

GIJS VAN WULFEN

CUSTOMERS ARE SCARY CLIFFS



A special excerpt from *The Innovation Expedition*
exclusive to InnovationManagement.se. Written by Gijs van Wulfen,
published by BIS Publishers.

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A VISUAL TOOLKIT TO START INNOVATION

BUSY BUSY BUSY
ESCAPE HARBOUR

OUR OWN BLIND SPOTS

IX.



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The Innovation Toolkit

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THE INNOVATION TOOLKIT

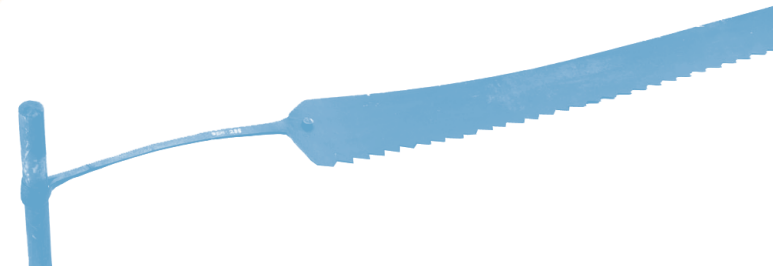
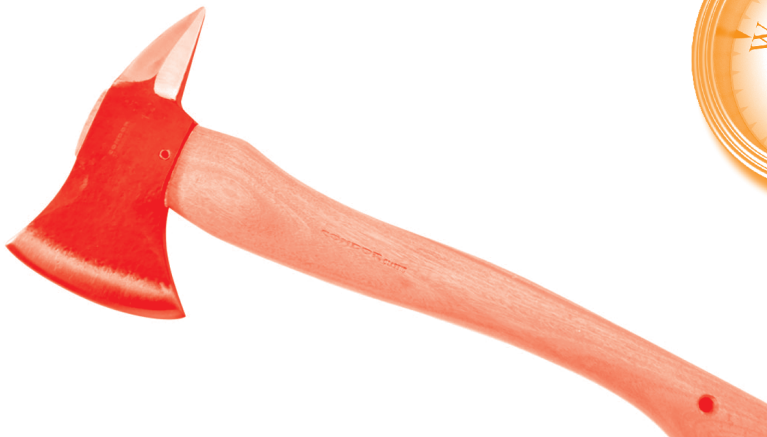
This innovation toolkit lays out 37 techniques and tools for you to use in your projects at the start of innovation. Section 1 includes six openers: warm up activities to facilitate the start of a workshop. Section 2 presents three exercises to energize the group. Section 3 offers a wonderful technique to conclude a workshop. Section 4 describes thirteen idea generation tools and Section 5 provides eight tools to select and improve ideas. Sections 6 through 8 introduce three additional ways to brainstorm: playing brainstorm games, using brainstorm software and online brainstorming. Sections 9 and 10 explain two other useful techniques, the TRIZ and SIT tools, which both can be used at the start of innovation. Section 11, the final section of the toolkit ends with a technique developed by de Bono named the Six Thinking Hats.

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1. OPENERS

For the effectiveness of every workshop or brainstorming session it is important that the participants feel at ease. Being made to feel safe in a group is one of many factors that contribute to getting participants to express their opinions. We are all familiar with spontaneous 'getting to know one another' encounters where each person introduces him or herself as a way of getting acquainted. The drawback to this approach is that people who don't really know each other yet, might not know what to say. Luckily, there are helpful activities that can be implemented for a smoother "getting acquainted" phase.

Below you will find an explanation of six techniques.

1.1 Photo introduction

Duration: 20 - 30 minutes

Procedure:

- Place a collection of 100 - 200 photos on one of the tables.
- The facilitator asks each person to choose a photo which says something about him or her personally.
- The participants choose one photo and return to their seats.
- The facilitator then chooses one person, someone who is an extrovert and clearly feels at ease in the group, to start his or her introduction with the help of the photo. The rest will follow suit.

Some effective alternatives can be:

- You can ask the participants beforehand to bring a photo of their own.
- In a new product brainstorming session about travel products you can ask the participants beforehand to bring a photo or other memorabilia from their favorite holiday.

1.2 Keychain introduction

Duration: 20 - 30 minutes

This technique is a nice way to get some insight into another person's life. All participants are asked to take out the keys they have with them: the key to a second home, the neighbor's key, the key to the house of a son or daughter, the office key, or simply the car key. This technique always creates humorous moments and a relaxed atmosphere; especially when everyone can relate to the person who has no idea what a specific key goes to. A wallet can be used as an alternative.

Procedure:

- The facilitator asks the participants, to introduce themselves and tell about each key on their keychain. What kind of key is it and why do they have it?

1.3 Your innovation

Duration: 20 - 30 minutes

This technique is useful if your workshop is on innovation. You can ask the participants beforehand to bring an example of an innovation they frequently use in their personal lives. This will give you insight in their personal lives and tells you something about their personal definition of what an innovation is.

Procedure:

- The facilitator asks the participants to introduce themselves one by one and present an innovative product or service from their personal lives. What is it? Why is this innovative?

1.4 The sequence game

Duration: 10 minutes

Immediately following the introductions with the various photos, keys or wallets, the participants will proceed by playing the sequence game. The sequence game motivates the participants to quickly co-operate with each other and at the same time learn something new about one another.

Procedure:

- The facilitator asks the participants to find a space to stand in a group, and see how quickly they can work together.
- The facilitator gives instructions for the participants to perform as a group.
- The instructions could be: Stand in order of:
 - height;
 - age;
 - number of children;
 - distance from home to the brainstorming venue;
 - number of miles driven with current car.

Tip: When the participants stand in order, let them call out the numbers. By doing so, they will learn something about each other and you, as the facilitator, can monitor if the activity was done correctly.

1.5 Mix it up

It often happens that at sessions like this, the participants will go and sit next to somebody they know and, if you don't do something about it, they will consider that seat as 'theirs'. It is good to break through these patterns right away. This will speed up the process of making the external participants become part of the group. A simple rule to follow is: move your feet, lose your seat. The facilitator

explains to the group that whenever someone gets up to get some coffee or post something on the ideas wall, he or she will have to take a seat somewhere else. Only apply this rule on the first morning of the first day of the brainstorming session. On the subsequent days, the group formation will make this rule unnecessary.

1.6 The trash can

Duration: 10 minutes

This is an effective technique to get participants to check their past baggage at the door and prevent it from negatively influencing the session. Participants in an innovation workshop might have had some negative experiences in the past in their organization. Perhaps their company was recently re-organized. When you, as the facilitator, see that there are factors at play that will negatively influence the brainstorming process; it is then wise to address this. It will not be possible to discuss all these negative experiences at this particular venue, but it is possible to give that negativity a place - a physical place - in the trash can.

Procedure:

- The facilitator asks the participants if they have had any recent negative experiences within their organization. They are then asked to list each of these experiences on a post-it and are given the assurance that none of these will be discussed with the group.
- The facilitator then takes a big trash bag and asks the participants to drop their post-its inside. This gives the participants a way to let go of all their negative experiences from the past.
- The facilitator closes the bag and asks someone to place it outside the room. Usually you will notice a more relaxed atmosphere as if the tension has been removed from the room.

2. ENERGIZERS

It often happens that the energy level of the group decreases at some point during the workshop as it might be mentally very tiring. If the group is up to it, interrupt the program for an energizer. The following three activities can be done.

2.1 The horse race

Duration: 10 minutes

Procedure:

- During this activity the participants pretend they are jockeys at an actual horse race track. The facilitator plays the role of the racetrack announcer. The participants are then asked to kneel in a circle close to one another. As soon as the race starts, they start tapping on the floor with their hands imitating the sound of the horses' hooves. While they continue tapping, they have to react to five commands given by the facilitator. Each command is accompanied by the following physical responses:
 - the horses are on their way - tap on the floor;
 - the horses are going through a trough of water - tap on the thigh;
 - turn to the left - everyone leans to the left;
 - turn to the right - everyone leans to the right;
 - passing the stands - everyone does the wave!

It is an art to keep it fun and to increase the tempo so that the actions steadily become faster. It is also a test of everyone's energy level, especially that of the facilitator.

2.2 Swing to the beat

Duration: 10 minutes

Procedure:

- Place the chairs to one side of the room.
- The facilitator then asks everybody to stand in the middle.
- He or she then announces that all the participants are going to move and swing to different kinds of music.
- Choose the music carefully and build it up from relaxed to fast beat. The following order is suggested: new age music, classical music, ballads, rock-and-roll and techno house. It is important that the facilitator also participates and demonstrates what to do. Some might be hesitant at first, but reassure them that anything goes; the dancing can be fast and furious or slow and relaxed.
- Be sure to increase the tempo and volume of the music and end with a grand finale.

2.3 In touch

Duration: 15 minutes

Procedure:

- Place the chairs to one side of the room.
- The facilitator asks everyone to stand in the middle.
- He or she then announces that they are going to do an exercise to get them moving. Ask everyone to wander around the room in circles; not following each other, but randomly. At the command of the facilitator everyone must walk slower or faster.
- As soon as the facilitator calls out a body part, the participants have to touch everyone they encounter with only that specific part of the body. Start with something simple, like 'hands!'. After that you can call out something less obvious, like 'the back of the head!' 'Toes!' are also nice and you can continue with 'hips!', 'noses!' and 'cheeks!'. Allow the participants to set their own boundaries.

Source: Marcel Karreman (2002). *Warming-ups & energizers*. Zaltbommel: Thema.

3. CLOSER: THE COMPLIMENT GAME

At the end of a workshop everybody is obviously tired, but above-all pleased with the group's accomplishments and the room swells with the triumph of excellence. It is meaningful to end the session with the compliment game, especially at the final meeting of a series. What makes this game so valuable is that everyone receives a personalized 'gift' to take back home: a bundle of compliments.

Duration: 20 minutes

Procedure:

- Each participant is asked to write down a compliment about the other participants. One compliment per post-it.
- Then they have to stick the post-its on the backs of the people for whom the compliments are intended. The compliment should be a word, which describes personal strengths, such as 'open', 'practical' or 'creative'.
- When this task is completed; the facilitator then asks everyone to stand in a semi-circle. You, as the facilitator, collect the post-its from the person to your left and ask him or her to read the compliments aloud. Then continuing clockwise, this person removes the notes from his or her neighbor's back and has the neighbor read this following set of compliments aloud.
- Continue until each participant has had his or her turn.
- At the end of the session, everyone has a bundle of compliments to take back home as a small gift.

Source: Mieke van de Pol.
www.decreativetrainer.blogspot.com,
September 8, 2007.

4. IDEA GENERATION TOOLS

4.1 Brain Dump

The brain dump is the starting technique for idea generation; to unleash the first spontaneous ideas. The participants 'brain' dump whatever comes to mind first and the facilitator then harvests these ideas.

Duration: 30 - 45 minutes

(depending on the number of participants).

Procedure:

- The facilitator reads the innovation assignment and asks the participants to write down their first ideas (in a few key words) in silence on a post-it. One idea per post-it.
- The facilitator invites two participants at a time to the front of the group to read their ideas aloud, quickly one by one, and to post them on the idea wall.
- The facilitator asks the rest of the participants to listen well and write any new ideas on a post-it.
- This continues until all the participants have come to the front in pairs to read their ideas aloud before sticking their post-its onto the idea wall and there are no more ideas left.

4.2 Innovation Opportunities

In the FORTH innovation process core team members have explored innovation opportunities in step 2: Observe & Learn. These innovation opportunities are a wonderful source of inspiration for innovative ideas. Use them early in the idea generation phase.

Duration: 45 minutes

as a separate tool; 20 minutes as part of the brain dump.

Procedure A: as a separate tool:

- The inspiration of the six to ten innovation opportunities are posted on the wall.
- The facilitator asks the 'owner' of the innovation opportunity to inspire the group on what he or she has discovered and what lessons have been learned. Top innovation opportunities get three minutes to make their pitch to the group. The other innovation opportunities are only given one minute.
- Listening to the opportunities, participants are invited to jot down their ideas (in a few key words) in silence on a post-it. One idea per post-it.
- Afterwards, the facilitator invites two participants at a time to come to the front of the group to read their ideas aloud, quickly one after the other, and to post them onto the idea wall. This continues until all the participants have stuck their post-its on the wall and there are no more ideas left.

Procedure B: as part of the brain dump:

- To shorten the process, you can integrate the innovation opportunities with the ideas produced in the brain dump.
- After the participants in the brain dump have jotted down their first ideas (in a few key words) on a post-it in silence, the facilitator proceeds to facilitate the innovation opportunities tool by integrating the ideas harvested from the brain dump and the innovation opportunities in one shift. It is my experience that you will gain a lot of time, without compromising its effectiveness.

4.3 Customer Frictions

In the FORTH innovation process core team members have discovered customer frictions in step 2: Observe & Learn. Meeting customers in person and finding out the frictions of the customer are a wonderful source of inspiration for innovative ideas. Use them as innovation opportunities early on in the idea generation phase.

Duration: 45 minutes as a separate tool.

Procedure:

- All the boards with relevant customer frictions are at the workshop venue.
- In the previous Observe & Learn workshop, the innovation team has selected the most promising five frictions. The participants should therefore be divided into five groups.
- Assign each group ten minutes to generate as many solutions as possible for these customer frictions and to write down their ideas (in a few key words) on a post-it. One idea per post-it. And stick them onto the board.
- Let the groups switch from table to table to brainstorm for a maximum of three minutes to generate additional ideas for other customer frictions.
- Afterwards, the facilitator invites participants of each sub-group to come to the front of the whole group to read their ideas aloud, quickly one after the other, and to post them on the idea wall.
- This continues until all the sub-groups and participants have stuck their post-its on the idea wall and there are no more ideas left.

4.4 Presumptions

This is a creative technique whereby the presumptions implied by the assignment or challenge are made clear, discussed and eliminated. The presumption technique can be applied best at the beginning of the divergence phase in order to reverse the habitual conventions in the product market or within the company.

Duration: 45 minutes

Procedure:

The facilitator asks:

- What are the key concepts of the assignment?
- Allow the participants to write down the key concepts for themselves.
- Allow the participants to mention these key concepts.
- Choose the most important three to five key concepts.
- The facilitator makes a list of the presumptions for each key concept.
- The facilitator asks the participants to eliminate the presumptions.
- The facilitator then asks the participants to invent new ideas without the presumptions and write them on post-its.
- The facilitator continues until there are no more new ideas.
- Continue with the next key concept until the harvest has been exhausted.
- The facilitator invites two participants to come to the front of the group to read their ideas aloud, quickly one after the other, and to post them on the idea wall. This continues until all the participants have stuck their post-its on the idea wall and there are no more ideas left.

4.5 SCAMPER

SCAMPER is an acronym, which consists of the first letters of the seven different approaches which can be used to change a product or service. Bob Eberle developed this technique. It is very useful when brainstorming for new products. It can be compared to the presumptions technique, but is easier to apply for new products.

Duration: 1 hour

Procedure:

> SCAMPER identifies seven main approaches:

- S = Substitute. What can I replace in the composition, the material, the appearance and the size etc. of the product?
- C = Combine. What can I combine with the product to improve it?
- A = Adapt. Can I adapt the product to something else or can I copy something from other sectors?
- M = Magnify/Minimize/Modify? What can I magnify, minimize or modify about the product?
- P = Put to other uses. Can I use the product for something else?
- E = Eliminate. What can I eliminate?
- R = Reverse/Rearrange. Is there anything I can reverse, turn inside out or do in a different order?
- Generate ideas by tackling the questions one by one presented in the seven approaches of SCAMPER.
- The facilitator recites all the questions for each approach.
- The facilitator asks the participants to create new ideas and write them down on a post-it.
- The facilitator invites two participants to come to the front of the group to read their ideas aloud, quickly one after the other, and to post them on the idea wall. This continues until all the participants have stuck their post-its on the idea wall and there are no more ideas left.

4.6 Flower Association

The basic principle of association is that one thought conjures up another thought. A flower association is the first investigation into the context of a specific word in the assignment. The associations are put down on paper around the central word like the petals of a flower. A flower association is usually one of the first creative techniques.

Duration: 30 - 45 minutes

Procedure:

- › Determine the core concepts.
 - What are the core concepts in the assignment or in the market?
 - Allow the participants to write down the core concepts.
 - Allow the participants to name the core concepts.
 - Choose the most important three to five core concepts.
- › Do the flower association.

Questions:

- What do you associate this concept with?
- What type of aspects does the concept have?
- What does the concept remind you of?
- › Write down all the words (like flower petals) around the concept, which is centrally placed.
 - The facilitator asks the participants to create new ideas based on the associations and write them down on a post-it.
 - The facilitator invites two participants to come to the front of the group to read their ideas aloud, quickly one after the other, and to post them on the idea wall. This continues until all the participants have stuck their post-its onto the idea wall and there are no more ideas left.
 - The facilitator continues with the subsequent concepts and flower associations.

4.7 Biomimicry

Biomimicry is derived from bios (life) and mimesis (imitate, copy). Biomimicry is a relatively young science, which studies nature and uses it as a source of inspiration for the challenges with which people are confronted. Janine Benyus, the promoter of Biomimicry, wrote about it in 1997 *Biomimicry: Innovation Inspired by Nature*. Biomimicry is commonly used to solve technical (design) problems.

Duration: 30 minutes

Procedure:

- › The facilitator asks:
 - If you take the assignment (or the product, or the customer) as the starting point, which animal or object does it resemble in your mind?
- › The facilitator writes down the names of these animals or objects.
 - The facilitator then chooses one animal or object. Choose one that is familiar to everyone and gives the most inspiration.
- › Relate back to new product ideas based on some of the characteristics.
 - What are the characteristics of the animal or object?
 - Use these characteristics as a source of inspiration for new product ideas and ask the participants to write it on a post-it.
 - The facilitator continues until there are no more new ideas.
 - Continue with the next characteristic until all have been completed.

4.8 Comic Book Hero

In comic books everything is possible. The heroes are not bothered by the fixed patterns of reality. And this is exactly what we are trying to attain when we brainstorm. We stimulate our own fantasies by 'crawling into the skin' of our favorite childhood comic book heroes.

Duration: 30 minutes

Procedure:

- › The facilitator asks:
 - What was your favorite comic book hero when you were young?
- › Relate back to the innovation assignment via the imaginary hero.

- Put yourself in the place of the comic book hero. Which new product ideas would Asterix or Donald Duck create? Ask the participants to write these ideas on post-its.
- The facilitator continues until there are no more new ideas.

Tip: Should the participants not have any specific comic book hero, then you can ask them about a fairy tale figure or a movie star they liked when they were young.

4.9 Silly Things

You confront the participants with an object, which lies completely outside the context or theme of the brainstorming session, such as a garden gnome, baby rattle or binoculars. The object strikes everyone as so odd that it inspires.

Duration: 30 minutes

Procedure:

- The facilitator passes around a completely random object, which has nothing to do with the product or the market.
- The participants study the object and are then asked to think about the specific characteristics of it.
- Relate back to the assignment based on these characteristics.
- What are the characteristics of this object?
- Use the characteristics as a source of inspiration for new product ideas and ask the participants to write them on post-its.
- The facilitator continues until there are no more new ideas.

4.10 The Insight Game

The Insight Game is a divergence technique whereby new ideas are generated around the most important customer frictions (which

were discovered during the focus groups in the Observe and Learn stage) in combination with the strengths of the organization. For this technique you can make a board game that might need to be adapted to fit the circumstances. The participants work in groups of three or four.

Duration: 90 minutes

Procedure:

- Choose the most relevant customer frictions. All the customer friction boards from the Observe and Learn stage are on display in the brainstorming room. Each participant receives four stickers, which have to be placed on those customer frictions he or she thinks are most favorable in light of the assignment. During the FORTH method this takes place in the last Observe & Learn workshop.
- Choose the strengths of the organization.
- Each participant receives green post-its on which they write a maximum of four strengths of the company, which can serve as a competitive advantage in light of the assignment. The facilitator then sticks the post-its onto the wall. Each participant receives four stickers and places them on the strengths considered most favorable in light of the assignment.
- Play the game.
- Each group is given a four-by-four matrix with the client frictions in the rows and the strengths of the company in the columns. Number it one to sixteen. Write the customer frictions and strengths on it.
- Play the board game.
 - The facilitator divides the participants in groups of three or four. Each group receives a board game, a die and a pawn.
 - Player one throws the die and moves the number of squares indicated on the die. The player then lands on a square, which is a combination of an insight and a strength. The players brainstorm together over the combination and jot down their ideas on a post-it.

- Should the brainstorming end, player two throws the die and the game is repeated.
- The combinations, which have already been used, are crossed out and you continue until all sixteen squares have been used.
- At the end of the game the players choose the three squares, which have generated product ideas with the most potential. These are then shared with the group when the facilitator invites participants of each subgroup to come to the front of the whole group to read their ideas aloud, quickly one after the other, and to post them on the idea wall. This continues until all the subgroups and participants have stuck their post-its on the wall and there are no more ideas left.

4.11 Crawl into the skin of

With this brainstorming technique, ideas are generated by crawling into the skin of another person in the target group. When the participants imagine themselves in their new role as 'this other person' new ideas are then created.

Duration: 45 minutes

Procedure:

- > Ask the participants, perhaps using the flower association technique, to distinguish the 'types' or 'characters' in the target group.
- > For the consumer market:
 - the seemingly uninterested adolescent;
 - the energetic 70-year-old who is traveling the world;
 - the 24/7 X-Box gamer;
 - the beer-drinking neighborhood biker (with all due respect).
- > For the business-to-business market, for example the energy market:
 - the desperate buyer who is taking great risks with rising energy prices;

- the manufacturing manager for whom continuity is the most important aspect;
- the controller who does not want to deviate when it comes to cost price calculations;
- the director who does not want to spend one penny more on energy than necessary.
- > Ask either individual participants or the groups of three to four, to crawl into the skin of a real person to the fullest extent possible, including a name, address, daily activity, work, hobby etc. Stimulate them to imitate their chosen 'type'. By using caricatures it eases the imagining process, causes great pleasure and through exaggeration it generates effective perspectives for new ideas.
- > Ask individual participants (after they have finished laughing) to create new ideas through this 'new person' and to write them down on a post-it.
- > Harvest the post-its.

4.12 What would Apple do?

With this brainstorming technique ideas are generated by crawling into the skin of another company, organization or group like Apple, IKEA, McDonald's or Toyota. When the participants imagine themselves as working for this company, ideas are created in their new role.

Duration: 45 minutes

Procedure:

- Select the organizations. Choose the ones you suspect will add new perspectives to your innovation challenge.
- Ask the groups of three to four, to crawl into the skin of these organizations. Stimulate them to imitate their chosen 'type'. By using caricatures it eases the imagining process, causes great

pleasure and through exaggeration it generates effective perspectives for new ideas.

- Ask the individual participants (after they have finished laughing) to create new ideas for their innovation assignment from the perspective of being the other organization and to write them down on a post-it. What would Apple do?
- Harvest the post-its.

4.13 Trends Dance

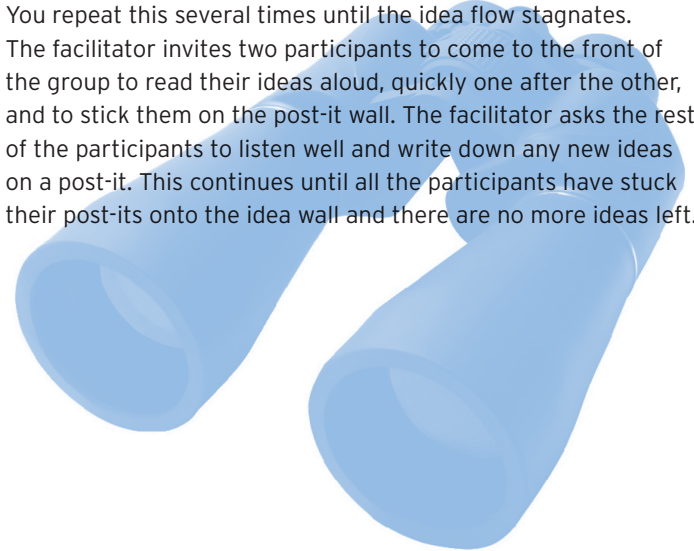
This brainstorming technique brings you far outside the box combining various future trends. It gets people moving and dancing to generate high energy and is very well suited for the last idea generation tool.

Duration: 60 minutes

Procedure:

- Select as many future trends as there are participants and write these trends down on a card that the participants can hang around their necks giving them free use of their hands to write ideas on post-its.
- Make a good match distributing the trends among the participants according to their interests and expertise.
- In the first step you ask them individually to come up with as many new ideas as possible based on the trend on their card.
- In the second step you put on loud dancing music. The participants dance. And when the music stops they team up in pairs. Their assignment is to come up with as many ideas as possible based on the trends on both their cards.
- You repeat this several times.
- In the third step you put on loud dancing music. The participants dance. And when the music stops each participant teams up with two others. Their assignment is to come up with as many ideas as possible based on three trends.

- You repeat this several times until the idea flow stagnates.
- The facilitator invites two participants to come to the front of the group to read their ideas aloud, quickly one after the other, and to stick them on the post-it wall. The facilitator asks the rest of the participants to listen well and write down any new ideas on a post-it. This continues until all the participants have stuck their post-its onto the idea wall and there are no more ideas left.



5. IDEA SELECTION TOOLS

5.1 Pinpoint Ideation Directions

The convergence phase starts with pinpointing the directions that our ideas take. On Day One of a brainstorming session you can expect to find 500 - 750 post-its on the idea wall. This technique helps you to link those post-its to specific directions.

Duration: 45 minutes, depending on the number of post-its.

Procedure:

- The facilitator asks the participants to closely examine the post-its wall. The facilitator explains that, for now, the participants need to focus on choosing the two post-its which they believe are the most promising. The remaining ideas will be held onto, as part of the brainstorming session at the end of this stage. Allow five to ten minutes for everyone to carefully study the impressive idea wall. Ask them to choose one post-it which is 'close to home' and a second one which is 'far from home'. This will give you a good mix of feasible solutions and outside-the-box ideas.
- The facilitator asks the participants to read out the selected post-its. Subsequently, the group chooses a title to give to each ideation direction. The facilitator follows the same procedure for each selected post-it. Post-its which are linked to the same direction are placed next to each other on the idea wall. The facilitator continues until the group has the impression that they've exhausted all possible ideation directions. At a new product brainstorming session it is common to come up with 30 to 40 different ideation directions.
- In past brainstorming sessions, we would group all 500+ post-its under different titles of ideation direction. However, this procedure turned out to be very time intensive. These days, we proceed directly to selecting the most promising ideation directions. We have found that doing it this way in practice does not compromise the quality of the final concepts.

5.2 Select ideation directions

This technique often follows the previous phase where 30 to 40 ideation directions are titled and categorized into groups. In this technique you proceed to select the twelve directions with the most potential and developing them further in the next stage using idea mind maps.

Duration: 30 minutes, depending on the number of directions.

Procedure:

- The facilitator hands out stickers and asks the participants to stick them on the ideation direction they believe to have the most potential. In other words, they must choose the ideation direction, which they would like to develop into a new concrete product or service idea. Each participant is not allowed to put more than one sticker on an ideation direction.
- After this step is completed, the facilitator determines, in collaboration with the internal client and the project leader, which directions are the most promising. The principle that works best is: the ones with the most stickers have the most potential. I recommend giving the internal client a 'wild card' so that he or she can also make a choice, which just might give a 'hidden gem' a second chance.
- The selected twelve ideation directions are then developed into idea mind maps.

Tip: The number of stickers depends on the number of directions. Experience has taught that giving each participant seven stickers to distribute over 30 - 40 ideation directions, gives a good representation of the stronger and weaker ideation directions.

5.3 Idea mind mapping

Mind mapping is a well-known brainstorming technique made popular by Tony Buzan, an English psychologist. To make a mind map, place the main theme in the center enclosed in a circle. Key words associated with the central theme are added around it. It's common to use different colors and add drawings. It's a simple technique and the fact that it is very visual makes it easier and quicker for everybody to see the connections between the ideas related to the central theme.

Duration: 45 minutes

Procedure:

- The facilitator explains how mind mapping works and discusses the mind map sheet. On a flip-over page, the ideation direction is written on a post-it and placed in the center. It already has three subdivisions: 'what?', 'for whom?', and 'how?'. There are twelve blank mind map sheets, one for each ideation direction.
- The facilitator gives the participants a marker and asks them to write down or draw everything they associate with the central idea. Judgment, of course, should be deferred until a later stage.
- The participants are given 30 minutes to enrich the twelve idea mind maps with their ideas about their development.
- As soon as everyone has completed this, the facilitator asks the participants to each read out an idea mind map. Doing this exercise gives everybody a good image of the possible developments for each idea.

5.4 With ketchup?

New concepts are presented one by one in a sales pitch or three-minute verbal explanation. The purpose of this technique is to improve the concepts.

Duration: 5 minutes per product idea

Procedure:

- The facilitator asks one of the participants to present the concept to the whole group in three minutes.
- The facilitator asks the rest of the participants if they have any ideas how to strengthen the concept and to write these ideas down on a post-it.
- After the facilitator discusses the additional ideas, they are posted onto the concept board.
- The facilitator continues with the next concept board and the procedure is repeated until all the concepts have been presented.

5.5 Salt and Pepper

The purpose of this technique is to improve a good basic idea, by adding salt and pepper seasoning in the form of fresh ideas.

Duration: 20 minutes for each new concept.

Procedure:

- The facilitator, in consultation with each group, singles out one developed concept that by consensus still needs much improvement. One of the participants is asked to explain the idea.
- The facilitator then asks all the participants to walk up to the original idea wall and choose one idea which can function as 'salt and pepper' for the original concept. In other words: 'Choose the idea which can make this concept better.'
- Each participant then explains his or her 'salt and pepper idea'.
- The group discusses this and chooses which elements to add.
- The procedure is repeated with the next idea, group by group.

Tip: Give the group who has developed the concept board the right to choose which ideas will be added and which ideas will not. In this way the group retains ownership of the idea.

5.6 Pros and cons

With the help of this technique you can improve an idea by quickly summing up its pros and cons and brainstorming new solutions for its negative aspects. This technique is similar to 'salt and pepper', but in this case the positive and negative aspects are discussed explicitly.

Timing: 60 minutes for each new concept.

Procedure:

- The facilitator in consultation with the group chooses which developed product ideas are eligible for further development. The finding of the qualitative research in the Test Ideas stage will provide the answer immediately.
- The facilitator divides the participants into groups of two or three and in consultation with the project leader then divides the product concepts among the groups. In this way, the groups can simultaneously improve four to eight concepts. The improvements are immediately adapted to the description of the original concept.
- The participants present the improved concepts to each other. More additions from the group might be added.
- The procedure is repeated until all eligible concepts have been discussed.

5.7 Multi-criteria selection

The purpose of this technique is to determine the final rank order of the completed new concepts. Which one scores best?

Duration: 60 minutes

Procedure:

- The facilitator already has evaluation charts prepared. All

boards with the concepts and evaluation charts are displayed on the tables along the wall. The facilitator shows the evaluation chart and discusses the evaluation procedure. This is an important phase, so make sure to allow enough time. It is also good to emphasize to the participants that a lot of thought has gone into the evaluation procedure and that the criteria have been selected in close consultation with the project leader and internal client and are based on the innovation assignment.

- The facilitator explains that for each developed product idea there are five evaluation criteria. For each criterion the participants have the possibility to give the idea 0 to 5 points (stickers): 0 = low and 5 = high. The categories for each criterion are explained with the help of the evaluation board.
- The facilitator hands out the sticker sheets with the task to evaluate each product idea according to the five criteria.
- After the participants have completed their evaluations of all the concept boards, the facilitator signals that it's time to tally the stickers for each board. The facilitator is the first to know the rank order of the most attractive developed product ideas. The results will be kept secret until the facilitator presents them to the group during the grand finale.

5.8 My Valentine

This is a nice technique to add some 'passion' to the final evaluation. With a red, heart-shaped 'I love you' sticker the participants can now give their favorite idea an extra boost with this final evaluation.

Procedure:

- The facilitator hands out only one 'I love you' sticker to each participant with the request to openly declare which developed product or service idea has stolen his or her heart.

- The participants then stick their heart and evaluation stickers onto the selection boards of their choice.
- At the presentation of the final rank order the facilitator pays attention to how many stickers the concepts received in the previous technique compared to how many hearts the concepts received in this technique.

Tip: In most cases, the hearts go to the concepts which end high in the rank order. If that is not the case, then this striking difference should be pointed out to the group to see if they can find an explanation for this. How is it possible that the concept boards, which received the most hearts, scored so low in the rank order? The participants are allowed to alter the rank order on the basis of a contextual discussion; and should certainly do so if it is justified.

6. BRAINSTORMING GAMES

Brainstorming brings to mind something playful and fun to do. It is therefore not surprising that many games have been created to either brainstorm in a group or individually. The games are usually very simple and often take over the role of the facilitator. Below, you will find four popular games, which can help you to brainstorm on your own or in a group.

Brainstorming games to brainstorm on your own:

- Free the Genie Cards (www.ideachampions.com/free_the_genie.shtml). Free the Genie is a set of 55 creative thinking cards for openminded people.
- The KnowBrainer (www.innovationsecrets.com). A useful fan-deck tool with 180 cards which include questions, quotes, words and images to provide you with inspiration for new ideas.
- Thinkpak (www.creativethinking.net). A set of brainstorming cards by Michael Michalko to stimulate creativity and get new ideas.
- Innovative Whack Pack (www.creativewhack.com). A set of cards made by Roger von Oech with 60 creative ways and inspired by the old Greek philosopher Heraclitus.

Brainstorming games for groups:

- IDEO method cards (<http://www.ideo.com/work/item/method-cards>). A set of 51 cards by the world famous designing agency IDEO, which contain various ways in which the designer teams can understand the target group better.
- Metaforio (<http://www.metaforio.com/english/>). An instrument for visual and creative development based on the technique of visual thought. The game consists of a set of 53 inspiring training cards based on the garden metaphor.

7. BRAINSTORM SOFTWARE

Brainstorm software is widely available. There are two main areas of focus: software for mind mapping and software to support the whole process of brainstorming. Below are some examples of both types.

- CREAX Innovation Suite (www.creaxinnovationsuite.com). An extensive and user-friendly package regarding systematic innovation, based on TRIZ from Creax. It offers a step-by-step approach to the whole process of innovation.
- Flashbrainer (www.solutionpeople.com/flashbrainer). A brainstorming program which consists of four steps (Investigate, Create, Evaluate and Activate) and leads you through the innovation process.
- Mindmanager (www.mindjet.com). A well-known and extensive mind map package. It has various editions and all sorts of 'add-ons'.
- Visual Mind (www.visual-mind.com). A software program for mind mapping. An 'add-in' has been made, (The Realizer), which is a practical tool to help you to generate and evaluate ideas.

8. ONLINE BRAINSTORMING

There are many ideation generating tools available on the Internet. They are free of charge and are usually practical and simple instruments to generate new ideas, such as the 'Ideagenerator' described below. Websites where you can mind map online without any software, such as 'Mindmeister', are also very popular. Other sites allow you to generate and evaluate ideas immediately online within a group, such as 'Brainreactions' and 'Brainstormnet'.

- Mindmeister (www.mindmeister.com). A mind mapping tool enabling you to create mind maps online and in a group.
- Ideagenerator (www.tdbspecialprojects.com). When you click on the free online idea generator you receive surprising word combinations which can create new ideas within the group.
- Brainreactions (www.brainreactions.net). Online brainstorming rooms, where you can jointly generate and evaluate around a challenge of your choice.

9. TRIZ

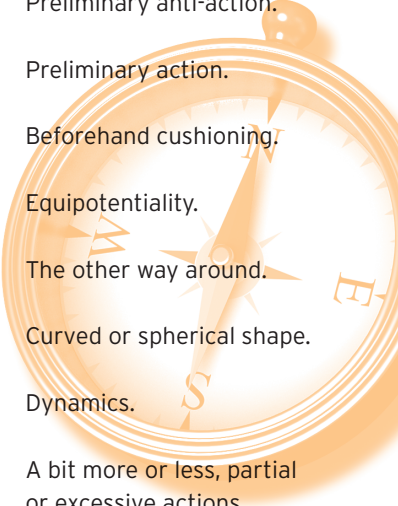
TRIZ is a Russian acronym for Teoriya Resheniya Izobreatatel'skikh Zadach, which means Theory of Inventive Problem Solving. The creator of TRIZ is the Russian engineer Genrich Altshuller. He began the development of his theory in 1946 while working at the patent office of the former Soviet navy. It was there that his fascination began to grow as to how an invention is created. Are inventions unique and brilliant occurrences? Are they coincidental treasures? Or, are there underlying systematic patterns? Altshuller did not believe in the trial-and-error method for which Thomas Edison is known (innovation is 1% inspiration and 99% perspiration)

and began developing a more effective and systematic approach. He became convinced that the basis of inventions lies in systematic patterns. To prove this, he analyzed hundreds of thousands of patents regarding mutuality and repeated patterns. Subsequently, TRIZ scientists have collectively analyzed more than a million patents.

TRIZ is a powerful yet complex methodology that is not easy to comprehend without any technical understanding. The table below gives a description of the 40 TRIZ principles, with a brief explanation and an example of its application in practice.

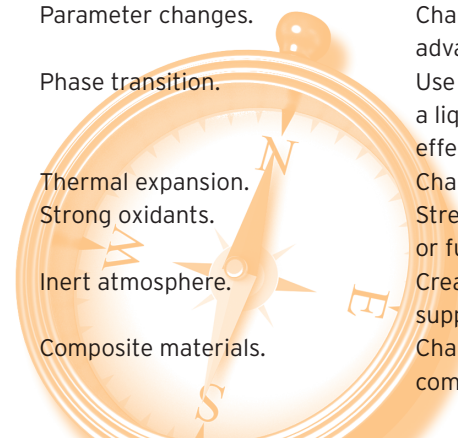
40 TRIZ PRINCIPLES AS A SOURCE OF INSPIRATION FOR NEW IDEAS

Nr.	Principle	Description	Example
1.	Segmentation, fragmentation or division.	Divide the product into independent parts in order to isolate or integrate useful or harmful characteristics.	A store within a store concept.
2.	Taking out, omission, separation or isolation.	Separate one or more of the interfering or harmful parts or properties and/or use the only necessary property.	Caffeine free coffee.
3.	Local quality.	Change the structure from uniform to non-uniform (locally) of one of the products to get the desired function.	Easy opening of a juice carton.
4.	Asymmetry, symmetry change.	Change the shape of an object from symmetrical to asymmetrical.	A special vase for tulips.
5.	Merging, combining, consolidating, or integrating.	Bring functions, characteristics or parts of a product together in time and space so that a new, desired or unique result is produced.	Mobile telephone with navigation system.
6.	Universality, multi-functionality.	Make a product more uniform, universal, extensive and multi-functional.	A combination screwdriver and drill.
7.	Nested doll.	Products which fit against, next to or in each other.	Stackable lawn chairs.
8.	Anti-weight.	Compensate for a negative aspect of the product with an opposite power from the environment (and so create a uniform division).	Hovercraft.



Nr.	Principle	Description	Example
9.	Preliminary anti-action.	Analyze in advance what can go wrong and then take actions to eliminate, decrease or prevent it.	Sunscreen.
10.	Preliminary action.	Perform an action before another action or event. Do something in advance.	Local anesthetic.
11.	Beforehand cushioning.	Realize that nothing is perfectly trustworthy so compensate in advance.	Paint protectant car wax.
12.	Equipotentiality.	Make sure that there is no tension in or around a system or make everything all equal.	Anti-aging cream.
13.	The other way around.	Apply an opposite or reverse action. Turn it upside down or inside out.	Heinz top-down squeeze bottles.
14.	Curved or spherical shape.	Replace linear aspects (e.g., shape, movement, power) with a curved or spherical shape.	Black & Decker Mouse Sander.
15.	Dynamics.	Make a product, condition or aspect short lived, temporary, moveable, adaptable, flexible or changeable.	Early booking discounts.
16.	A bit more or less, partial or excessive actions.	Use 'a bit more' of one action or substance than necessary and deal with the results. Use a 'little less' of an action or substance than necessary and deal with the results.	Extra thick soup.
17.	Another dimension.	Change the orientation of a linear (straight) product from vertical to horizontal, from horizontal to diagonal, from horizontal to vertical, etc. Work in another dimension or in several layers.	Multi-layered cookies.
18.	Mechanical vibration.	Use shaking, vibrations or oscillations to get a positive effect of a desired function.	Power Plate.
19.	Periodic actions.	Replace continuous actions with periodic or pulsating actions. Change the way in which an action is performed.	Philips Sonic electric toothbrush.
20.	Continuity of useful action.	Create a continuous stream (circulation) and/or remove all useless, interim and unproductive movements to increase the efficiency.	Internet e-tickets.
21.	Hasten, skipping, running ahead.	If something goes wrong at a specific tempo, then do it faster.	Broadband Internet.
22.	Blessing in disguise.	Find ways in which disadvantages can be used to add value. Turn a disadvantage into an advantage.	Slow Food restaurant.

Nr.	Principle	Description	Example
23.	Feedback.	Feed the output of one system back into the system as an input to improve the control of the output.	Telephone number for complaints printed on packaging of products.
24.	Intermediary.	Mediate a temporary connection between incompatible parties, functions, events or conditions. Use a temporary carrier, barrier or a temporary process which can be removed easily again.	Microwave meal packaging.
25.	Self-service.	Allow an object or system to carry out certain functions on its own or to organize it independently.	Online investment.
26.	Copying.	Use a copy, replica or model instead of using something too valuable, vulnerable or unavailable.	Crash simulators for cars via computer models.
27.	Cheap short-living products.	Use cheaper, more simple or disposable objects to decrease the cost, and to increase the user friendliness, etc.	Disposable plates and utensils.
28.	Mechanics substitution.	Replace mechanical interactions with physical fields or with other forms, actions or conditions. This principle is about the changing or replacing of the operational principle of a system.	Motorized bicycle.
29.	Pneumatics and hydraulics.	Replace the components or functions of one system with pneumatic (air) or hydraulic (water) components or functions.	Bicycle Springer Fork.
30.	Flexible shells and thin films.	Replace traditional constructions with constructions of thin films or flexible/pliable membranes.	Hansaplast liquid spray bandage.
31.	Porous materials.	Change the characteristics or functions of an object, system or material (solid, liquid or gas) by making it more porous. Create cavities and add a useful substance or function.	Porous bandage with iodine which allows air to pass through.
32.	Color changes.	Change the color or other optical aspects of an object or system to increase the value of the system or to discover problems.	Tefal Thermo-Spot.
33.	Homogeneity, uniformity.	When two or more objects or substances influence each other, then it is better to consist of the same material, energy or information.	School uniforms.
34.	Discarding and recovering.	Throwing away of parts of a system and recycling is basically the same. Throwing away removes something from the system. Recycling brings something back to the system in order to use it again.	Recycling of packaging.



Nr.	Principle	Description	Example
35.	Parameter changes.	Change the characteristics of a system to gain a useful advantage.	Sprinkler hose pipe.
36.	Phase transition.	Use the phase transition (e.g., from a solid to a liquid or from a liquid to a gas) of one material or situation to implement an effective change or to create a change in the system.	Tea kettle whistle.
37.	Thermal expansion.	Change heat energy into mechanical energy or action.	Bimetallic strip thermometer.
38.	Strong oxidants.	Strengthen oxidative processes to improve an action or function.	Extra oxygen in a cutting torch.
39.	Inert atmosphere.	Create a neutral (inertia) atmosphere or environment to support a desired function.	Vacuum electric oven.
40.	Composite materials.	Change a homogenous structure of a material to a compound structure.	Insulating material.

I would like to express my gratitude to Karel Bolckmans, who helped generate numerous examples.

Sources:

D. Mann, S. Dewulf, B. Zlotin, A. Zusman. (2003). *Matrix 2003: Updating the TRIZ Contradiction Matrix*.

leper (Belgium): Creax Press. p. 140 (principles and sub-principles).

G. Altshuller. (2005). *40 Principles: TRIZ Keys to Technical Innovation. Extended Edition*.

Worcester, MA: Technical Innovation Center Inc. p. 143 (descriptions).



10. SIT

SIT stands for Systematic Inventive Thinking. This technique comes from Israel and is closely related to the TRIZ method described above. It is a simple version and can be easily applied. Neither technique is a brainstorming method in the traditional sense; as neither one strays from the existing product situation to invent new, breakthrough product ideas. The SIT and TRIZ methods approach inventions from the opposite perspective and both stay as close as possible to the original product. Many versions of SIT have been developed throughout the years. Depending on the version, SIT works on the basis of five to seven creativity templates. Scientific research has shown that the SIT creativity templates form the basis of roughly 70% of all innovations.

SIT focuses on the existing building blocks of an existing product and its environment. The application of the creativity templates leads to a reorganization of the product's building blocks. SIT first focuses on the change within the product itself and then studies if there has been a positive or negative effect.

SIT works according to seven creativity templates.

1. Displacement: an essential part of the product is removed and the task is not taken over by another part. For example, dehydrate a can of soup and you will have Cup-a-Soup.
2. Replacement: an essential part of the product is removed and the task is taken over by another part. For example, omit the keyboard from a computer and have the screen take over this task and you will have a touch screen.
3. Multiplication: copy an existing part of the product and change something about it. For example, copy the holes which dispense the content from the package of a product and make adjustments to increase the number of garnishing holes.
4. Breaking symmetry: to break through an existing symmetry to solve a problem. For example, to save space in the car, you make a smaller spare tire to drive a limited distance.
5. Attribute dependency: create a new dependability between two parts or remove an existing dependability. For example, make the color of the bottom of the pan dependable on the temperature of the pan and you have the Tefal Thermo-Spot pan (with red spot).
6. Division: divide the product or parts into something else. For example, have customers divided into two groups: store card holders and non card holders and organize special late night shopping evenings for the first group.
7. Unification/Component control: find a new connection between a part of a product and the environment so that the product gets a new extra task which was formerly the task of another product. For example, Becel (Benecol) pro-activ which lowers cholesterol.

The seven creativity templates implicitly put the presumptions of the product combination, its product and its customer groups at the forefront. The SIT creativity templates also have an added value as a trigger for new ideas in the divergence phase of brainstorming for new products. It is best to apply the SIT creativity templates at the beginning of the divergence phase.

Source:

Van Logtestijn, Annina, Youri Mandour. (March 2004). "Zeven stappen naar succesvollere innovaties." *Tijdschrift voor Marketing*.

11. 6 THINKING HATS

The six thinking hats is a technique developed by Edward de Bono. The added value of this technique during the creation of new products or services is that an idea can be improved upon by putting on different thinking hats. Using this technique, possible improvement suggestions can be devised.

Duration: Approximately 3 to 4 hours for each concrete new product in development.

Procedure:

- The facilitator explains the principles of the six thinking hats, which are actually quite simple. The different angles of approach produce a more complete image combined than any individual angle would on its own. The basics of the different thinking hats are as follows:
 - The white thinking hat: pristine white thoughts in the form of facts, figures and information.
 - The red thinking hat: a red haze blurring one's vision in the form of emotions and sentimental evaluation as well as suspicions and intuition.
 - The yellow thinking hat: sunshine, clarity and optimism, positive evaluation, constructive contribution, searching for chances (opportunistic).
 - The green thinking hat: fertility, creativity, seeds which germinate and grow, movement, provocation. Alternative and new ideas are welcome.
 - The black thinking hat: the devil's advocate, negative evaluation, why something will not function.
 - The blue thinking hat (the hat of the facilitator): distant and controlled, the conductor of the thought process, thinking about the thinking.
- The facilitator finds four spots in the available working space and puts down a white, red, black and yellow hat and a flip-over

sheet. The blue hat is for the facilitator and the green hat will be used collectively at the end.

- The participants are divided into four groups (minimum of two people). Each group starts with a thinking hat of a specific color and everyone must also wear the hat! The facilitator asks the participants to write down their impressions of the new product idea from their specific angle of approach. After ten minutes the participants must change stations. The hat and the flip-over sheet are left behind for the next group to use. This continues until each group has completed each angle of approach.
- After 40 minutes, the facilitator hangs the white, red, yellow and black sheets on the wall and discusses the results with the participants. The sheet for the black hat must be done at the end.
- Subsequently, the facilitator asks the participants to put on the green thinking hat collectively and start finding solutions for each negative aspect or disadvantage of the product idea. These solutions are then written on green post-its and the facilitator harvests the post-its. The best solution for the weakness is chosen.
- The group then continues with the product's next weakness. New aspects and changes which can lead to substantial improvements now strengthen the original product or service ideas.



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