

Useful tools for generating and analysing ideas



Figure 1: Tools to assist process development

We mentioned earlier that there are many techniques around ideas. It might be useful for you to consider these tools in two groups:

1. Those that help you to generate ideas
2. Those that help you to analyse the ideas and chose those worth pursuing

Some examples we will cover include brainstorming, mind maps, cause and effect diagrams and Affinity diagrams. You might use a version of these techniques already. You can find lots of information on the internet to help you introduce those techniques but here is a quick overview.

Let's use the example of an SME trying to increase opportunities for networking.

Generating ideas

When using creativity tools focused on generating ideas try to generate as many ideas as possible during a short time span, usually a few minutes during an ideation session. A good rule here is not to criticise or judge new ideas as they come, as this will stop your staff from fully participating. You want them to let their brains run free to generate as many possibilities as they can; filtering and merging will come later.



Customer Feedback

Gather information from customer feedback, both positive and negative. You may learn more from complaints than complements. If you use any kind of customer satisfaction scoring system, gather all the data that relates to the lower scores.



Brainstorming

Brainstorming is all about creating a free and open environment that encourages everyone to participate. It gets team members to share their knowledge and creativity without any fear of negative consequences. You can brainstorm in a group or by yourself. Both have benefits. Brainstorming by yourself can generate a lot of ideas which you might not feel comfortable to suggest in a group. Brainstorming in a group can benefit from the collective experience in the group. Not everyone feels comfortable speaking up in a group and so you should manage ideation according to the preferences of you and your staff.

What does it do?

Brainstorming encourages people to come up with thoughts and ideas that can, at first, seem a bit crazy. Some of these ideas can be worked on to develop original, creative solutions to a problem, while others can generate even more ideas. This helps to get people unstuck by getting the to move out of their normal ways of thinking.

Never criticise an idea generated during brainstorming

You're trying to open possibilities and break down incorrect assumptions about the problem's limits. Judgment and analysis at this stage stunt idea generation and creativity.

How do I do it?

1. Prepare the group – environment, resources, refreshments, a diverse group of participants
2. Present the problem and tell everyone you are all there to generate ideas
3. Guide the conversations and encourage everyone to participate
4. Capture the ideas
5. Sort through the ideas and identify themes
6. Evaluate ideas at the end of the session – this is the time to explore solutions further, using conventional approaches.



Figure 2: Brainstorming output example



SCAMPER

Use SCAMPER as a tool to find ways to improve an existing product or come up with ideas for a new one. It's based on the notion that everything new is a modification of something else.

What does it do?

It uses a set of directed questions to help you come up with new ideas. It works by forcing you to ask yourself a set of questions you normally wouldn't think about.

How do I do it?

To use the SCAMPER technique, first state the problem you'd like to solve or the idea you'd like to develop. It can be anything: a challenge in your business; or maybe a product, service or process you want to improve. After pinpointing the challenge, it's then a matter of asking questions about it using the SCAMPER checklist to guide you.

Consider, for instance, the problem "worked example to be determined"

S = Substitute i.e. swap components, materials or people

C = Combine i.e. mix, combine with other assemblies or services, integrate

A = Adapt i.e. alter, change function, use part of another element

M = Modify i.e. increase or reduce in scale, change shape, modify attributes

P = Put to other use

E = Eliminate i.e. remove elements, simplify, reduce to core functionality

R = Reverse i.e. turn inside out or upside down.

Selecting ideas

Use the following tools to help you to organise, filter and select all the ideas generated during the earlier thinking process so you can focus on the best ones. By 'best ones' we mean those you select for future development. The others may be categorised as promising but requiring further conceptual thinking or interesting but not considered worth pursuing at this time. It's important that you don't discard any ideas that don't make it through this process as in time there may be changes that make them more feasible because of new technology or change of company strategy, availability of funding etc... Consider putting someone in charge of managing the ideas.

This step requires a very different mindset, so many people might think that this kind of work is not creative, but in fact, it is. If we want to successfully finish any innovation process, running only the ideation step is useless. In fact, about a third of the time should be spent on ideation and two thirds on selection and development.



Mind Maps

What does it do?

A mind map is a diagram you draw to organise information in a visual way and to show relationships between ideas.

How do I use it?

You can create one as follows:

1. Think of an idea or concept
2. Write or draw the idea an image in the centre of a blank page
3. Add other words, images or any kind of visual keys connected to the central idea
4. Make your branches curved or straight-lined...whatever appeals to you
5. Use one key word per line.
6. Use images throughout.

Connect your major ideas directly to the central concept, and other ideas branch out from those major ideas.

You can draw mind maps by hand, as rough notes during a meeting or conversation, on the back of an envelope.....they do not need to be fancy!

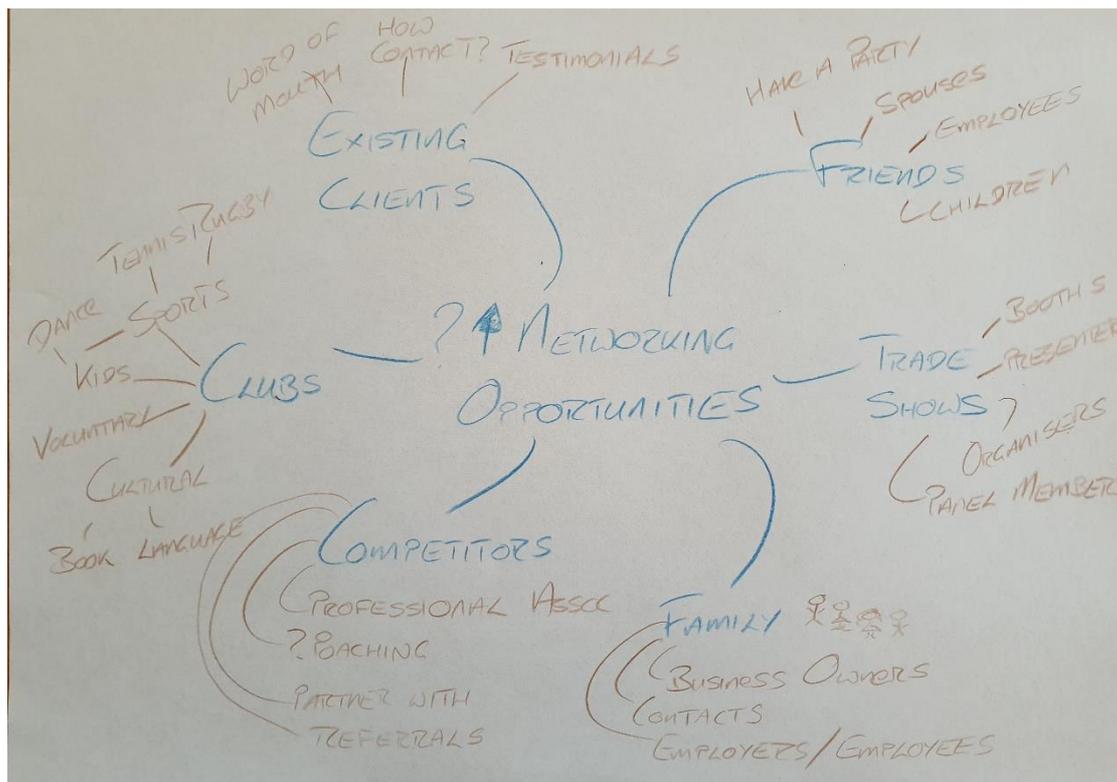


Figure 3: Hand drawn mind map output example

If you need to, you can produce higher quality pictures when more time is available using software or by hand.



Figure 4: Computer produced mind map example



Cause and Effect Analysis

Also called a Fishbone or Ishikawa diagram, this is like a combination of Brainstorming and a Mind Map.

What does it do?

You can use it to find out the real cause of the problem you are about to try to solve. That means you will have a much better chance of solving the whole problem and not just part.

How do I do it?

You can create one as follows:

1. Identify the problem.
2. Work out the major factors involved.
3. Identify possible causes.
4. Analyse your diagram.

A fishbone diagram is a good technique to use when you are trying to fix a particularly complicated problem.

This one is a bit trickier than the others, so we have included a longer example as follows:

Write down the exact problem you face including who is involved, what the problem is, and when and where it occurs.

Problem: Office Coffee is terrible! All the time.



Figure 5: Cause and Effect Analysis Step 1

Identify what may be part of the problem e.g. systems, equipment, materials, people etc.

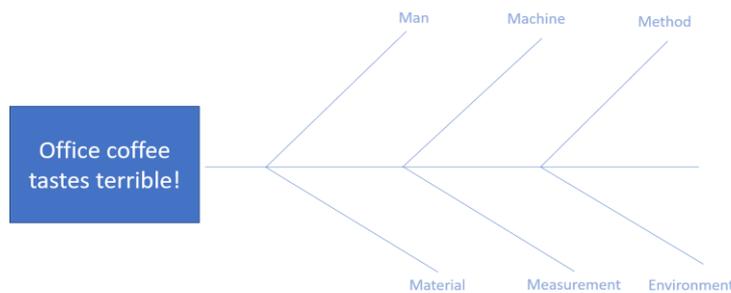


Figure 6: Cause and Effect Analysis Step 2

For everything you considered in step 2, brainstorm possible causes of the problem.

Show these possible causes as shorter lines coming off the "bones" of the diagram. Where a cause is large or complex, then it may be best to break it down into sub-causes. Show these as lines coming off each cause line.

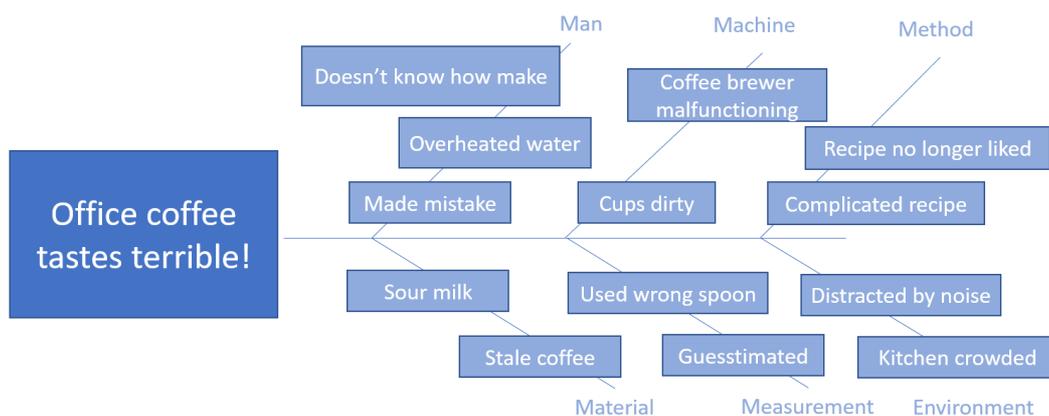


Figure 7: Cause and Effect Analysis Step 3

By this stage you should have a diagram showing all the possible causes of the problem that you can think of.

Depending on the complexity and importance of the problem, you can now investigate the most likely causes a bit more. This may involve carrying out surveys, and so on. These will be designed to test which of these possible causes is contributing to the problem.



Affinity Diagram

What does it do?

These are really useful for organising information into common themes and discovering the relationship between them. It can help when you have a lot of information to process. The purpose of an affinity diagram, above all, is to stimulate discussion about a problem or issue, opening up possibilities for improvement or solution.

How do I do it?

To create an affinity diagram, do the following steps:

1. Record each idea on cards or notes.
2. Look for ideas that seem to be related.
3. Sort cards into groups until all cards have been used.

Here we have created one using the output from the Brainstorming example in the previous section.

How increase networking opportunities?	
Friends	Trade Shows
Throw a party	Booth Visitors
Spouses	Presenters
Employees	Organisers
Children	Panel members

Competitors	Family
Professional Association	Business Owners
Poaching?	Their contacts
Partnering with	Their employers
Referrals	Their employees

Existing Clients	Clubs
Word of Mouth	Sports

Testimonials	Kids
Contact Methods	Cultural
	Voluntary



New Product Evaluation Questions

What does it do?

Helps you to determine if it's worth moving on with this idea.

How do I use it?

Ask yourself the following questions:

- Is it relevant?
- Is it practical?
- Will it improve production or quality?
- Will it help to make more efficient use of workforce?
- Will it improve functioning, maintenance or building processes?
- Is it more advanced than existing tools or machines?
- Is it safer?
- Will it help to avoid unnecessary work?
- Will it cut cost?
- Will it improve existing methods?
- Will it improve working conditions?

After thinking of the idea in this way you will have a clearer idea if it's worth pursuing. You can do this individually or as a group.



NAF – Idea Evaluation Questions

NAF consists of trying and understanding the probability of one person who has responsibility for implementing an idea, finally, will take action. **It is not scientific** but rather *gut feel* which, in the context of creativity, is important.

What is it?

This is a simple way of scoring / assessing beginning ideas following brainstorming and potential solutions to a problem after they have been explored and developed. NAF ratings are used with **a group**, when what seems to be a satisfactory solution is reached, they can be used to quickly identified different participants' opinion about a specific outcome.

How do I do it?

1. Form a group
2. Give a score out of 10 for each of the three items, New, Appeal, Feasibility.
3. Mark it on a scale of 1-10

Newness – to you, not necessarily the rest of the world.

Appeal – what does your gut say? If you don't score it high on appeal, you don't like the idea!

Feasibility – how practical is it to do this?

If it is 80% it means that while the idea is not perfect you can see how to do it and the problems, the remaining 20% are to do with implementation (getting others involved, agreement, funding, time, etc.)



Analogy (Case-Based Reasoning) method

What is it?

This method is based on reasoning by analogy, where you use knowledge about previous experiences to find a solution for the present problem.

How do I do it?

1. Recall cases similar to the current problem, and how they were solved.
2. Reapply the process to the current problem by adapting it to the current situation.
3. Revise the process in order to match it with the needs of the current problem.
4. Store the new solution for future use in case a similar problem arises.



Existing Product Evaluation Questions

What is it?

A set of questions you ask yourself about your existing products to see if you can alter them in an innovative way.

How do I do it?

1. Ask yourself the following groups of questions about your product.
2. Generate a list with all the ideas you have to think about
3. Prioritise it using consensus mapping techniques

Questions

What can I substitute to improve this?

What if I swap this for that and see what happens?

How can I substitute the place, time, materials or people?

What materials, features, processes, people, products or components can I combine?

Where can I build synergy?

What part of the product could I change?

In exchange for what?

Can I change the characteristics of a part?

What happens if I warp or exaggerate a feature or component?

What will happen if I modify the process in some way?

What would happen if I removed a component or part of it?

How else would I achieve the solution without doing it the usual way?

What would happen if I did it the other way around?

What if I reverse the order in which it is done or the way in which it is used?

How would I get the opposite effect