



# **Manage Operations**

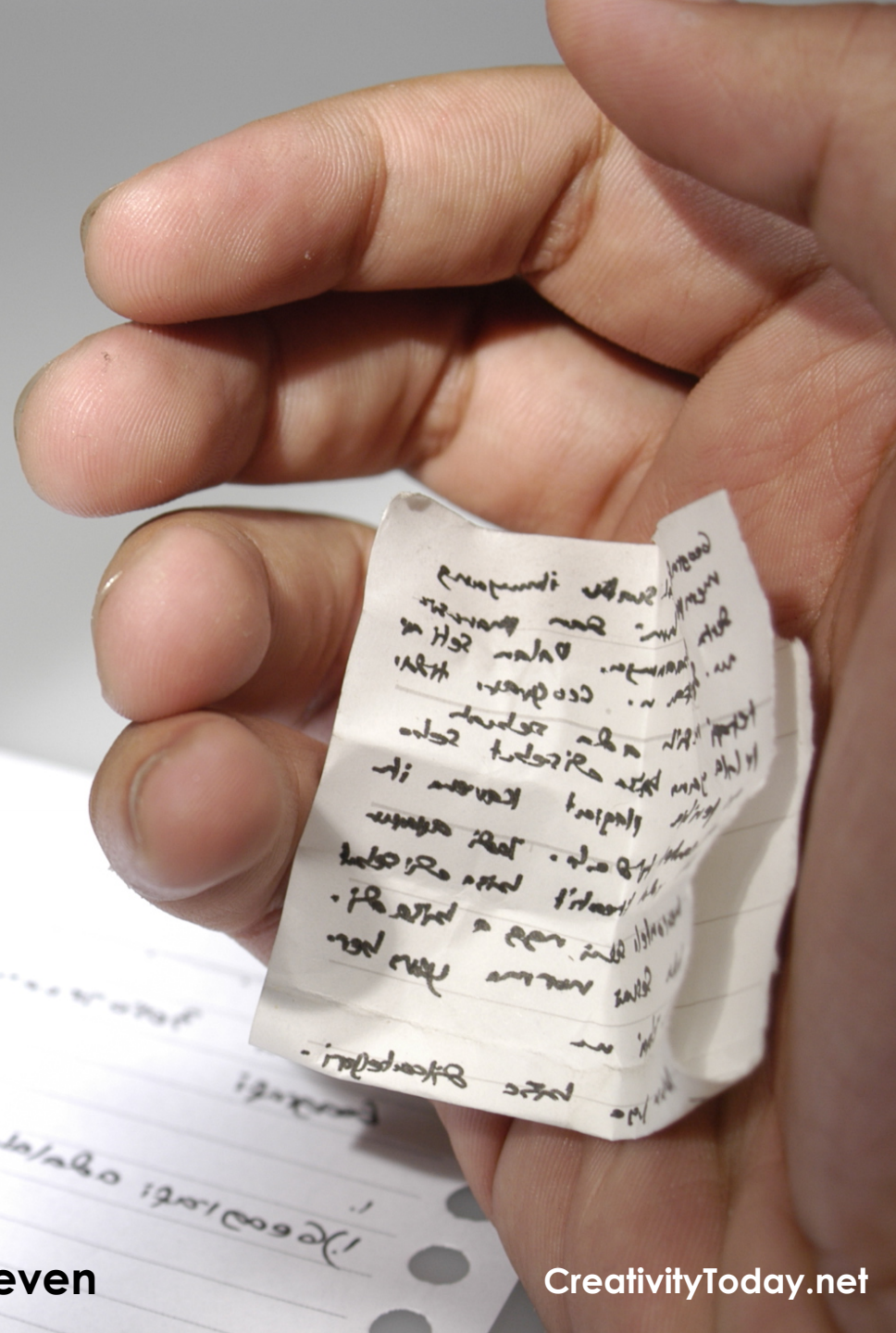
## **Handout 7**

# **Creativity Tools for Divergent and Convergent Thinking**

# 27

creativity & innovation  
techniques explained

*in one-pagers!*



Assembled by Ramon Vullings & Marc Heleven

CreativityToday.net

# intro

27 creativity & innovation tools is a suitable overview of various commonly used techniques in creativity, innovation, research & development processes.

The techniques are grouped by:

- **Diverging & Converging** techniques
- **Open & Closed** challenges / problems
- **Products & Services** situations
- **Individual & Group** techniques

Techniques can be classified in many, many ways, yet the only real measure is the passion and comfort you feel with a technique.

The only way to really get to know the techniques is to use them.

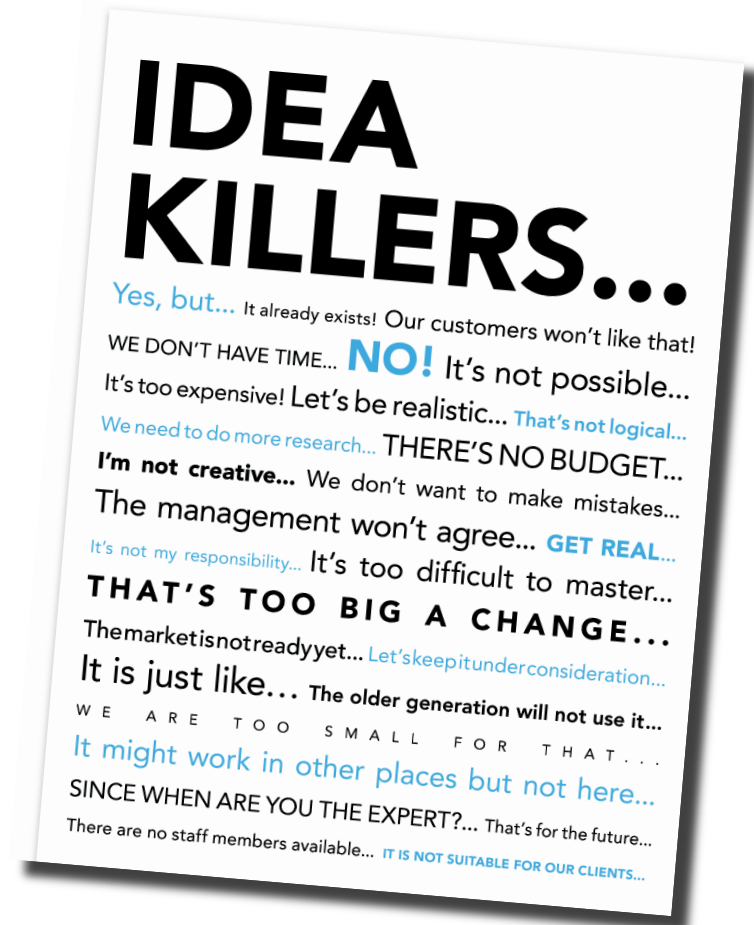
So go ahead, try them and share your experiences.

Enjoy the overview!

Ramon & Marc

PS = Don't let the idea killers stop you...

Tip:  
Download the  
idea killers  
poster!



**”Before coffee the ideas,  
after coffee criticism!**

- Alex Osborn  
(father of the term brainstorming)



diverging & converging

# index (on one page)

## divergence

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**17 divergence techniques**

# ATTRIBUTE LISTING

How to use:

individual / group

open / closed problems

products / services

## Description:

Attribute listing is a good technique for ensuring all possible aspects of a problem have been examined. Attribute listing is breaking the problem down into smaller and smaller bits and seeing what you discover when you do.

## Steps:

### 1. List attributes

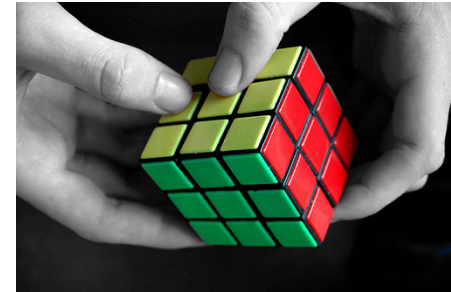
For the object or thing in question, list as many attributes as you can. Thus, for example, a screwdriver has attributes of 'applies torque', 'metal shaft', etc. It can also be useful to first break the object down into constituent parts and look at the attributes of each part in question. Thus you may break the screwdriver into the handle, the shaft and the tip. The tip then has attributes of 'fits screw', 'thin blade', etc.

### 2. Consider value of attributes

For each attribute, ask 'what does this give'? Seek the real value of each attribute. It is also possible that attributes have 'negative value' -- ie. they detract from the overall value of the object. For example, the handle of a screwdriver being examined has attributes of 'hexagonal' which have the value of 'helps grip' and 'stops rolling on workbench', but has negative value of 'sharp corners'.

### 3. Modify attributes

Finally look for ways in which you can modify the attributes in some way. Thus you can increase value, decrease negative value or create new value. Thus, for example, you could modify the attributes of the screwdriver handle to be 'comfortable grip' by adding a rubber sleeve.



## Example:

The attributes of a customer service desk include opening hours, friendliness of service and availability of literature. You could change the opening hours to weekends (but closed during low hours during the week). Friendliness could be improved by keeping records of people asking for help and then asking them later how things went. And so on.

## More information:

<http://members.optusnet.com.au/~charles57/Creative/Techniques/attributes.htm>

# BIOMIMICRY

How to use: **individual / group** **open / closed problems** **products / services**

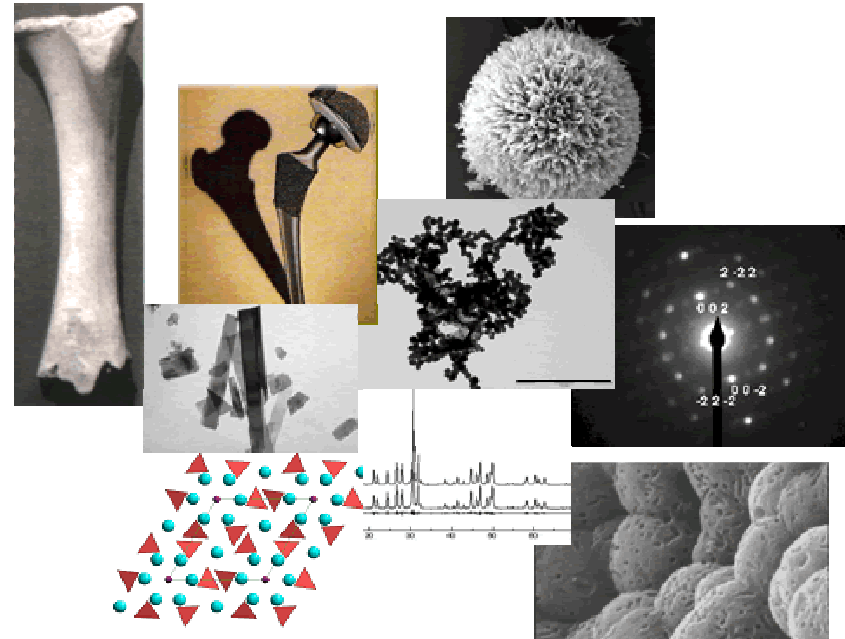
## Description:

Biomimicry is a discipline that studies nature's best ideas and then imitates these designs and processes to solve human problems. Studying a leaf to invent a better solar cell is an example of this "innovation inspired by nature."

## Steps:

The conscious copying of examples and mechanisms from natural organisms and ecologies is a form of applied case-based reasoning, treating nature itself as a database of solutions that already work. Proponents argue that the selective pressure placed on all natural life forms minimizes and removes failures.

Try to use biological prototypes to get ideas for engineering solutions. This approach is motivated by the fact that biological organisms and their organs have been well optimized by evolution.



## Example:

Velcro is the most famous example of biomimetics. In 1948, the Swiss engineer George de Mestral was cleaning his dog of burrs picked up on a walk when he realized how the hooks of the burrs clung to the fur.

## More information:

<http://www.biomimicry.net/>

<http://en.wikipedia.org/wiki/Bionics>



# BRAINWRITING 6-3-5

How to use:

individual / group

open / closed problems

products / services

## Description:

A creativity tool aimed to address the potential deficiencies of brainstorming (uneven participation and verbally led) by encouraging participation from all, with an emphasis on sketching of ideas.

## Steps:

### 1. Establish team & Define scope and purpose

A good size team for brainwriting is between 3 to 8 people - 6 is about right, hence the '6' in the name of the tool. As with brainstorming, the process will be more effective with a clear focus.

### 2. Each team member captures 3 ideas each

Each team members writes, describes or sketches 3 ideas each on a piece of paper. It is highly recommended that at this stage, the participants should be encouraged to sketch their ideas, and annotate the sketches with writing where appropriate. It may help the team members to focus on the top 5 elements of product functionality, as viewed as important by customers. This stage should last around 30 minutes (longer if people are still going strong, shorter if ideas have dried up) and in that time, a team of 6 people should have produced between 15 to 30 unique concepts.

### 3. Pass the concepts around the table - 1 round

Following the initial session, the concepts are passed to the right, to the next person around the table. Allow 10-15 minutes for each person to add to, modify and extend each of the ideas passed to them. Once they have done this, the sheets are passed on until all ideas have been seen and modified by all team members. This can take in total about 60 minutes. The focus of any modifications to ideas should be on advancing the idea, not criticising.

### 4. Repeat 5 times

It is recommended that they are passed around the table in total 5 times, to encourage combination of ideas, refinement and development of concepts. This can be laborious, and the rounds should be spaced out in time to prevent the team becoming stale. After a few rounds, it can be beneficial to use traditional brainstorming rules, to encourage some debate and discussion about the ideas, with a view to advancing the concepts more quickly and potentially eliminating the weakest ones.



## More information:

<http://www.mycoted.com/Brainwriting>

# CHALLENGE ASSUMPTIONS

How to use:

individual / group

open / closed problems

products / services

## Description:

The 'assumptions' technique aims at overcoming your thinking habits in order to create new perspectives on a given topic. This technique is also called 'presuppositions'.

## Steps:

1. Take a crucial term from your problem or topic formulation.
2. List the assumptions you have on the topic and fundamentally challenge them by asking "What if ..... was not true?"
3. Answer this question and from this new perspective you will come up with a bunch of new ideas.

## Example:

How can we decrease the weight of a car, while still preserving its security and stability?

### 1. Car assumptions:

wheel driven - means of transport - has a certain volume

### 2. What if a car is not wheel driven?

3. The car would float in the air! Or, the car would stand still! Or, the car would jump!

### 4. New ideas from floating:

- a car with surrounding plastic bumper around full of compressed air that can take heavy shocks and makes the car float in water.
- an airbag around the car as soon as the car runs out of the road.
- ...



## More information:

<http://members.optusnet.com.au/~charles57/Creative/Techniques/assump.htm>

# OSBORN CHECKLIST

How to use: **individual / group** **open / closed** problems **products / services**

## Description:

The inventor of Brainstorming, Alex Osborn, developed several additional creativity methods. One of the most popular is "Checklist". It's used to develop new solutions from already existing ideas.

## Steps:

Whatever idea or problem you have, go through the list again. Take enough time for each issue and develop at least one idea for each of them.

<b>Adapt?</b>	What's similar, what are parallels, what can you imitate?
<b>Modify?</b>	Can you change color, moving, size, shape, tone, smell, etc.?
<b>Substitute?</b>	Different process, positions, music, elements from other countries, etc.?
<b>Magnify/Maximise?</b>	Increasing frequency, size, height, length, distance, etc.?
<b>Minimise/Eliminate?</b>	Lighter, smarter, etc.?
<b>Rearrange?</b>	Different sequence, etc.?
<b>Reversal?</b>	How to mirror the ideas, etc.?
<b>Combine?</b>	Is it part of a bigger picture, etc.?
<b>Other use?</b>	Is another use possible, etc.?

## Example:

Other use: printers as photocopies or fax machines



## More information:

[http://members.optusnet.com.au/~charles57/Creative/Techniques/osb\\_quest.htm](http://members.optusnet.com.au/~charles57/Creative/Techniques/osb_quest.htm)

# CLASSICAL BRAINSTORMING

How to use: **individual / group** **open / closed problems** **products / services**

## Description:

Classical brainstorming became popular during the 1950s, and the stereotype was of a bunch of advertisers cooking up ideas for a new slogan to sell margarine. Originally, a "brainstorm" referred to an acute psychological attack, but in 1920s - 1940s, there were references to "brainstorms" as brilliant ideas (apparently these were originally called "brain waves").

## Steps:

1. Arrange the meeting for a group of the right size and makeup (typically 4-8 people)
2. Write the initial topic on a flipboard, whiteboard or other system where everyone can see it. The better defined, and more clearly stated the problem, the better the session tends to be.
3. Make sure that everyone understands the problem or issue
4. Review the ground rules
  - Avoid criticising ideas / suspend judgement. All ideas are as valid as each other
  - Lots, Lots & Lots - a large number of ideas is the aim, if you limit the number of ideas people will start to judge the ideas and only put in their 'best' or more often than not, the least radical and new
  - Free-wheeling. Don't censor any ideas, keep the meeting flow going
  - Listen to other ideas, and try to piggy back on them to other ideas
  - Avoid any discussion of ideas or questions, as these stop the flow of ideas
5. Have someone facilitating to enforce the rules and write down all the ideas as they occur (the scribe can be a second person)
6. Generate ideas - either in an unstructured way (anyone can say an idea at any time) or structure (going round the table, allowing people to pass if they have no new ideas).
7. Clarify and conclude the session. Ideas that are identical can be combined, all others should be kept. It is useful to get a consensus of which ideas should be looked at further or what the next action and timescale is.



## More information:

<http://www.nscpublishing.com/documents/ClassicBrainstorming.pdf>

# EXCURSION TECHNIQUE

How to use: **individual / group** **open / closed problems** **products / services**

**Description:** This technique is very useful for forcing a group to have new thought patterns to formulate by using analogies.

## Steps:

In the *1st step* - the excursion - the facilitator asks participants to take an imaginary excursion to a physical location (a museum, a jungle, a city, another planet, etc.), which has nothing to do with the real problem. After the excursion each participant writes down 8-10 images, which he/she saw during the journey (things, people, places or items) in the 1st of 3 columns.

In the *2nd step*, the facilitator asks participants to draw analogies or express relationships between what they saw on the excursion and the problem as defined, and to write them in the column 2 next to each of the items identified in the first column.

In the *3rd step*, participants are asked to determine what solutions to their problems are suggested by the analogies or the relationships in column 2, and write them in column 3 beside the items and analogies identified in the other columns.

In the *4th step*, participants share their experiences from the excursion: what they saw, their analogies and their solutions.

In the *5th step*, as with brainstorming, participants may discuss on each other's ideas. Eventually the facilitator/leader helps the group come to a common solution or a set of solutions to the problem.

## Example:

A member of a group of bank personnel officers who were experiencing conflicts with other departments described her excursion through a natural history museum. She saw Indians making war on another village analogous to a war with another department. Another member of the group found herself touring of the museum where rock formations were shown. The various layers of hard and soft rock meant the same thing to her, that the Indian war had meant to the other woman. When asked how to solve the problem, she said, "We have to take some dynamite (i.e., strong measures) to blow up the hard rock layers separating the departments."

## More information:

<http://www.innovation-enterprise.com/4.1/4.1.196.html>



# HARVEY CARDS

How to use:

individual / group

open / closed problems

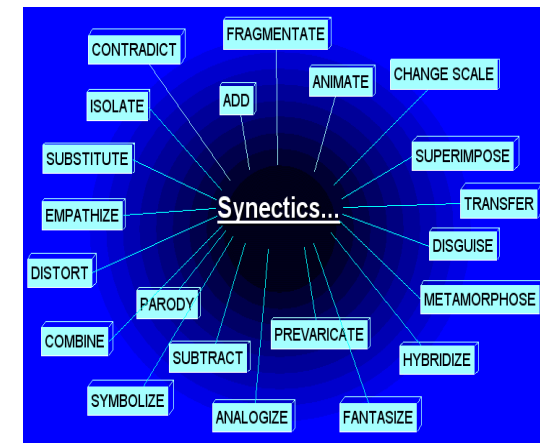
products / services

## Description:

A set of questions helping your brainstorm, based on Synectics.

## Steps:

- Animate* - Modilise, bring life to inanimate subjects (having human qualities). Apply repetition, progression, narration.
- Contradict* - Contradict the subjects original function, reverse and deny! Visualize your subject in connection with the reversal of the laws of nature, gravity, magnetic fields, growth cycles, procedures, rituals.
- Symbolize* - How can your subject be imbued with symbolic qualities? What can you do to turn your subject into a symbolic image, a public symbol?
- Superimpose* - Overlap, cover, overlay. Super-impose dissimilar images or ideas. Combine sensory perceptions, (sound/color/...) Combine different point of view synchronistically.
- Transfer* - Move your subject into a new situation, environment or context. Adapt, relocate, dislocate to a new environment.
- Add* - Extend, expand, supplement, magnify your reference matter, make it bigger.
- Substitute* - Exchange, switch, replace. What other ideas, image, etc. can be substituted?
- Distort* - Twist the subject out of its true shape or meaning. How can you misshape it? Can you melt it, burn it, make it fatter, wider?
- Transform* - Convert. See your subject in a state of change. Think of "cocoon to butterfly" transformations.
- Sympathize* - Relate to your subject. Put yourself in it's "shoes". Think of it as having human qualities.
- Analogize* - Compare. Draw associations, seek similarities between things that are different. What logical or illogical associations can I make?
- Disguise* - Camouflage, conceal, deceive, encrypt. how can you hide, mask and shift your subject to another frame of reference?
- Mythologize* - Build a myth around your subject. How can you transform your subject into an iconic object?



## More information:

<http://www.core77.com/resources/cards.asp>

# IMAGINARY BRAINSTORMING

How to use: **individual / group** **open / closed problems** **products / services**

## Description:

Imaginary Brainstorming is like Classic Brainstorming, but with a slight twist. The ground rules etc. are the same, the differences are;

When defining the problem make sure that it has:

- a subject - who is acting
- a verb - the action
- an object - who / what is being acted upon

## Steps:

1. Perform a classic brainstorming session
2. Define the essential elements of the problem, and identify which of the elements above is the most directly tied to a successful solution.
3. Propose imaginary replacements for the other elements. e.g.
4. Formulate a new problem statement, substituting one of the imaginary elements.
5. Brainstorm ideas for the imaginary problem
6. Apply ideas from the imaginary brainstorming back to the real problem statement.
7. Analyse all of the ideas (real, imaginary and combined) and take forward those of most interest.

## Example:

Original problem	Suggested replacements
How do we	How do / does Children, Donald Duck, Teachers
write a bid	Build a house, Earn a Million, get drunk
in half the normal time?	in half the normal time? (This element is kept as the essential element)

## More information:

<http://www.mycoted.com>



# LOTUS BLOSSOM TECHNIQUE

How to use: **individual / group** **open / closed problems** **products / services**

## Description:

This technique involves starting with a central theme or problem and working outward, using ever-widening circles or "petals." Central themes lead to ideas that themselves become central themes, and so forth. The unfolding themes trigger new ideas and new themes.

## Steps:

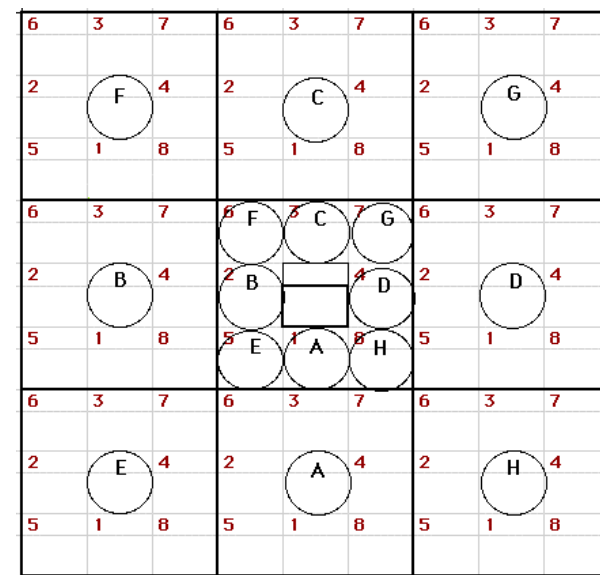
1. Copy the diagram
2. Write your central theme or problem in the diagram's center. Think of related ideas or applications and write them in the surrounding circles (those labelled A through H). For instance, one company's central theme was "establishing a creative climate." They surrounded this statement in the central box with: "offer idea contests," "create a stimulating environment," "have creative-thinking meetings," "generate ways to 'get out of your box'," "create a positive attitude," "establish a creative-idea committee," "make work fun," and "expand the meaning of work."
4. Use the ideas written in circles ADH as central themes for the surrounding boxes. So, if you had written "create a stimulating environment" in circle A, you would copy it into the circle labeled A directly below, where it would become the central theme for a new box, and so on.
5. Try to think of eight new ideas involving the new central theme, and write them in the squares surrounding it. Use the idea stimulators to help you generate ideas. Fill out as many boxes as you can.
6. Continue the process until you've completed as much of the diagram as you can.
7. Evaluate your ideas.

## Example:

An unemployed marketing executive used the lotus exercise to generate ideas he needed to land a job. His central theme was "job". One of the ideas surrounding this central box was "create a resume." "Resume" then became a new central theme and, using the idea stimulators, he came up with a number of variations on the idea of a resume. For example, he took out ads in several papers with the bold headline, "\$50,000 Reward." The fine print underneath explained that an employer could save \$50,000 by not paying a headhunter to find a person with his marketing talents. When interested employers called the number listed in the ad, they heard a recording of his resume. He received forty-five job offers.

## More information:

<http://members.optusnet.com.au/~charles57/Creative/Techniques/lotus.htm>





# MORE INSPIRATION

How to use: [individual / group](#) [open / closed problems](#) [products / services](#)

## Description:

MoreInspiration gathers innovations in products and technologies from all possible sectors and domains. These are classified according to the CREAX innovation methodology and will inspire to innovate your product or technology.

## Steps:

There are several ways that users can take advantage of the innovations in [moreinspiration.com](#)

- 1. Explore new innovations** - New innovations are added to the database on a daily basis. Get your dose of inspiration by regularly reading up on the latest entries with an open mind. Ask yourself the questions “What does this mean for my product?” and “Why would I do something similar?” as much as you can.
- 2. Explore what’s new inside your industry** - Keep track of what’s happening inside your industry.
- 3. Explore innovations by property** - The CREAX methodology encourages you to look for solutions outside your industry. Searching for innovations by property is one way of doing this. For example, you could search for *everything flexible* and see why people have changed their solution in this way. Again, ask yourself “Why would I do something similar?”.
- 4. Explore innovations by function** - Another way of exploring outside what you already know is search for innovations by function. For example, you want your product to be able to *make simple measurements*, how have other people done this?
- 5. Use MoreInspiration.com during your brainstorm sessions** - Keep the tool open during your brainstorm sessions. Be curious, explore, have fun!

## More information:

<http://www.moreinspiration.com/>

## Latest innovations [See all 1000 innovations](#)



Reverse graffiti



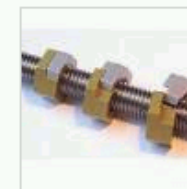
Sunglasses change colour in a second



i-Temp Digital thermometer



Internally illuminated license plate



TwinNut



Tiny movie projector fits in a phone

# PERSONAL ANALOGY

How to use:

individual / group

open / closed problems

products / services

## Description:

Personal analogy, defined as “the description of how it feels to identify with a concept, process, or living or non-living thing, gives feelings and emotions to both animate and inanimate objects by treating the object as if it were human.” Using personal analogy is an indirect way to develop a new context for familiar content and for getting a better understanding of the content. They are particularly useful for content normally viewed as far removed from the human experience.

## Steps:

1. *Personify the subject or analog by giving it human characteristics* - The subject or analog may be a concept, process, animate, or inanimate object. By pretending to be the concept, process, or object, students create a new context for their examination. They identify emotionally with the object or process being personified and ascribe movement, mobility, and relationships with the environment not normally associated with that object or process.
2. *Communicate the personification* - A performance such as role playing or creating a product can communicate the personification. Products such as personal essays, pictures, or posters can be used to communicate feelings, emotions, reactions, relationships, etc.
3. *If analog is personified, make connections between analog and subject* - The most effective way to do this is to substitute the subject for the analog in a written product.
4. *Reflect on insights gained from the personal analogy.*



## Example:

A group of boys made a clay pigeon field at the end of their village. If they did not hit the clay pigeons these flew far in to a neighbouring field. The boys wanted to get the clay pigeons back because they are expensive, but damaged the corn doing so. The owner of the field complained to their parents about this and the result was that the boys would have to look for a new hobby. All logical approaches to the problem failed, until they used the personal analogy. 'How would I feel if I were a clay pigeon flying into the corn field of an angry farmer and what would I do?' 'I would feel guilty and would want the ground to open up and swallow me', was one of the answers. Making a force-fit to the original problem, the question became 'What makes that clay pigeon get swallowed up?' One of the suggestions was 'making your own clay pigeons from fertilizer', which would also benefit the farmer. The most elegant answer, however, was to make your own clay pigeons from ice. After some testing the boys made ice pigeons from a mixture of water and milk, solving the problem with the farmer and at the same time saving money.

## More information:

<http://www.managing-innovation.com/innovation/files/t02.pdf>

# RANDOM INPUT

How to use:

individual / group

open / closed problems

products / services

## Description:

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

## Steps:

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 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.



## More information:

<http://www.sociology.org.uk/as4i3ri.pdf>

<http://www.randomwordgenerator.com>

# REDEFINITION

How to use: **individual / group** **open / closed** problems **products / services**

## Description:

The Redefinition Tool is a way of clarifying the space around the originally stated problem definition. The tool framework is based on the work of Min Basadur and the ubiquitous 'ask why 5 times' philosophy of root cause analysis. The basic idea underlying the tool is the use of two questions 'why?' and 'what's stopping?' to respectively broaden and narrow the initially stated problem. The outcome of repeating these questions several times is a hierarchical list of problem definitions, from which the problem owner is able to select. The procedure may be repeated to broaden or narrow the problem to more levels!

## Steps:

1. *Original problem* - The text box with the blue outline is the "Original Problem", where you enter the original problem stated.

2. *Narrower problem* - The narrower aspect

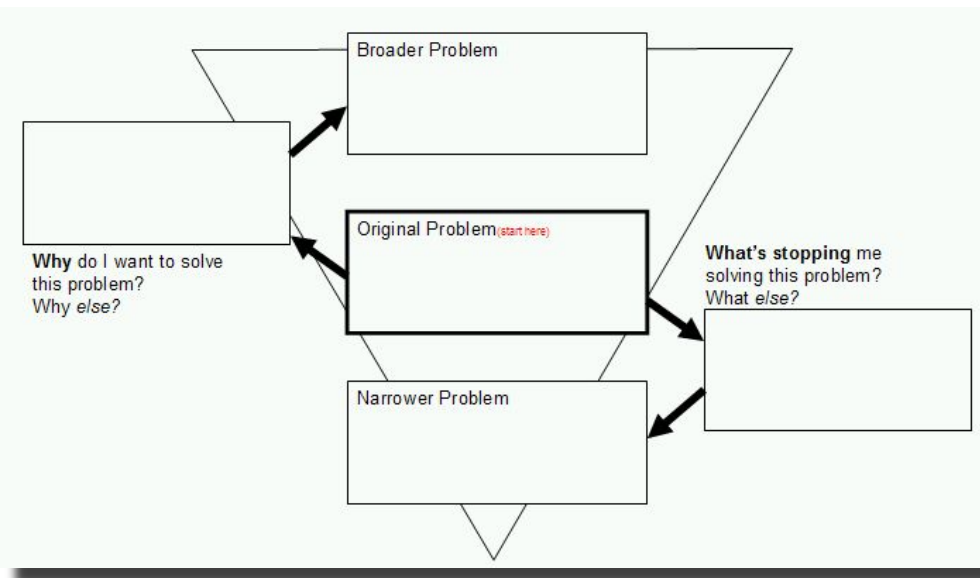
3. *Broader problem* - The broader aspects of your problem can be typed in the Broader Problem box

4. *Why do I want to solve this problem? Why else?* - In this text box, enter the reasons as to why you are trying to solve this problem. By doing this, you will be broadening the problem. The higher you go, the more you will approach the macro-scale of understanding the problem.

5. *What's stopping me solving this problem? What else?* - Most often, the problem we start off with solving, turns out not to be the one we should be actually solving. Therefore, this question helps you to think of, and enter the hindrances that you face when solving the problem.

## More information:

<http://www.creaxinnovationsuite.com/pdf/InnovationSuite3.1-UserManual.pdf>



# Reverse Brainstorming

How to use: individual / group open / closed problems products / services

## Description:

Reverse the problem to: 'How to cause it'

Change the wording of the problem on which you are working from how to solve it to how to cause it.

## Steps:

1. Identify ways of **causing** the problem
2. Identify different ways of causing the problem. You can use creative approaches or analytic methods
3. Find ways of **preventing** the problem being caused
4. Now identify ways of preventing the problem causes identified in the previous step from being caused.

## Example:

I am seeking to to keep a folding chair open. I reword it as 'how to make a folding chair fold up'. I use a spring, an elastic band, a lever. I reverse the lever so the spring or elastic keeps the chair open.

## More information:

<http://www.team-creations.com/Services/Library/Articles/Creativity/reverse%20brainstorming.htm>



# SIT (Systematic Inventive Thinking)

How to use:

individual / group

open / closed problems

products / services

## Description:

In the core of SIT are the five Thinking Tools that make SIT unique. Based on Genrich Altshuller's lifetime study of over 200,000 patents, the SIT thinking tools represent common patterns that are found in innovative ideas.

## Steps:

**Subtraction** - Instead of adding components or attributes, remove them, particularly those that seem desirable or even indispensable. Having done so, developers often see a way to replace it with something better, but one that should be within the closed world of the product and its immediate environment.

**Multiplication** - Make one or more copies of an existing product component but then alter those copies in some important way eg Gillette's dual (now four) blade razor.

**Division** - Divide the product into its component parts and you can see something that was integrated into the whole in an entirely different light. This change in perspective can lead you to reconfigure the parts in unanticipated ways or even keep the parts separate in a way that offers unforeseen benefits. For instance, the old hi-fi or music centre morphs into separate amplifier, receiver, power unit, player and modular speakers.

**Unification** - Much innovation happens by assigning a new task to an existing element of the product or its environment, so unifying two tasks in a single component. A classic example is the now ubiquitous suitcase with wheels.

**Attribute Dependency Change** - This involves the dependent relationships that exist between attributes of a product and attributes of its immediate environment, for instance, spectacles whose lenses change colour when exposed to sunlight.

## More information:

<http://www.idea-knowledge.gov.uk/idk/core/page.do?pagelid=75061>

<http://www.sitsite.com/data/documents/SITmethod4SIT2GO.pdf>



S I T  
Systematic Inventive Thinking

# WISHING

**How to use:**

individual / group

open / closed problems

products / services

**Description:**

Wishing helps expand thinking. Think of the situation in a wishful, fantastic sense. Think beyond sensible, beyond practical and feasible. Just think about what would be really nice or simply interesting. Think playfully, as a child. Step outside the box. Act as if the box wasn't there. Be wishful, wistful, wonderful. Wishing legitimizes a statement that otherwise people might consider as too 'off the wall' and which they may secretly fear will cause others to laugh at them or otherwise reduce their social position.

**Steps:**

*Offer ideas as 'I wish...'*

- Frame ideas by starting with 'I wish'.
- In writing down ideas (which you often want to do quickly), you can abbreviate 'I wish' as 'IW'.

*Offer ideas as 'Wouldn't it be nice if...'*

- Another variant of 'I Wish' is 'Wouldn't it be nice if'. You can use this as a variation or if it seems more appropriate.
- In writing down ideas, you can abbreviate 'Wouldn't it be nice if...' as 'WIBNI'.

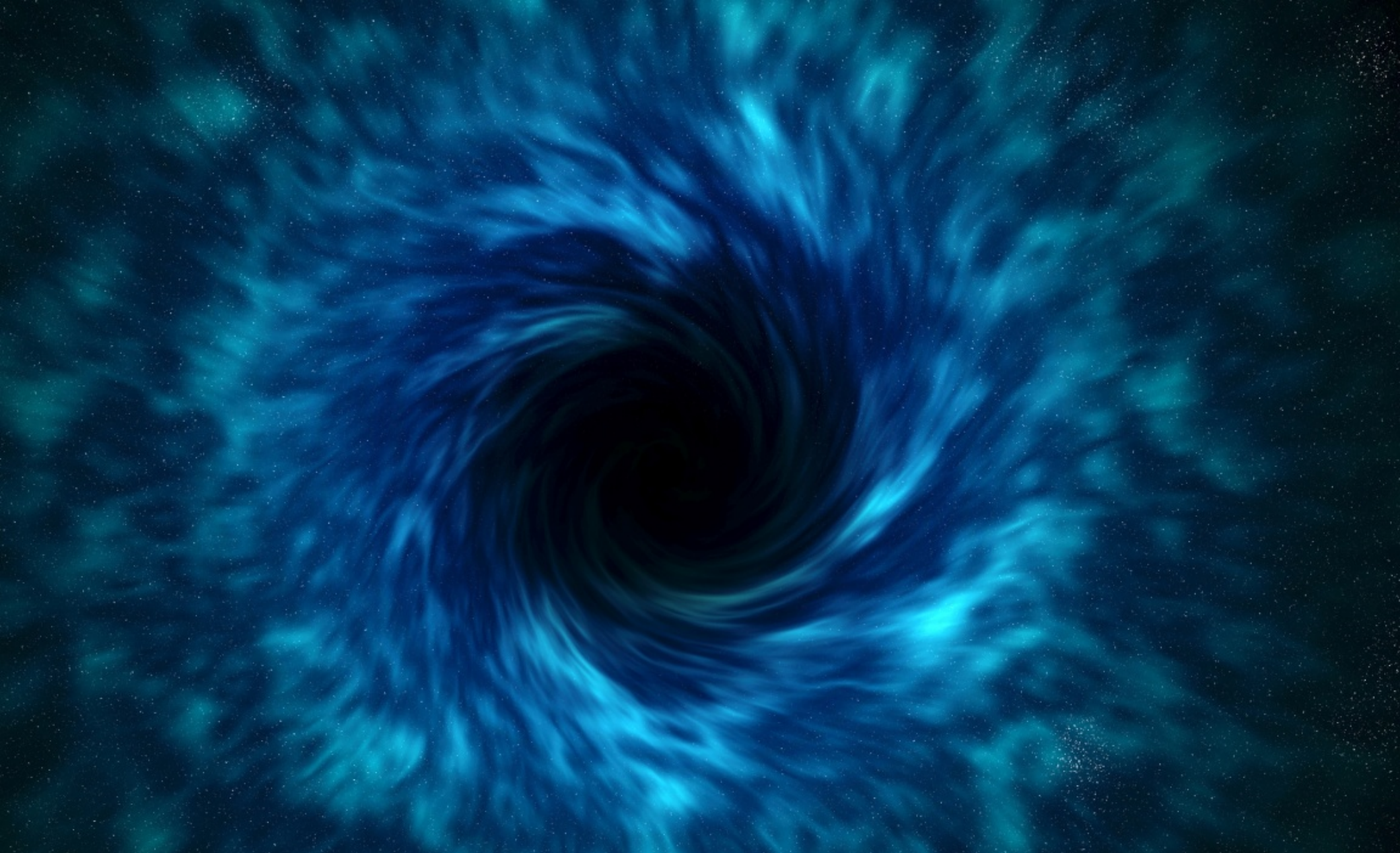
**Example:**

- 'I wish we could go on holiday tomorrow'
- 'IW we could visit the moon'
- 'IW coffee tasted as nice as it smells'
- 'Wouldn't it be nice if beer was free.'
- 'WIBNI cars did not need fuel'

**More information:**

<http://www.creatingminds.org>





**10 convergence techniques**



# COCD-Box

How to use: individual / group open / closed problems products / services

## Description:

The COCD (Centre for development of creative thinking) has developed a very handy tool to select ideas and prevent loss. We must remember that at the cradle of practically every paradigm shift stood an 'impossible' or seemingly 'unsuitable' idea. The COCD-box helps you to prevent the Crea-Dox: You think of nice new ideas, yet you go for the old ones (known solutions). To prevent that, a classification can be made using a matrix: the COCD-box. The matrix has 2 axis:

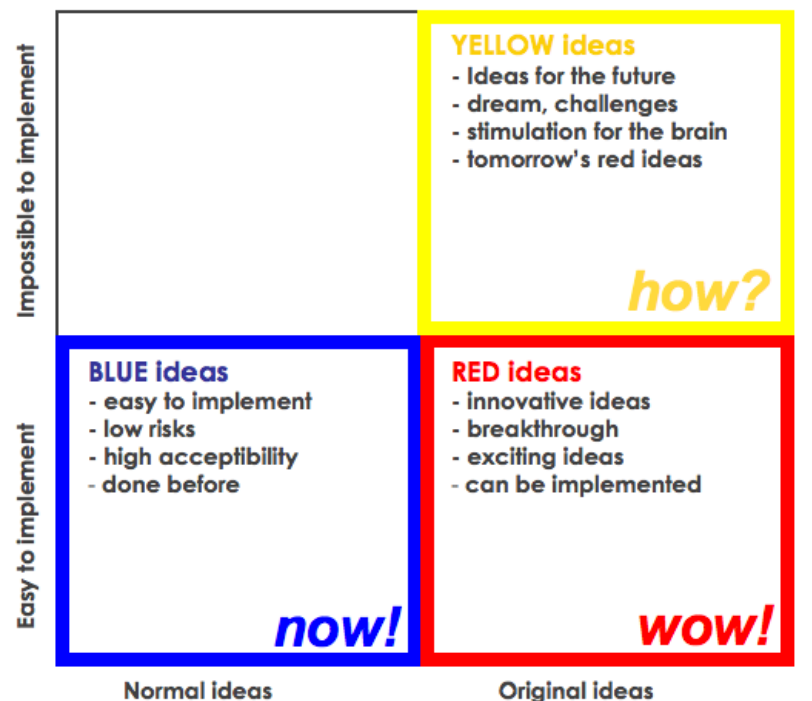
1. Originality
2. Ease of implementation

## Steps:

- Every member of the brainstorming group gets a few coloured little adhesives, e.g. for 100 ideas you get 10 blue, 10 red and 10 yellow adhesives. Blue stands for a common and feasible idea, red for innovative and feasible ideas, yellow for original, new but not (yet) feasible now.
- The unique feature of this tool is that you are also helped to consider the yellow ideas, the dreams, the ideas that stimulate your brain and body to move on, the ideas of the future.
- Everybody sticks his coloured adhesives in front of the ideas (keep in mind the numbering of your ideas while brainstorming).
- Remember to only start sticking after evaluating (write down the idea-numbers on the adhesives) to ensure 'non group influenced' behaviour.
- The ideas with the most votes are put in the COCD-Box. That way, you'll end up with 10 to 20 ideas in the COCD-Box.

## More information:

<http://www.CreativityToday.net>



# ENHANCEMENT CHECKLIST

How to use:

## Description:

This checklist main task is to further develop the idea and get it ready for implementation. Notice how the questions below guide thoughtful analysis aimed at increasing the chances of success. They guide us to consider emotional and people-related issues, the strengths and weaknesses of the idea, systems effects and consequences, and the need for trials and prototypes. Though the list appears in one-question-at-a-time order, the questions are really meant to be taken together.

## Steps:

- |   |   |
|---|---|
| <b>Shaping -</b>                        | How can we modify the idea to address objections that would otherwise cause rejection?                              |
| <b>Tailoring -</b>                      | Can we modify the idea to even better fit our needs?  |
| <b>Strengthening -</b>                  | How can we increase the power or value of the idea?   |
| <b>Reinforcing -</b>                    | What can we do about weak points?   |
| <b>Looking towards implementation -</b> | What can we do to the idea to enhance the probability of implementation? Who must be involved?                      |
| <b>Comparison to current -</b>          | How does the idea compare to what it is replacing? Should we do further enhancement, expand or scale back the idea? |
| <b>Potential faults or defects -</b>    | What could possibly go wrong with this idea? What can we do?  |
| <b>Consequences -</b>                   | What are the immediate and long-term consequences of putting the idea into action?                                  |
| <b>Testability and prototyping -</b>    | How can we try the idea on a small scale?   |
| <b>Pre-evaluation -</b>                 | How can we further modify the idea to meet the needs of those who will evaluate it next?                            |

## WHAT IS A SUCCESSFUL INNOVATION?



## More information:

<http://www.directedcreativity.com>

# FORCE-FIELD ANALYSIS

How to use: individual / group open / closed problems products / services

## Description:

Use it to understand the forces for and against an idea. Use it to explore how people may oppose or support an idea.

## Steps:

**Draw the outline diagram** - Draw a line down the middle of the page and put the idea or situation to be considered above the top of the line. Write 'for' and 'against' either side of the line.

**Plot opposing forces** - Seek forces for and against the idea or situation, writing these on the appropriate side of the line. Show the significance of these forces with an arrow, where the length indicates the size of the force.

You can use logical or creative methods to identify these forces, as appropriate to the situation. If the situation is understood, then logic is appropriate. However, many uses of the force-field is in considering future possibilities, in which case a creative approach is most effective.

**Draw conclusions** - Study the diagram, considering the forces identified there and ask questions such as:

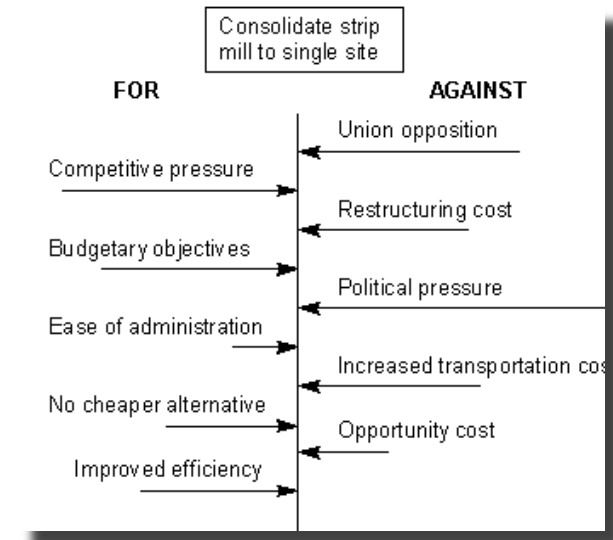
- What is the overall force, for and against?
- How can you tip the balance?
- How can you neutralize forces against?
- How can you increase the 'for' forces?

## Example:

A team at a steel mill are seeking to save money. They come up with a consolidation idea, but know that it may be opposed, so they use Force-Field Analysis to explore reasons why the idea will or will not be supported.

## More information:

<http://www.creatingminds.org>



# HUNDRED EURO TEST

How to use:

individual / group

open / closed problems

products / services

## Description:

Allocating points is a relatively cold way of scoring ideas. Money is closer to most people's hearts than points. The notion of spending money grabs their attention and they are much more careful about deciding how to allocate it. A focus on money also reminds people of the final goal of most creative and inventive activities: to make a profit and sustain the business.

## Steps:

**1. Assume you have € 100** - Imagine you have a hundred euros. Or maybe a hundred thousand euros. The point is that you have money - perhaps your own money - to spend on developing several ideas.

**2. Allocate to ideas** - Allocate your € 100 across the ideas you are evaluating. Remember that it is your money, but you will also get the profit generated from the ideas which get developed from your allocation. When a group of people are doing this, let everyone spend € 100 each across the ideas, then add the totals for each.

**3. Review your decision** - Stand back afterwards and look at how the money is spread out. Are a few ideas being highlighted? If the money has been spread too evenly for ideas to be selected, then spend another € 100, but assume you can only spend it in one lot of € 50 and two lots of € 25.

## Example:

*Problem:* how to create even light across a room?

*Ideas to select:*

- 10 €: Diffusion strips across ceiling
- 30 €: Lights built into furniture
- 10 €: Lots of mirrors
- 0 €: No ceiling
- 5 €: Windows on two sides
- 45 €: Use uplighters



SEVENS  
HEAVEN

## More information:

[http://www.bth.se/tek/pba.nsf/\(WebFiles\)/EA0FA0632C97E645C125722F00430F93/\\$FILE/HCV\\_IJSEKE\\_2006.pdf](http://www.bth.se/tek/pba.nsf/(WebFiles)/EA0FA0632C97E645C125722F00430F93/$FILE/HCV_IJSEKE_2006.pdf)

# IDEA ADVOCATE

How to use: **individual / group** **open / closed** problems **products / services**

## Description:

Idea advocate is a simplified form of the dialectical approach. The method has an Idea Champion to offer continual support and enthusiasm for a project in the development stage. Assume that the group of original ideas for solving some issue has already been concentrated to a small number, say 3 – 6 of strong contenders.

## Steps:

1. A participant (the 'idea advocate') is allocated to each idea to present a case for that idea. Someone already familiar with the idea, or who initiated it, or who would have to implement it would be ideal choice.
2. If required the 'idea advocate' is permitted a set amount of research time to prepare their case.
3. Ideas advocates then make presentations of their assigned cases to the relevant decision makers and other idea advocates.
4. Each case is then discussed and decisions made. If a particular case was illuminating then a straightforward selection can be made, however, if there are several strong cases several rounds of elimination will take place.
5. Ensuring there are no differences in power and status amongst the idea advocates is essential. The more sophisticated approach outlined in Dialectical approaches handle the balance between positive and negative evaluation better.



## More information:

<http://www.methodagent.com/method:=112252065884172618d07b8c37158983/>

# NEGATIVE SELECTION

How to use: **individual / group** **open / closed problems** **products / services**

## Description:

Negative selection is a common approach to thinning down a large list. It is easier to find something wrong with an idea than consider everything that is right. Use it when you need to select an idea from a large list. Use it as a first stage to create a short-list of ideas to consider more carefully.

## Steps:

**Review the problem definition** - Review the problem definition to remind yourself of what you are trying to achieve. You might also want to consider other criteria, such as potential cost, timescales or other difficulties. These are usually more important later in the overall process, such as when you are working on acceptance of ideas.

**Sort into No and Maybe** - Quickly look at each idea and place it into one of two piles: 'No' and 'Maybe'. This can be a tricky task as you do not want to throw the baby out with the bathwater, yet you still need to get the list down to a manageable size. If in doubt, put the idea on the 'Maybe' pile. Also ensure that you are not throwing out creative ideas such that you end up with a pile of very logical but uninspiring ideas. Your final shortlist should end up with a good number of intriguing ideas. Be careful when doing this that you do not throw out all of the intriguing ideas and end up with a 'safe' but relatively uncreative solution.

**Repeat as necessary** - If the Maybe pile is still rather large, repeat the process until you have a workable shortlist.

## Example:

I am buying an interesting house. I want to select a shortlist from a big list of details. I quickly sort the details into two piles: definite 'no's and 'maybes'. I then repeat the process a couple more times, a bit more slowly each time.

## More information:

<http://www.creatingminds.org>



# NUF (New Useful Feasible) TEST

How to use:

## Description:

The NUF marking is a very simple quick check that you can use. It works because it is easy and intuitive, the criteria are already selected and there are only three of them. Use the NUF test when you want to quickly check that an idea that has been selected is likely to be effective and work in practice. Use it when you want to identify what to work on: being more creative, developing the idea or getting something that you will be able to implement.

## Steps:

A solution to a problem can be assessed and scored with the simple three-part 'NUF test'. Just score it from 0 to 10 on each of 'New', 'Useful' and 'Feasible'.

**New: not been tried before** - A solution is not creative unless it is new. When we say 'new' here we are not looking to get into philosophical arguments about original thought, but we do mean something substantially different from those things which have been tried before.

**Useful: solves the problem** - It is good to have a creative new solution--and it is even better if it solves the problem! The question here is 'How completely does it solve the problem?' A totally useful solution solves the problem completely--and does not create any new ones.

**Feasible: can be implemented in practice** - If you have a really novel solution that fully solves the problem, the final question is 'Can it be put into practice?' If it is really expensive to implement and difficult to use, then it will not be a very feasible solution. Another good question here is 'Who will I have to persuade?'

## Example:

An idea for keeping a door open is to use a sucker on the wall that sticks to the door.

Criteria	Score	Comment
New	7	Similar ideas have been used before
Useful	5	Not sure if the sucker will hold well
Feasible	9	Cheap and easy
<b>TOTAL:</b>	<b>21</b>	



Tees  
"I've asked you all here today to brainstorm ways to reduce staff."

## More information:

<http://www.creatingminds.org>

# PINC FILTER

How to use:

individual / group

open / closed problems

products / services

## Description:

Use the PINC (Positives, Intriguing, Negatives, Concerning) Filter when you have created a number of ideas and you want to select those to carry forward to the next stage of development. Only use the PINC filter after you have reduced the number of ideas to a very short list. Each PINC evaluation is not short, and evaluating many ideas would take a long time. Typically you need less than six and ideally only two or three.

## Steps:

**1. Build the PINC Box** - Draw the box that you will use to evaluate the idea as below. Write the idea being evaluated in the box at the top. Give more space for Positives and Negatives as you usually need more for these.

**2. Evaluate the idea** - Discuss the idea and add notes to the sections using the following rules:

- Positives - things that add value
- Intriguing - curious things that could be of value
- Negatives - things that remove value
- Concerning - worrying things that could remove value

Be playful about what goes into the Intriguing category, following your 'inner child' and notice whether an idea catches your eye for no apparent reason. You can put logical thoughts in the Concerning box, but beware of structured thinkers going overboard on this.

**3. Repeat for selected ideas** - Repeat the PINC Filter test for each of the ideas being considered.

**4. Stand back, review and select** - When you are done, pin up all of the pages on the wall and review them all together to decide which of the ideas will receive further attention, either to be tried out in practice or to receive further attention. Beware when doing this of selecting ideas because there are simply more comments than another idea. When an idea is selected, then the Negatives and Concerns now become the target of the next creative session.

## More information:

<http://www.creatingminds.org>

<b>Idea:</b>	
<b>Positives</b>	<b>Negatives</b>
<b>Intriguing</b>	<b>Concerning</b>



# SIX THINKING HATS

How to use: **individual / group** **open / closed problems** **products / services**

## Description:

Popular technique created by Edward de Bono. Use it in teams where you want to use different types of thinking. Use it where individuals would feel inhibited by taking these roles without prior legitimisation. Use it to encourage further use of a range of thinking processes. You can use it to explore ideas when selecting which to take forward. You can use it to explore how other people will react when you try to implement your idea.

## Steps:

**Explain the hats** - Explain to the team the meaning of the hats below. If people are not used to them, a sheet of paper each with the colors and explanations clearly displayed on them. It can be a good idea to have a little bit of practice first, to help people get used to the idea and how to use them.

**Use the hats** - In conversation, people now precede a comment that is using one of the six thinking styles by mentioning the hat, or even the color. For example, you could say, 'With the White Hat on, I'd like to ask if anyone else knows about this.' (and in doing so, be forgiven for not being totally expert in all things). If you are the leader or facilitator, add to the legitimization by using the hats yourself. Model behavior for others by regularly using all hats.

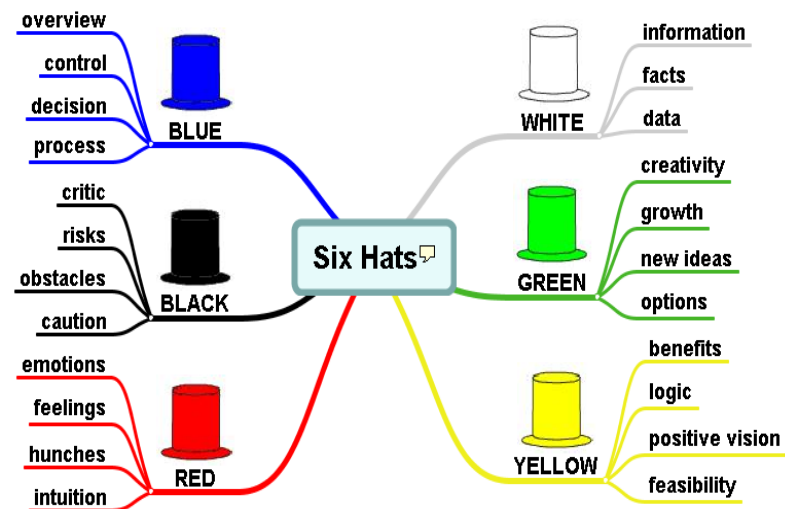
Don't over-do it by using them in every sentence, but do model early and at regular intervals, especially if people are missing viewpoints or are not using the hats well enough. Some people even use a set of fold-up flags (which you can make or buy). When you are using a given style, you fold up the flag that denotes the style, thus giving other people a continuing signal as to the thinking you are using.

## Example:

- 'With my Green hat on, I'd say we should all flap our wings and zoom around the building with our eyes shut.'
- 'Feeling a bit Red here: I'm getting twitchy about doing this now.'
- 'With a Black hat, I'd say that we could not afford to do that.'
- 'Blue calling: The whole contraption is too heavy. It will sink without trace.'
- 'White hat says I can't decide yet, I need to find out more. Any ideas?'

## More information:

[http://en.wikipedia.org/wiki/Six\\_Thinking\\_Hats](http://en.wikipedia.org/wiki/Six_Thinking_Hats)



# WEIGHTED SELECTION

How to use: **individual / group** **open / closed problems** **products / services**

## Description:

Weighted selection is a method of assessing the benefits of several options or alternative courses of action.

## Steps:

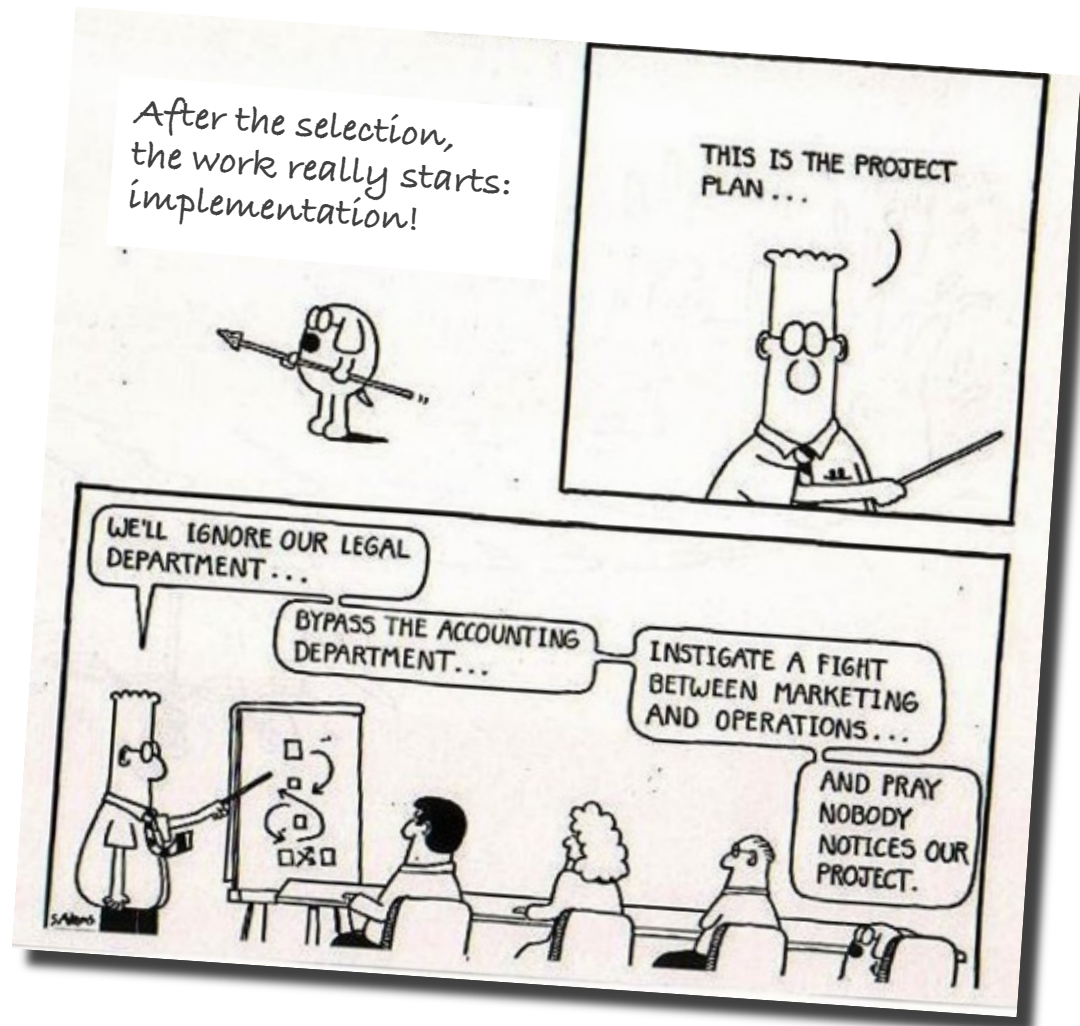
1. List all the factors that are important in the decision you are making eg time (how quickly can it be put into effect); cost (how cheap will it be to put into practice); management support (how much support it will receive from management); speed of impact (how soon you will see a benefit); etc.
2. Give each factor a rating which reflects how important it is with regard to the decision you are making eg if you have endless supplies of money at your disposal, cost (cheapness) may not be a very significant factor and so you would give it a low rating. If it is very important that you see results quickly you would give speed of impact a high rating. Ratings range from 1 to 10 [10 most important).
3. List the possible options or courses of action you could take to achieve the factors - try to limit this to five.
4. Draw an analysis table showing options across the top and factors along the side.
5. Give each option a value against each factor (range 1-10) that describes its strength in satisfying the factor.
6. For each option multiply the value by the factor weighting to give a weighted value (Minimum 1 Maximum 100).
7. Total the weighted values for each option.
8. Discount those options with a relatively low value. If there is a clear winner then use that; if not, re-evaluate the competing options. Remember, although the results are quantitative they are subjective and so should not be regarded as absolute - if you have relevant data then that should be a major factor in reaching a decision.

## More information:

<http://www.wiley.co.uk/wileychi/innovate/website/pages/atoz/weighted.htm>



# And then... implementation!



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