishments.	
6.	People often take my ideas and run with them.	
7.	When involved in group projects, building team cohesiveness is important to me.	
8.	When involved in group projects, coaching others is an activity that I gravitate toward.	
9.	I find pleasure in recognizing and celebrating the accomplishments of others.	
10.	When involved in group projects, my team members' problems are my problems.	
11.	Resolving interpersonal conflict is an activity that I enjoy.	
12.	When involved in group projects, I frequently find myself to be an "idea generator."	
13.	When involved in group projects, I am inclined to let my ideas be known.	
14.	I find pleasure in being a convincing person.	

Scoring and Interpretation: Sum your responses to the 14 questions and then divide that number by 14. Your score should fall between a low of 1 and a high of 5.
My leadership motivation (readiness) score is: _____

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A tentative interpretation of your scoring is as follows:
4 and greater: implies a high motivation for leadership.
2 to 4: implies some uncertainty about your motivation for leadership.
2 and less: implies a low motivation for leadership.

(Source: This set of questions was constructed for this self-assessment and for illustrative purposes only. No prior validation work has been conducted that enables us to address the construct validity of this assessment. This self-assessment was patterned after that of A. J. DuBrin in Leadership: Research Findings, Practice and Skills (2nd edition) (Boston: Houghton Mifflin Co., 1998). Pp. 10-11.)

Leadership Motivation Tools (10.2)

Function: Increasing Your Motivation to Lead

Introduction: In the previous article we gave you a tool for assessing your motivation to lead. So what if you want to become more of a leader, but you're finding it difficult to motivate yourself?

Using the Tools: Here we look at three tools that help you increase your motivation to lead: "The Demotivation Demolisher", "The Need/Effort Bridge" and "Passion Propulsion".

Demotivator Demolisher – Kill the Killjoy

The first step in building motivation is to identify what demotivates you and then tackle the problem head on.

Now, here we're looking at demotivation on two levels. On one level we're looking at the fundamental motivation to lead, as we discussed in our previous article. At a second level, we look at the day-to-day irritations that frustrate you and distract you from doing a good job.

First, we look at motivation to lead.

When we asked you to complete the Leadership Motivation Assessment, we were asking you whether, deep down, you want the responsibility as well as the rewards of leadership.

Some of the benefits of leadership are obvious. But what if you find that something is holding you back? What if you find that, when you look within yourself, you're not that sure that you want to lead a team?

Marcus Jackson wasn't happy. He had just been promoted to lead a product development team in a different department of the engineering company at which he worked.

He felt that he had been promoted because of his expertise and the quality of his work. And he was proud that he'd been chosen.

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However, he felt profoundly uncomfortable in his new role: He was confused about what was expected from him, he had had little experience of leadership before, and he felt out of his depth in dealing with the people issues he was now expected to handle. What was worse was that he instinctively felt that the team was expecting things of him that he didn't know how to give. All in all, he was questioning whether he'd made the right move, and whether he should return to his previous job.

Fortunately, Marcus had enough insight to recognize the importance of these issues, and identify the detailed issues he was experiencing. And when he listed the points out, it all became clear: What he needed was training in basic supervisory skills, and help in applying these.

He approached his boss and put a persuasive case for a particular training course. And he also made sure that he got regular coaching on the issues he faced, which helped put the theory he learned into practice.

The second level of demotivation comes from the day-to-day irritations that distract you from doing a good job. Consider the case of Susan Mitchell, outlined below:

Susan, a marketing executive, had just joined a new firm. She had set a target for herself - within a year she would take over as the team leader. She knew she had the capability and was prepared to work hard enough.

Our girl would be the first to volunteer for a new assignment and the initial weeks saw her excitedly working late hours. But a couple of months later, she started losing steam. She was distracted, would tire easily and somehow just couldn't come up with great ideas.

Susan knew she would fail in her ambition if things went on this way. She made a conscious decision to tackle the problem. First she acknowledged that she had lost motivation. Then she tried to analyze, why. She came up with three reasons - uncooperative team members; boredom; and her office being positioned bang next to the pantry.

Susan figured she could tackle at least one problem immediately – the office placement. She asked the boss for a move to another office space and got it. The other two issues she is still grappling with. But at least she knows they exist and is consciously trying to fix them.

If you too suffer from either of these issues of motivation, take a leaf out of Marcus' and Susan's book.

First set aside 15 minutes to note down the things that steal your motivation, whether these are things that undermine your motivation to lead, or are general irritants that are undermining your self-motivation. List them under the column, De-motivators, in the table below.

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De-Motivator	Circumstantial or Habitual	

Done with the list? Now you are ready to take on the challenge of tackling the killjoys.

Start by considering whether the 'demotivation attacks' are occasional, circumstantial things, triggered by circumstantial factors (the visit of an irritating client; or being under the weather), or are they habitual, typifying your working style (leaving tasks unfinished; or saying yes to everything irrespective of whether you can do it). Mark the cause, circumstantial or habitual, in your table.

Next comes the solution column. If circumstantial factors bother you, then get a grip on exactly what is it that "switches you off" and try to neutralize the cause. For Susan, it was being next to the kitchen. She "just didn't feel like working" and was distracted by who was having how many cups of coffee. Once the de-motivator was identified, she pushed her boss to allot her another workspace. Her work improved. You may not be able to run out and fix the problem immediately, but at least list the solution.

However, if the de-motivator is a recurring habit, you have to acknowledge it as a serious handicap, which may undermine all the good work you want to accomplish. You need to make concerted effort to bring motivation and passion to the activity. Our next tools will show you how to achieve this. Zero in on the correct tools and list them in your solutions column.

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Background:
One of the key figures in the development of the theory of motivation was Frederick Herzberg, who closely studied the sources of employee motivation in the 1950s and 1960s. What he discovered was that the things that demotivate people are different from the things that motivate them.

Herzberg's "Hygiene Factors" (the things that made people unhappy and demotivated) were obstructive company policy, unhelpful administration, intrusive supervision, bad working relationships, poor conditions, uncompetitive salaries, low status and job insecurity.

And just as these things demotivated the people who Herzberg studied, they may be the things that demotivate you. Take them seriously!

The Need-Effort Bridge – Link action to motive

Establishing a clear motive for the actions you undertake is one of the best ways to create motivation. Remember the old 'What's In It For Me' principle? You can apply it to yourself to create motivation.

Once you have figured out that the effort you make fulfils a need that you have, the effort will automatically become much more worthwhile.

The need-effort bridge can work at several levels.

At one level, the very basic level, you make an effort at your job because it fetches you money and helps you fulfill your material needs. At another level, you make an effort at your job because you feel that by performing it well, you are helping your company achieve a better goal and this makes you feel good about yourself.

Background:
Remember Frederick Herzberg above? The things that he discovered motivated people were quite different from the things he found demotivated people. Herzberg's motivators were achievement; recognition for that achievement; an enjoyable job; responsibility; growth; and advancement.

Now, Herzberg didn't particularly believe in the power of money as a motivator. Whether you do or not depends on the way you think (and may be cultural) – pick the motivators that most motivate you!

Now, let us go back to the demotivator lists that you drew up earlier. Let us say that after identifying the demotivators, you realize that you cannot do anything much about the majority of them. Then it is time to figure out why you are putting up with these demotivators. Is it because you have established a very strong, meaningful need for your effort, or is it inertia?

If you are not sure about the answer, try and conduct the need-effort establishment exercise:-

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Need-Effort Establishment Exercise
Take a paper and divide it in two halves. Head up one section 'Needs' and the other 'Effort.' List the needs you have – these could be anything from owning the new BMW to finding spiritual balance. Material rewards, professional standards, or personal targets are good thinking points to identify your needs. Next, list the efforts you are making – on your job, in your community, or whatever.

Then link the effort to the need it serves. For instance, the effort you are making on the new job could link up to the need for buying the new BMW: Hopefully the extra effort will translate into a bonus, which would serve as the down payment on the BMW.

Just remember that the more meaningful the need you are seeking to satisfy, the more motivated you will feel.

Hopefully, after conducting the exercise, you can find strong motivation to justify your efforts. You may have to spend energy grappling with the killjoys, but you know the effort is worth it.

However, if you cannot find this motivation, then maybe it is time you contemplated channeling your efforts in a different direction. What should this different direction be? Our next tool, Passion Propulsion, helps you arrive at an answer to this question.

Passion Propulsion – Find your passion. Use it to inspire and enthuse.

"Nothing great is ever achieved without passion."
—— Ralph Waldo Emerson

Passion is a great motivator. It is what gives the ultimate meaning to your actions. Being fiercely passionate about goals and targets helps give you an edge and helps you inch closer to your leadership position.

However, passion has to be handled with precision. You don't want to fritter away the energy it gives you. A much better idea would be to identify it and then use it with laser sharp focus to achieve your goals. This tool helps you do this. It operates at two levels: Firstly, it helps you identify goals that you are passionate about; and secondly, it shows you how to direct your passion energy.

Step 1 - Define your passion:
What "fires you up"? For some people the answer to this question is very obvious. For others, it is a little more difficult.

If you are facing difficulty giving a definite answer set aside 30 minutes to answer three questions:

- What would I want my life to be like when I am 60?
- What do I want to have accomplished 5 years from now?
- What are the three things I would want to do if I only had 6 months to live?

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Each question will have several answers. Choose the top three answers for each question.

Now out of the nine goals you have identified, cull out the three that look most important to you. Obviously, these three goals are things that are very important to you. You should naturally be passionate about achieving them: If not, you may need to set goals that are on a grander or more beneficial scale!

Step 2 - Harness Passion Energy
Once you have set inspirational goals, work out what you need to do to achieve them.

Identify the key information and training you need to achieve them effectively, and think through the tools you'll need and the people you'll need support from on your way.

Make a professional, rational, well thought-through plan. And then use this plan to turn your goals into reality.

Tip:
For more information on goal setting, go to our goal setting page. And for more on life and career direction, take a look at our Design Your Life course.

Information Gathering: Information is Inspiration (10.3)

Using the tool: Effective information gathering is the most basic perspective-widening tool an effective leader requires. Good quality information marks out the context in which the leader operates, creates the information patterns from which ideas emerge, and provides the criteria by which ideas are screened and assessed.

Effective leaders gather two main types of information:
- Background Data, and
- Task-Related Data

Leaders gather background data to build their view of the world in which they operate. This information is made up of the countless facts, trends and opinions that they encounter and the observations they make on a daily basis. The higher the quality of background data they gather and the more effectively they prioritize it, the more accurate their view of the world will be, and the better their judgment and "common sense".

By contrast with the steady, slow gathering of background data, task-related information is gathered for a specific purpose. Perhaps you're preparing a five-year business plan and you want a reliable growth forecast from your country's central bank. Or maybe you want specific information about the number and disposable incomes of a certain group of

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consumers. Or perhaps you need to know projected labor market trends for people with a key skill on which you depend.

Gathering Background Information:

What is certain, however, is that task-related information on its own is not enough: While arguments created with it can be persuasive, they are "brittle" and can often be knocked down with previously unknown facts that just don't fit. This is where ideas need to be tested with the common sense that comes with diligently acquired background information.

There are a number of things you can do to build background information:

- Read a newspaper or news website respected for the quality and accuracy of its journalism (for example, "The Economist");
- Where possible, talk to your customers and get a deep understanding of what they want and don't want from you, and what they're getting or not getting from you and your competitors;
- Read industry magazines and newsletters for both your own and your customers' industries, keeping an eye on customers, competitors, suppliers, industry associations, activist groups, new technologies and so on;
- Talk to experts in the fields in which you operate and knowledgeable people within your organization, and understand their perspectives on the key trends and features of interest;
- Read brochures and talk to product teams to make sure you understand your organization's products and services, their strengths and weaknesses, and what your customers like or dislike about them;
- Have a good understanding of company or business unit strategy – i.e. what your company says it wants to do, who it wants its customers to be, and how it plans to serve them; and
- Take the time to "tune in" to what's going on in your organization: Through both the formal and informal "grapevines".

What is necessary here is to take the time to gather this information: It's all too easy for these activities to be lost under the pressures of a hectic schedule.

Gathering Task-Related Information:

It's much easier to justify the time spent gathering task-related information: Information-gathering actions are clearly identified steps in the projects you undertake.

There are three key factors here:-

1. Understanding how much research you should do;
2. Making sure you ask the right questions; and
3. Gathering the information you need.

The amount of research you take depends on the scale of the decision, the time available, and the consequences of getting it wrong. If it's a small decision, or the consequences of getting it wrong are small, then don't waste too much time on it. On the other hand, if the consequences are severe, take time to make a good decision, and make sure you make an appropriate risk management plan in case things don't work out.

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Making sure you ask the right questions is of key importance. Start by brainstorming these questions, ideally with your boss or client or with experts in the field or within your organization. Then make sure you draw on any predefined frameworks you can find, where people have tried to make a system or process for solving this type of problem. For example, if you're gathering information as part of researching a business plan, then buy a good book on business planning from Amazon.com and adapt the framework it proposes for your own use.

Finally, make a plan for gathering the key information needed, and think about how much you're prepared to spend to get it.

A lot of information is relatively freely available, within your organization or in good business, academic or institutional libraries. Some information is packaged and for sale (for example, detailed competitor financial reports). Other information you may need to gather yourself, for example in interviewing clients or conducting market research surveys. And in other cases (for example, in taking legal advice) it makes sense to pay a qualified expert to answer your questions.

And at the end of all this research, make sure you take a step back and look at the answers you've gained through the filter of common sense. Ask yourself if any information seems to be missing, or if anything you've uncovered jars with your instincts and experience.

Finally, while information gathering is an essential skill for an effective leader, bear in mind that the information is not an end in itself. It is useful because it serves as an input towards generating ideas and building vision. Later on in this section, we'll look at how to process information to build this vision.

In the next article, we look at how you can use the information you've gathered to build Expert Power.

Building Expert Power – Lead from the Front (10.4)

Introduction: There are many different power bases that a leader can use and exploit.

These include problematic ones such as the power of position, the power to give rewards, the power to punish and the power to control information. While these types of power do have some strength, they put the person being lead in an unhealthy position of weakness, and can leave leaders using these power bases looking autocratic and out of touch.

More than this, society has changed hugely over the last 50 years. Citizens are individually more powerful, and employees are more able to shift jobs. Few of us enjoy

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having power exerted over us, and many will do what they can to undermine people who use these sorts of power.

However there are three types of positive power that effective leaders use: charismatic power, expert power and referent power.

This article teaches the technique of building expert power.

Using the Tool:

Expert power is essential because as a leader, your team looks to you for direction and guidance. Team members need to believe in your ability to set a worthwhile direction, give sound guidance and co-ordinate a good result.

If your team perceives you as a true expert, they will be much more receptive when you try to exercise influence tactics such as rational persuasion and inspirational appeal.

And if your team sees you as an expert you will find it much easier to guide them in such a way as to create high motivation:

- If your team members respect your expertise, they'll know that you can show them how to work effectively;
- If your team members trust your judgment, they'll trust you to guide their good efforts and hard work in such a way that you'll make the most of their hard work; and
- If they can see your expertise, team members are more likely to believe that you have the wisdom to direct their efforts towards a goal that is genuinely worthwhile.
- Taken together, if your team sees you as an expert, you will find it much easier to motivate team members to perform at their best.

So how do you build expert power?

- **Gain expertise:** The first step is fairly obvious (if time consuming) – gain expertise. And, if you are already using tools like the information gathering tool in the previous article, the chances are that you have already progressed well ahead in this direction.

But just being an expert isn't enough, it is also necessary for your team members to recognize your expertise and see you to be a credible source of information and advice. Gary A. Yukl, in his book "Leadership in Organizations," details some steps to build expert power. A summary of these steps follows:

- **Promote an image of expertise:** Since perceived expertise in many occupations is associated with a person's education and experience, a leader should (subtly) make sure that subordinates, peers, and superiors are aware of his or her formal education, relevant work experience, and significant accomplishments.

  One common tactic to make this information known is to display diplomas, licenses, awards, and other evidence of expertise in a prominent location in one's office – after all, if you've worked hard to gain knowledge, it's fair that you get credit for it. Another tactic is to make subtle references to prior education or experience (e.g., "When I was

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chief engineer at GE, we had a problem similar to this one"). Beware, however, this tactic can easily be overdone.

- **Maintain credibility:** Once established, one's image of expertise should be carefully protected. The leader should avoid making careless comments about subjects on which he or she is poorly informed, and should avoid being associated with projects with a low likelihood of success.

- **Act confidently and decisively in a crisis:** In a crisis or emergency, subordinates prefer a "take charge" leader who appears to know how to direct the group in coping with the problem. In this kind of situation, subordinates tend to associate confident, firm leadership with expert knowledge. Even if the leader is not sure of the best way to deal with a crisis, to express doubts or appear confused risks the loss of influence over subordinates.

- **Keep informed:** Expert power is exercised through rational persuasion and demonstration of expertise. Rational persuasion depends on a firm grasp of up-to-date facts. It is therefore essential for a leader to keep well-informed of developments within the team, within the organization, and in the outside world.

- **Recognize subordinate concerns:** Use of rational persuasion should not be seen as a form of one-way communication from the leader to subordinates. Effective leaders listen carefully to the concerns and uncertainties of their team members, and make sure that they address these in making a persuasive appeal.

- **Avoid threatening the self-esteem of subordinates:** Expert power is based on a knowledge differential between leader and team members. Unfortunately, the very existence of such a differential can cause problems if the leader is not careful about the way he exercises expert power.

  Team members can dislike unfavorable status comparisons where the gap is very large and obvious. They are likely to be upset by a leader who acts in a superior way, and arrogantly flaunts his greater expertise.

  In the process of presenting rational arguments, some leaders lecture their team members in a condescending manner and convey the impression that the other team members are "ignorant." Guard against this.

The next article moves into leadership tactics, explaining how to pick a winning team.

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Task Allocation – Pick the Right Player for the Job (10.5)

Introduction:

In any team sport, a lot of time is spent choosing the players who will play in each game. The selection process also involves deciding the position where each team member will play, based on the player's skill, form (current ability to perform well) and the likely opposition that the team will face.

Just as this is true in sport, it is true in business. Leaders need to select the right people for the right jobs, and assign them tasks that fit with their skills and proficiencies. This provides structure.

So how do you do this? To field a match-winning team, first you need to understand the game that has to be played and the skills and abilities required to play it: There's no point asking a football team to play baseball if you want to win at the top level.

Then you have to place the correct player in the correct position. Mere common sense, you would think - but then, as the old quip goes, "common sense is often quite uncommon".

Using the Tool:

Here we give you the four-step "BALM" method to pick the right team:

- **B**reak down the broader team goals into specific, individual tasks. List all tasks, and then rank each task in terms of importance;
- **A**nalyze and list the competencies required to perform each task;
- **L**ist the competencies of each team member;
- **M**atch individuals to task competencies.

> **Tip:**
> An easy way of doing this is to write down the competencies needed for each task on one color of Post-It® Note, and the competencies of each team member on another color of Post-It Note. You can then move these around as you match people to roles.
>
> *Post-It® is a trademark of 3M Corporation.*

This is great as a starting point, but in the real world you'll most-likely find lots of overlaps and lots of gaps. In such cases you have to take considered decisions.

Overlaps and Gaps:

Where you have overlaps, you have two choices: Either allotting better qualified individuals to more important tasks, or allocating the task to the person at the lowest organizational level who is qualified to do the job. Both approaches have their virtues, but in different situations: One allows you to do the job with a higher level of certainty, the other allows you to do it more efficiently and at a lower cost.

Where you have a gap, you may need to train existing team members, or recruit to fill the

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gap. Often, training is the best option: Not only is it usually cheaper, you also know more about the individual's talents and working methods. On the downside, a newly trained person usually has plenty of theory, but lacks the experience of putting that training into practice.

Recruitment often takes a very long time (time to agree the role internally, advertise it, screen resumes, interview candidates, select, wait for notice periods to be served, train the individual in organizational methods, and so on) and can be very expensive. It is also risky: Even using the best interviewing and testing methods, it's possible for candidates to cover up failings that only become obvious once someone's been in a role for several months.

Tip 2:

A useful piece of advice handed down from generation to generation of manager is to "never underestimate the value of team spirit, motivation and hard work". (This advice usually also concludes "And never over-estimate people's knowledge and understanding".)

Tip 3:

However if someone is letting the team down, you need to be active in managing this. Non-performers set a poor example to the team, and block performance of activities that are essential for success.

Make sure that you talk to the person who is failing to perform to make them aware of the situation. And make sure that you quickly understand and remove any blocks on performance. Give a controlled number of short but fair opportunities to perform as required (being "hard nosed" about this, correcting a situation bears results much more quickly than recruiting new team members). However, if performance doesn't improve to satisfactory levels, then the non-performer needs to be moved off the team.

Briefing Each Team Member:

Having decided which team member will fill each role, you have to communicate the decision to your team.

Each team member should know his or her position within the team. The roles of each person should be clearly defined, with individual responsibilities, authority and accountability clearly spelled out (it's often best to do this in writing).

A hint to remember is that no member of your team should be thinking:

- What are we here for?
- What are we supposed to do?
- What part can I play?

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Tip 4:
Keep your team lean, but make sure you have back-ups or substitutes for key roles. It is important to have 'a few good people' rather than have 'too many people'. But remember to have back-ups in case you lose key people.

Tip 5:
Research shows that diverse teams can be more successful than teams with a very similar background. People in diverse teams bring different experiences, are less prone to "group-think" and tend to suffer less from the conflicts that can arise when similar people work together.

(That said, be careful with some of the team design schemes in common use – the research base for some them is quite weak).

The next article helps you uncover your team members strengths, and identify their areas of development.

Understanding People's Developmental Needs (10.6)

Introduction: By understanding your team members' strengths and weaknesses, you can work out how best to position them within your team. And by helping them make best of their strengths and improve their abilities in areas of weakness, you can improve their capabilities as well as the overall capabilities of your team.

Using the Tool: We offer four different ways of assessing team members' development needs. These are Observation, Information Gathering, Talking Things Through, and Use of Skills Assessment Assignments.

Observation:

"My dear Watson, you see a lot but you observe very little."

Sherlock Holmes may not be remembered a great coach, but he sure has a knack of putting the solutions in perspective. For, as Holmes obviously knew, observation helps a lot in understanding a person's strengths and areas of improvement, both at a personal and professional level.

Successful leaders never let go of an opportunity to observe the way that their team members work or behave during the normal course of their work. This observation itself is not an end in itself, but is an objective means of gathering information for evaluation.

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Do remember the following while you are observing your team members:

- See your role as that of a faithful recorder of facts;
- Avoid "breathing down people's necks";
- Do not allow yourself to be judgmental until you feel you have a good picture of the way things work; and
- Do not let stereotypes or hearsay affect your observations.

Information Gathering:
Providing you're sensitive, you can also gather a lot of information from others who work closely with the individual. Depending on culture and circumstance, these information sources may include internal or external clients, past bosses, or even peers and co-workers. You can also gather information from records of past reviews or 360-degree feedback forms.

Remember the following while involving alternative channels in information gathering:

- Make sure you don't undermine the person's dignity, and that you respect the context. For example, in some cultures it may be acceptable to talk to co-workers. In many others, this will have to be done with the greatest sensitivity, if at all;
- Be careful that your questioning does not arouse old grudges that would otherwise be forgotten; and
- Avoid unfocused generalization: Ask people to back up their observations and comments with specific examples.

Observation and Information Gathering will help you form some of the picture, however they're unlikely to tell you what the individual is thinking.

Talking Things Through With the Individual:
This is where it's essential to talk things through with members of your team. Only by talking can you understand what they want and how they, as individuals, see the World. And only if you understand this can you best help team members develop their approach to work.

The most pleasant way of doing this is just to have an informal "chat" with individual team members. Unfortunately this often does little more than build trust – team members will quite naturally want to present a positive impression to you, and you will rarely do more than "scratch the surface" of any issues that need to be addressed.

This is where use of a tool like DIFSWOT can help you frame a more insightful discussion:

DIFSWOT:
DIFSWOT stands for:

- **D**ifficult or Demanding: What are the most challenging parts of the work that individual team members do? Are these things intrinsically difficult? Are processes and technology unnecessarily cumbersome? Or do team members need to develop their skills?

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- **I**nteresting/Important: What part of the job do people particularly like and find enjoyable? Is this because the work's easy, or because they have particular talents in these areas? And do team members feel they have the necessary skills and resources to do the job well?

- **F**requent/Time-Consuming: What do they spend most of their time doing? Are they holding back from other tasks for lack of confidence or ability? Or can they work more effectively doing things with a little help or investment?

- **S**trengths: What do they feel they do well? How do they feel that these strengths contribute to the team's result?

- **W**eaknesses: Where do they feel they need to develop? What are they doing to address this, or what can be done to address this?

- **O**pportunities: How do they want to develop in the future? How do they see this aligning with the team's mission?

- **T**hreats: What parts of the job do they dislike? Why do they dislike these things?

NB: DIFSWOT is useful as a mnemonic, but you probably don't want to follow this order of questions. It's best to set a positive tone for the discussion by opening and closing with the more positive types of question!

Skills Assessment Assignments:
Once you've started to come to a conclusion on where people's strengths lie, it can sometimes be useful to confirm your assessment by setting specific, time-bound assignments that give team members the opportunity to show their abilities.

Also, use assignments to test your conclusions about where the individual's areas of development lie. Avoid "setting people up for failure", and set flexible completion times, so that with enough time they can complete the task with hard work, even if they appear to have little natural talent.

Drawing Your Conclusions
By using these approaches, you should have a good idea of where your team members' abilities and areas of development lie. You should also have a good feel for how willing the individual is to accept coaching from you.

With the next tool, we look at the unique skills needed for effective cross-cultural leadership.

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Cross Cultural Leadership (10.7)

Using the Tool:

Few successful businesses now work with people from only one culture. At the shallowest level, most Western businesses (even those based in one location) employ people from many cultural backgrounds. At a deeper level, the impact of globalization and cost differences between regions means that many companies either outsource parts of their business or are outsourcing partners for other businesses.

Because of this, leaders in the 21st Century need to be adept at managing people of different cultures. They need to be able to grasp the essence of each culture quickly, because culture is so important in shaping customer or employee behavior. And leaders must learn to shape culture (at least that in their own organizations) so that it is positive, and aligned with the direction the organization is taking.

To do any less means that they will fail to get the best from the individuals with whom they work, and will not be able to draw on the strengths that different cultures offer.

Culture operates at different levels. At one level, individuals are shaped by their ethnic, racial, religious and national backgrounds. At another, they are influenced by the standards, ideals values and experience of their teams. And at yet another level, they are shaped by the culture of their organization. Culture is complex and multi-faceted.

However, you can start to understand the cultures you are exposed to by looking at the following things:

- **Symbols:** For an organization, this can mean mission statements, logos, uniforms, and so on. For an individual, symbols include faith, race, and ethnic background. Dress, gestures and religious symbols are a few examples of the symbols that people in different cultures value.
- **Role Models:** Most individuals or teams have their own role models who embody their beliefs and aspirations. Role models can by mythical or legendary figures, or can be parents, friends, mentors, or people who are well-known within the culture.
- **Common Language:** As people grow closer and begin to identify with one another, they tend to develop a common language. Here we can think of local dialects, professional jargon, or teenage slang.
- **Customs and Traditions:** These are the rites, rituals and ceremonies that highlight the things that are seen as important. For an organization or team, this may include events such as annual dinner, an awards night, a visit from the Chairman, a Founders Day, or suchlike. For an individual, it can be going to religious places, attending congregations, or spending time with family and friends.
- **Core Values:** Values are central to many individuals' or organizations' existence. They determine the way in which things are done, and what is viewed as good or bad behavior. Leaders must understand people's values if they are to build trust and lead in a way that is truly effective.

While some of this can take a lifetime to truly understand, you can go a long way if you develop a level of cultural sensitivity. You may not completely understand the culture or

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how it shapes the behavior or attitude of an individual. However, if you are sensitive to the fact that culture is something team members hold dear to themselves, and that differences exist because of it, it will help you manage people better.

And of course, there's a whole range of common sense ways that you can learn more about the cultures you come across.

Tip:
Here we're talking about cultural sensitivity. Sensitivity and management of diversity also applies to sex, race, age, disability, and so on.

While we're all aware of the ethical reasons against discrimination, there are also sound practical reasons why prejudice is self-defeating.

Prime among these is the idea of the "war for talent". Particularly at times when the economy is doing well, it can be extremely difficult to find and attract well-motivated, highly-skilled people. Why would you want to reduce the size of the pool you recruit from by applying arbitrary restrictions? Why would you want to lose good people because you treat them worse than others? And why would you want to lose the benefits of teams with wide-ranging experience, by substituting them with teams with a narrow cultural base?

And if the economy's in a bad state, why would you want to mistreat people? While they may put up with mistreatment during hard times, they'll leave you as soon as the job market picks up. You'll lose your team just when you want to start taking advantage of new opportunities.

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Moving On…

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