

Generating new ideas and decision-making techniques.



Associate Professor:
Antonio Jesús Antón Baeza





Universitat d'Alacant
Universidad de Alicante

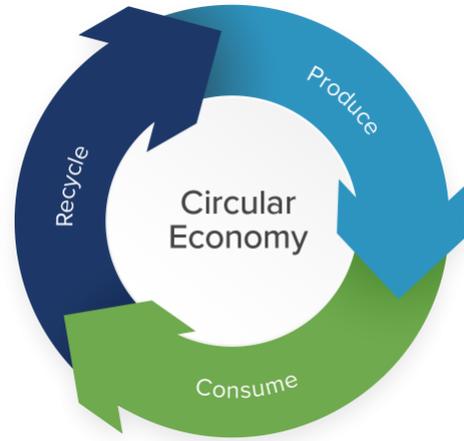
FEBRUARY 2023 DATES (12 HOURS)

The 27th of February (9-12 Monday)
Break (10.30 to 11.00).

The 28th of February(9-12 Tuesday)
Break (10.30 to 11.00).

The 1st of February (9-12
Wednesday). Break (10.30 to 11.00)

The 2nd of February(13.30-16.30
Thursday). Break(15.00-15.30)



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SYLLABUS.

1.- Creativity tools

1.1.- Creativity based on circular economy business ideas

1.2.- Brainstorming

1.3.- Lateral thinking

1.4.- Six thinking hats(first part)

2.- Problem-solving techniques

2.1.- Solving techniques to tackle circular economy problems

2.2.- Getting the root of a problem

2.3.- Breaking problems down into manageable parts

2.4.- Identifying the likely causes of problems

2.5.- Widening the search for solutions

3.- Decision-making techniques

3.1.- Decision-making which affects sustainability and circular economy

3.2.- Helping you to choose several courses of action.

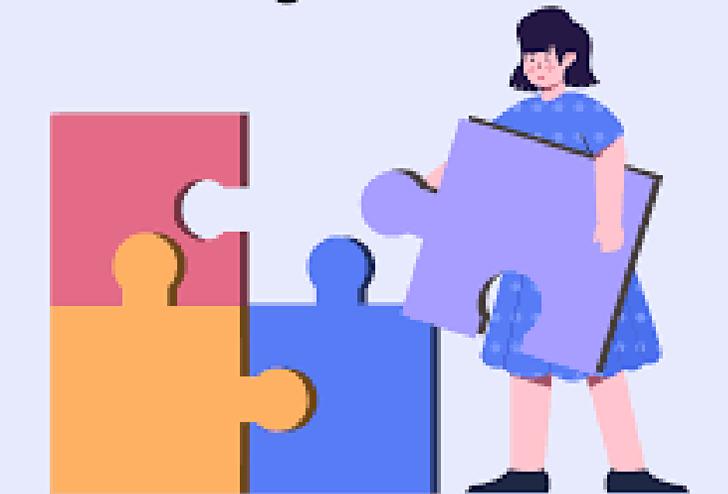
3.3.- Decision making under certain risk and uncertainty.

3.4.- Critical thinking. Six thinking hats (second part).

3.5.- Decision making paralysis



Problem Solving



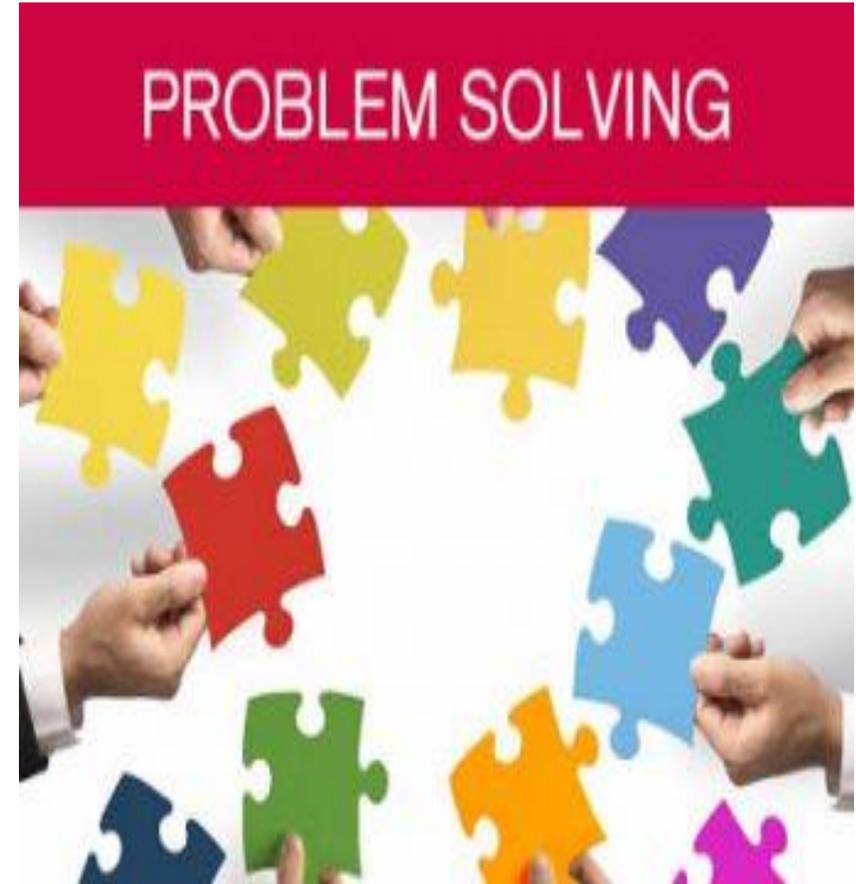
WORKSHOP OBJECTIVES:

- Generating new ideas based on circular economy.
- Understanding problem solving techniques to tackle ordinary and complex problems.
- Helping students to make the best decisions with available information and choosing the best course of action to take.
- Enhancing students to choose between several courses of action which affects sustainability business ideas.



WORKSHOP METHODOLOGY:

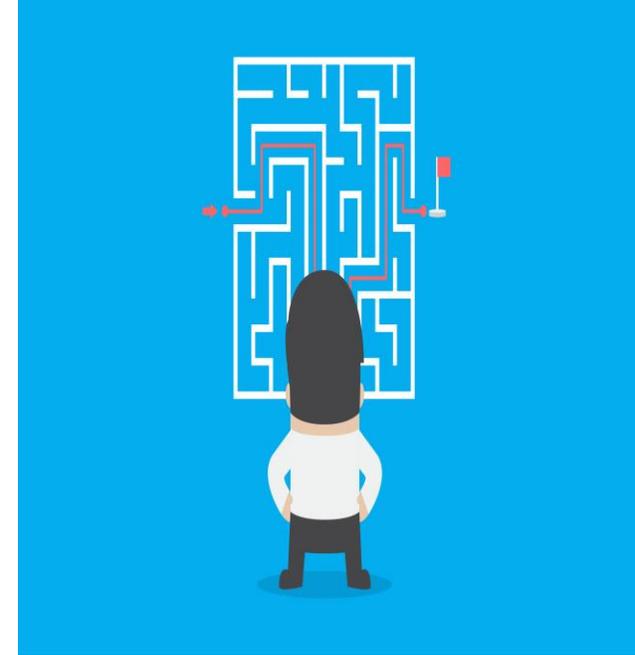
- Contents of the course will be presented and explained, introducing and outlining creativity, problem solving and decision-making topics.
- Furthermore, students will work either alone or in groups to generate both responses and find solutions with regard to practical assignments which will be presented in class.



ASSESSMENT:

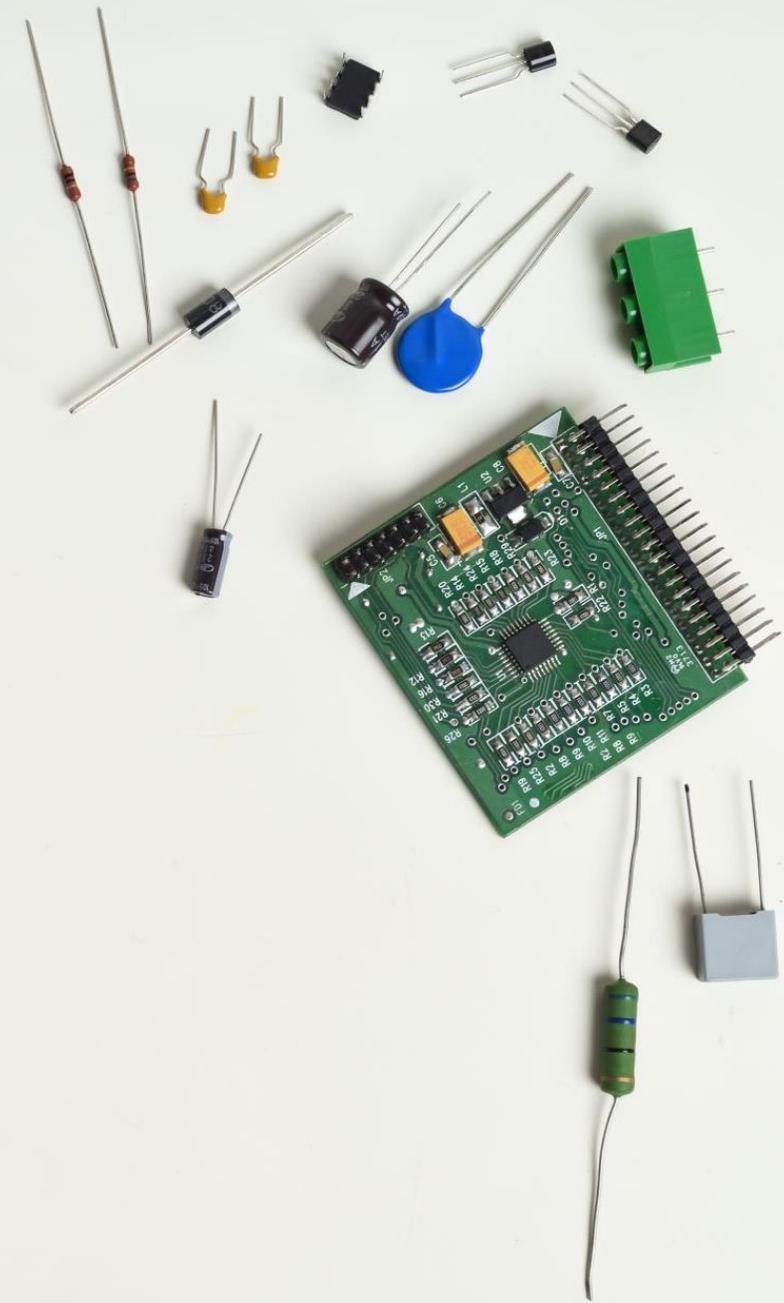
Students will interact and participate within groups to defend their responses by showing accurate knowledge of the contents explained in class. In order to pass this subject, 60% of the attendance will be mandatory.

For those of you who had not attended classes properly, would have a choice to review online recorded contents and submit the practical assignments for the next day.



MODULE 1

1.- Creativity tools



1.1.- Creativity based on circular economy business ideas

1.1.1- Approaches to sustainable and circular economy creativity

1.1.- Approaches to sustainable and circular economy creativity



1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



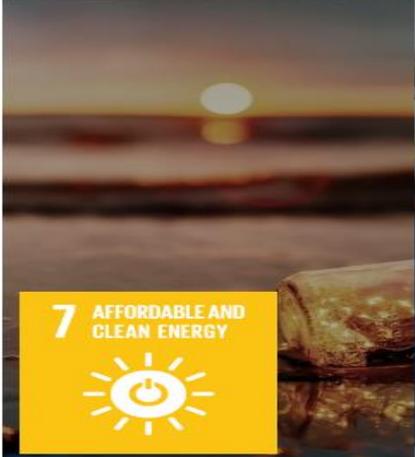
4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS

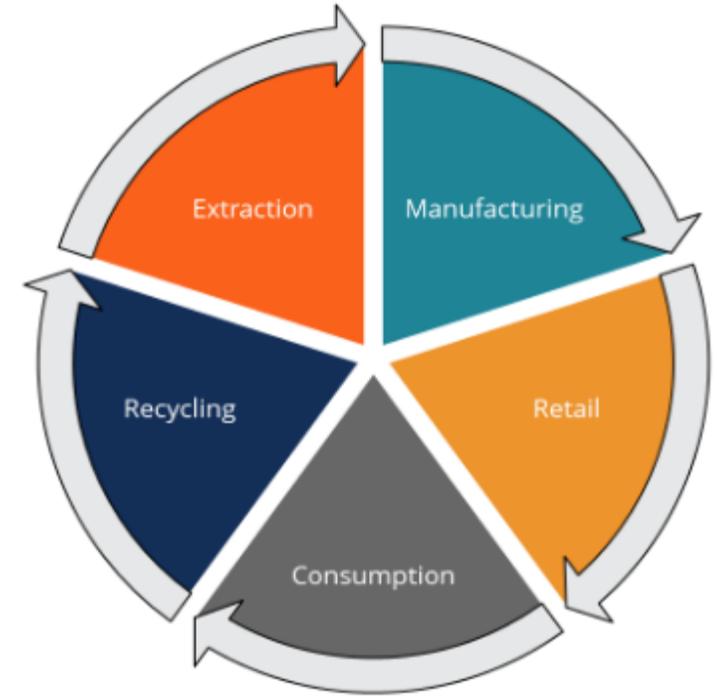


17 PARTNERSHIPS FOR THE GOALS



[See all](#)

The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the **life cycle of products is extended.**



WE ARE ALL CREATIVE .

Creativity is the ability to imagine or invent something new. We are all creative , but many of us have forgotten this habit due to an excess of rational thinking in problem solving.



Most creative people generate new ideas using idea generation techniques aware that they can always improve ideas. Right brain hemisphere.



1.2 Brainstorming





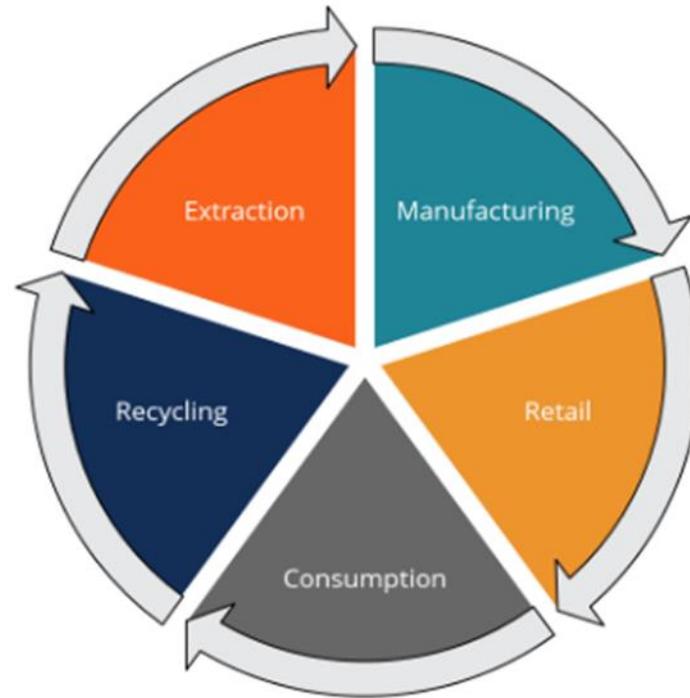
1.2.2.- STARBURSTING.

1.2.2.- Starbursting.

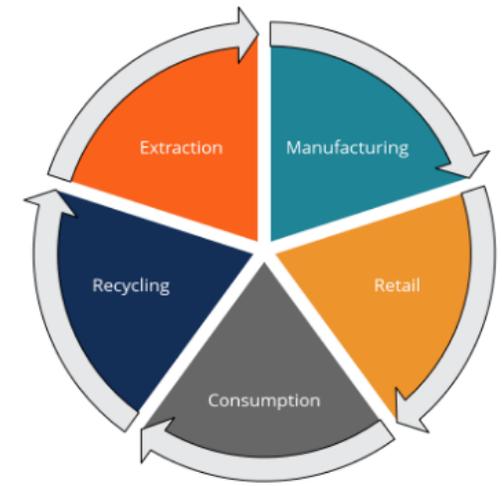
Starbursting is a form of brainstorming that focuses on **generating questions** rather than answers

Example: a colleague suggests a new design of sustainable ice skating boot.

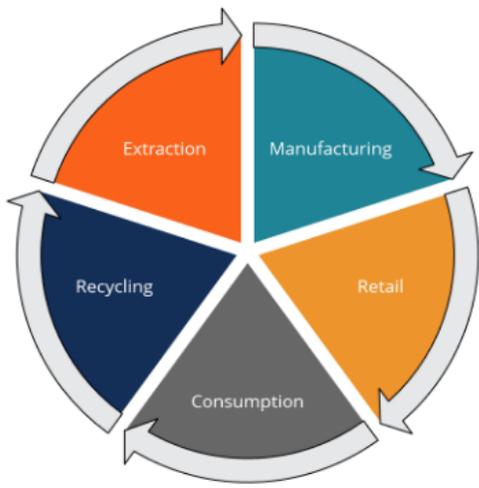




CIRCULAR ECONOMY



The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the **life cycle of products is extended.**

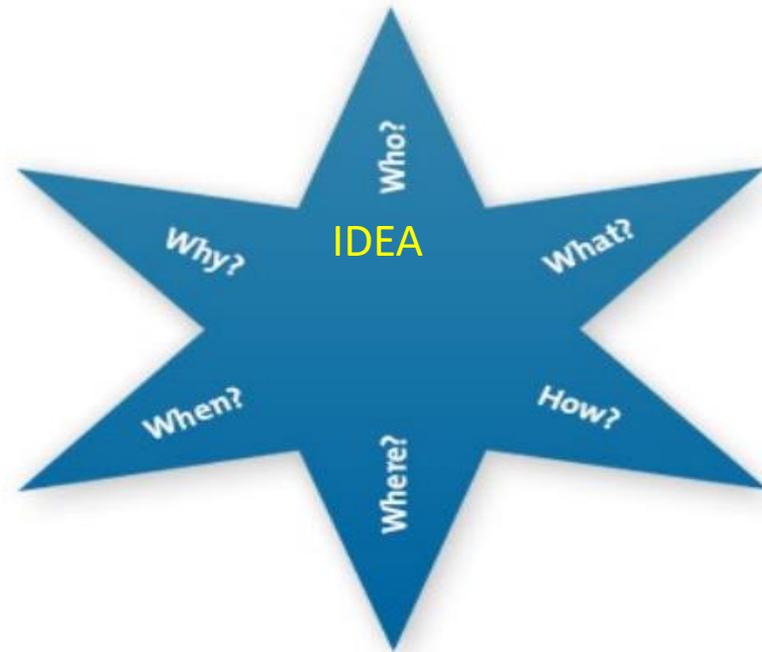


Step 1 print it out or take a large sheet of paper, draw a large six-pointed star in the middle, and write your idea, product or challenge in the centre.



Sustainable ice skating boot.

Step 2 write the words who, what, why, where, when and how at the tip of each point of the star.



EXAMPLE



Step 3 brainstorm questions about the idea or product starting with each of these words. **The questions radiate out from the central star.** Don't try to answer any of the questions as you go along. Instead, concentrate on thinking up as many questions as you can.

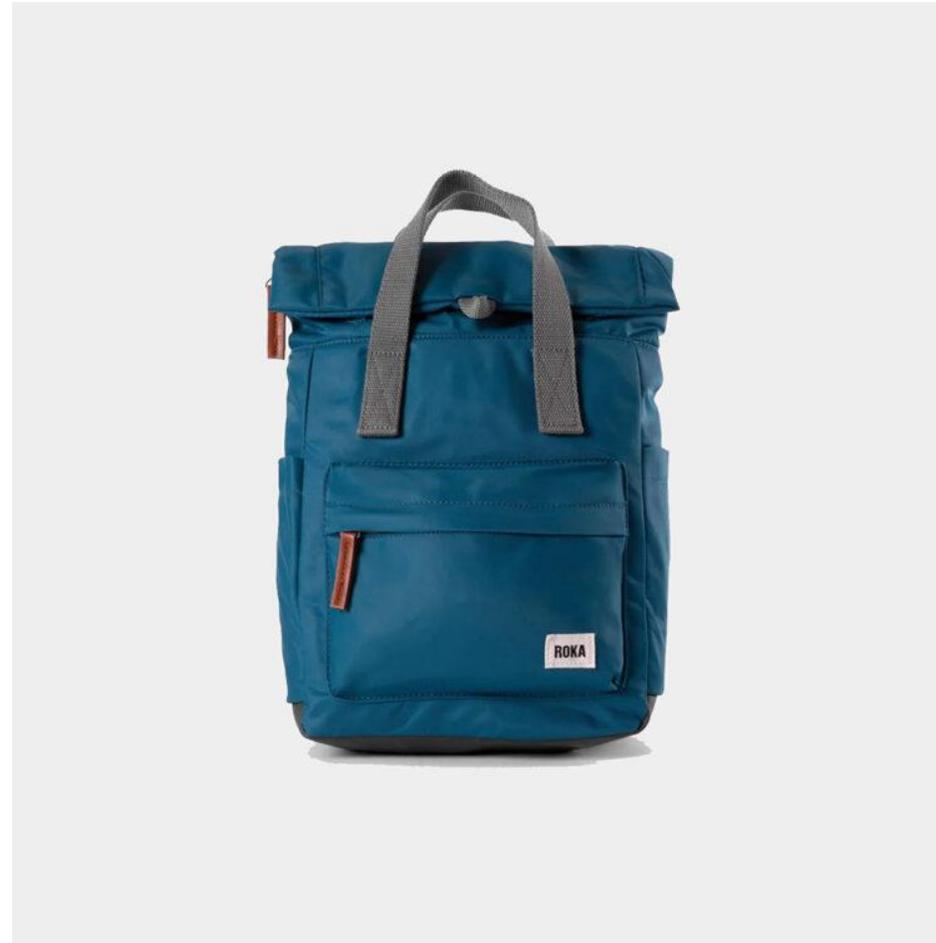


Step 4 depending on the scope of the exercise, you may want to have further starbursting sessions to explore the answers to these initial questions further.



A sustainable backpack for petite professional women

EXAMPLE

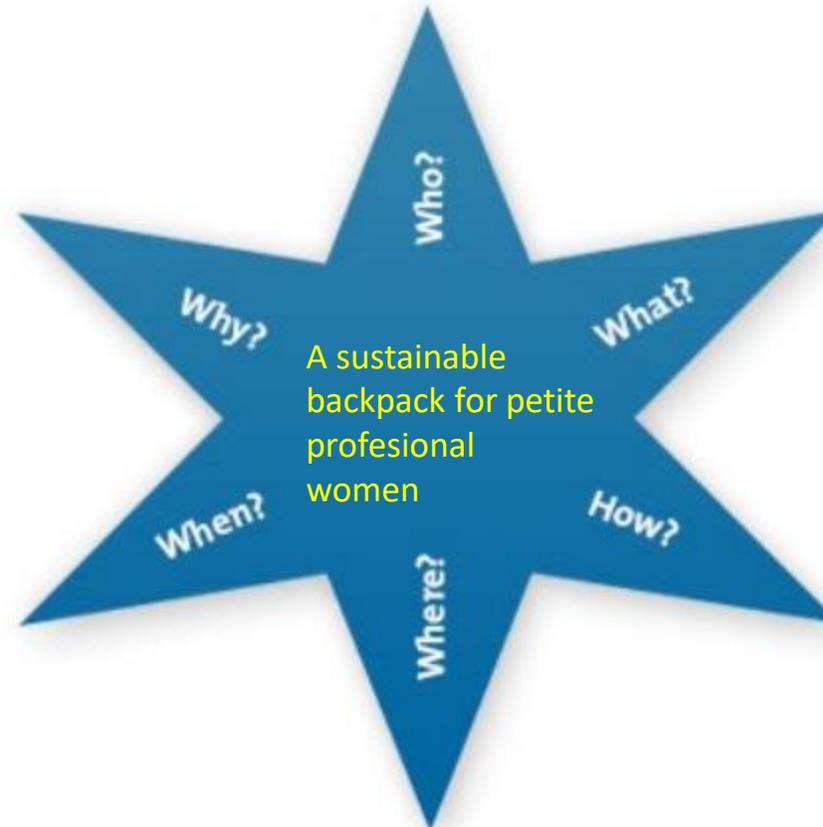




- Why is this product needed?
- Why would someone want to buy it?
- Why would a consumer choose our producer over another?

- When will the backpack be used?
- When will we start production?
- When will we start marketing the product?

- Who will use the product?
- Who will produce the product?
- Who will market the product?
- Who will help design the product?

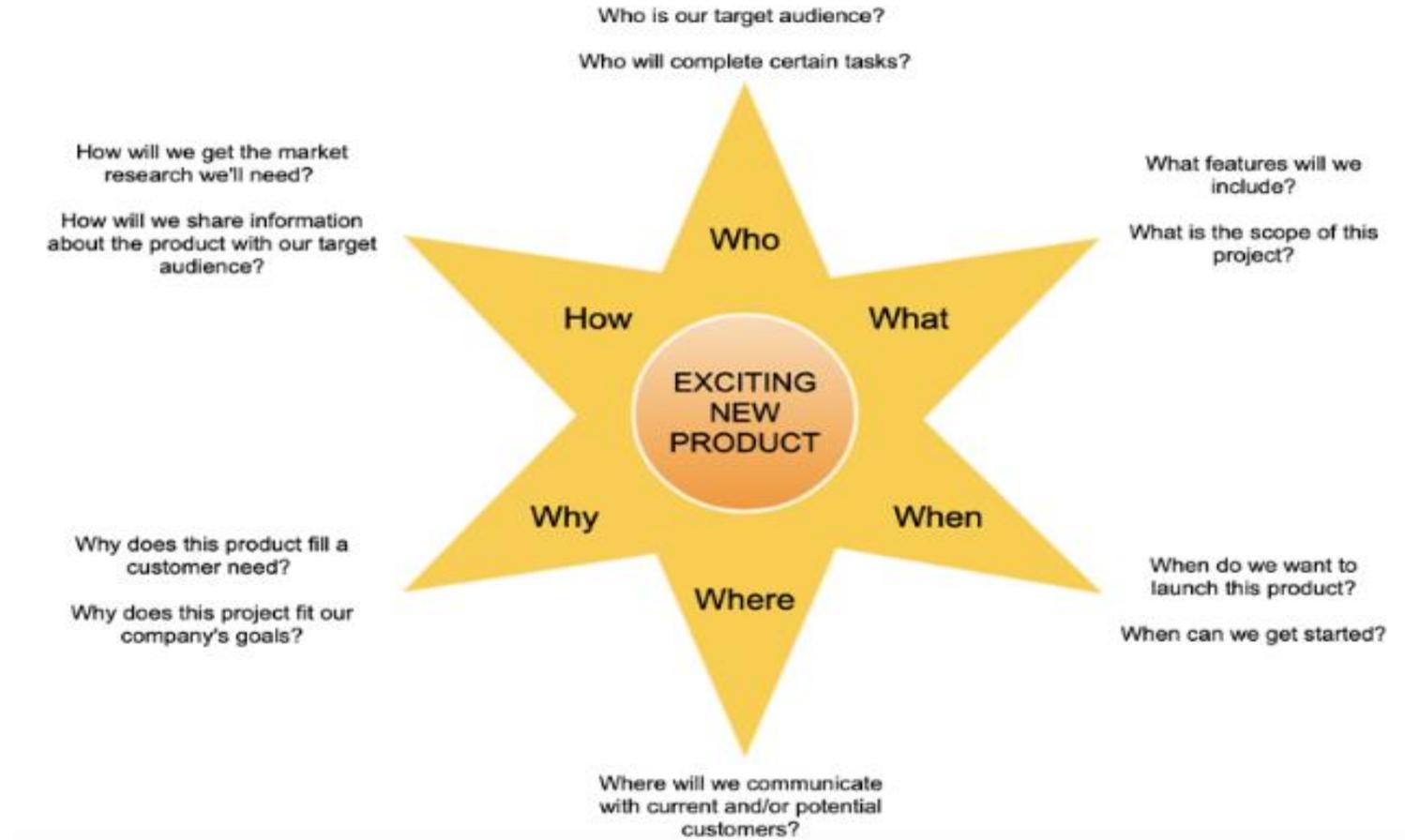


- What type of material will it be made of?
- What are the dimensions?
- What design will we use?
- What finishings and detail will it have?
- What price point is ideal?

- How will we get feedback on prototypes?
- How will we market?
- How will we sell it?
- How will the backpack be cleaned?
- How will the backpack be delivered?

- Where will we have it produced?
- Where will we market it?
- Where will we sell it?

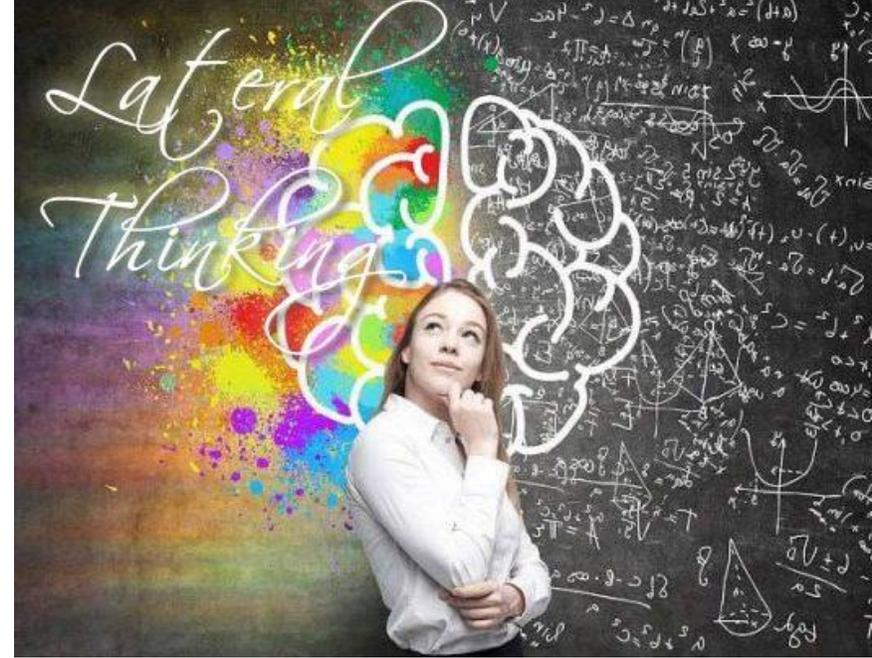
EXAMPLE: EXCITING NEW PRODUCT

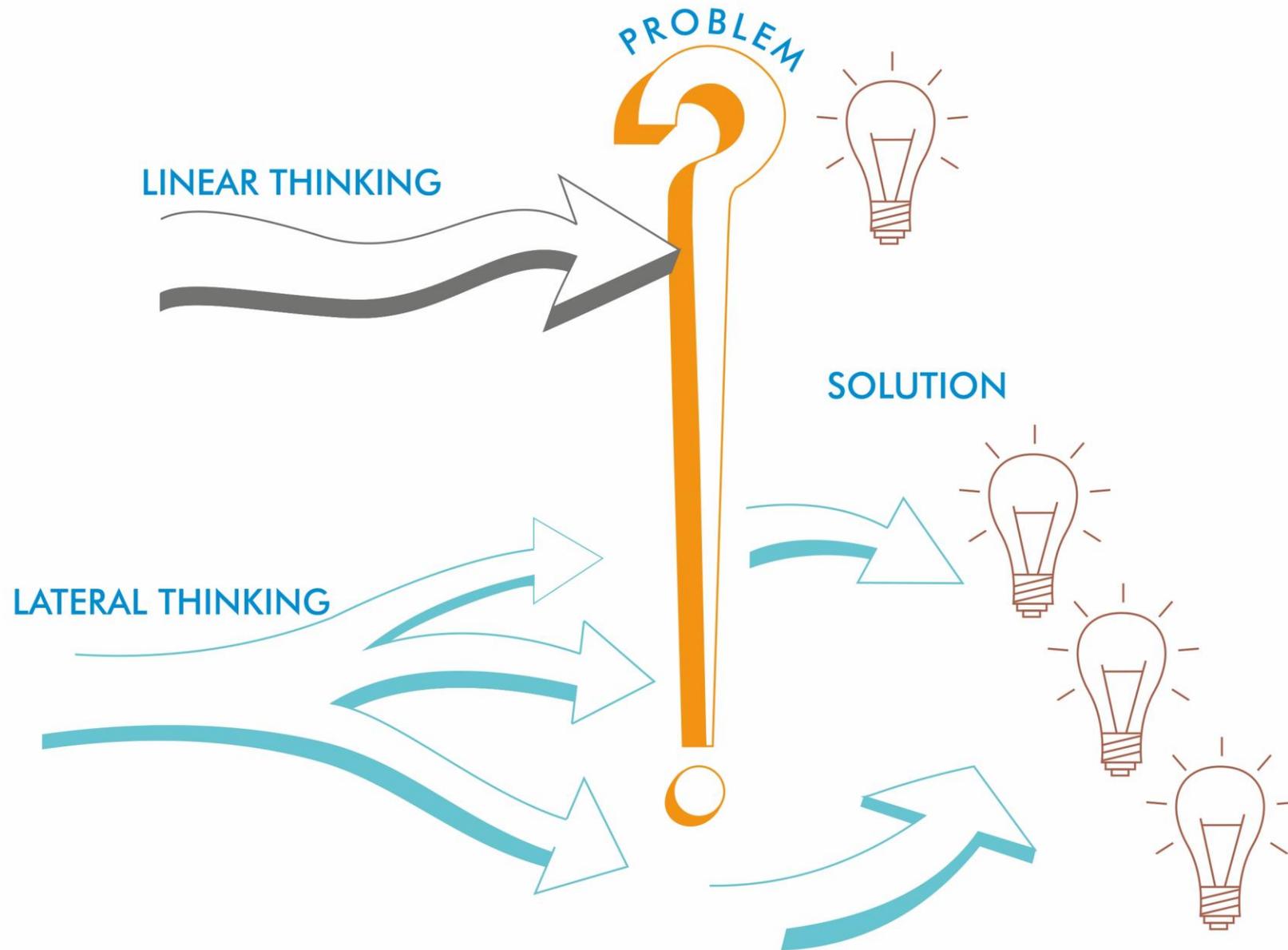


EXCERCISE 1 CREATE A
SUSTAINABLE IDEA AND
IMPLEMENT THE STARBURSTING
METHOD WHICH AFFECTS
SUSTAINABLE PLAN IN YOUR
UNIVERSITY.

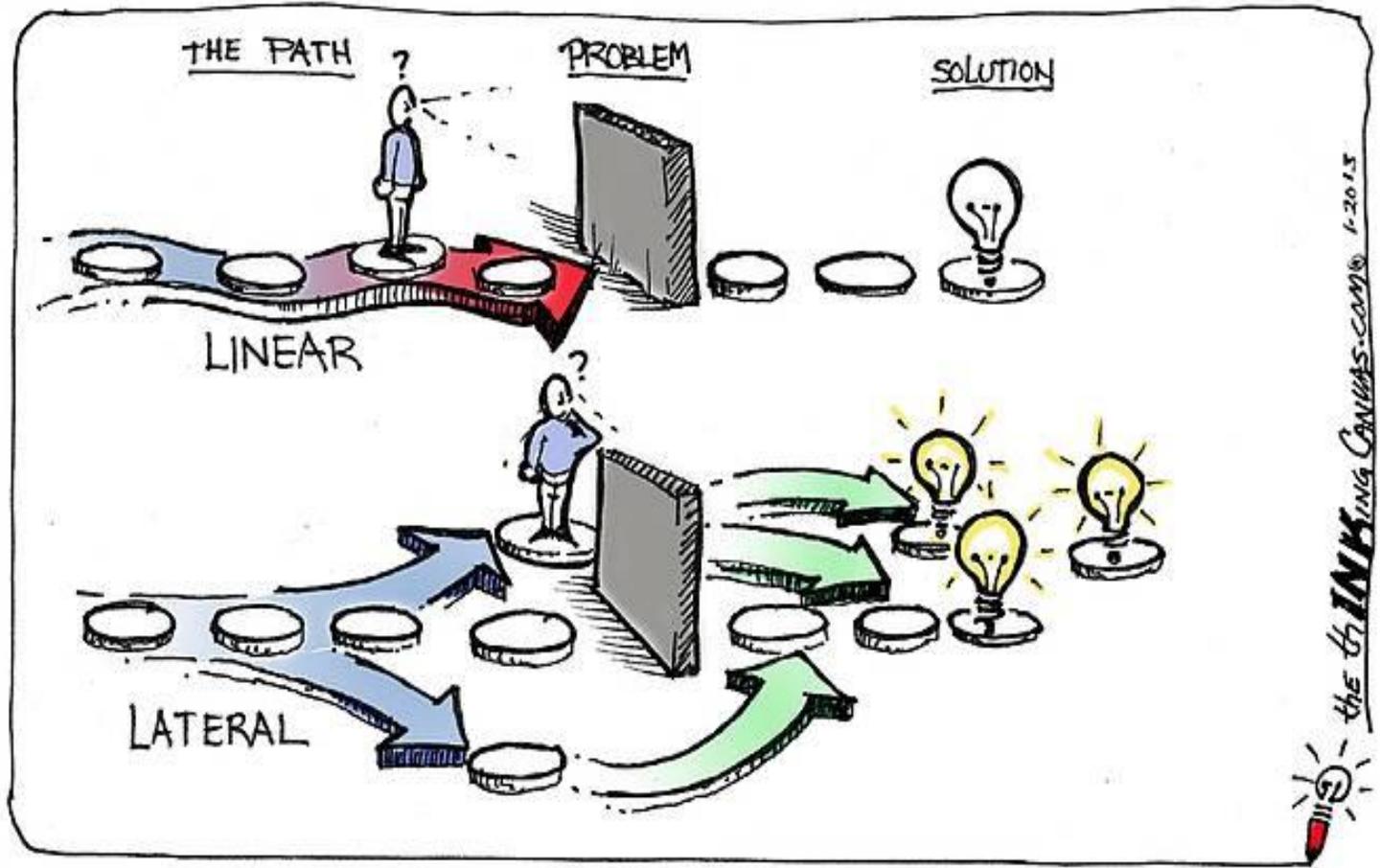


1.3 Lateral thinking





**ARE YOU A MORE LINEAR
OR LATERAL PERSON?**



What is Linear Thinking?

Linear thinking is also known as convergent, **logical, or vertical thinking**. It is a thinking process based on rationality, logic, and rules. Linear reasoning is a distinctive analytic style of thinking associated with the **left-brain hemisphere**.



Linear reasoning is the thinking traditionally **linked to intelligence**. The linear thought process occurs successively, following a sequential progression. This means that you must complete each step in a problem-solving process before another one you take another one.



Such a way of thinking is efficient, selective, progressive, and organized. It follows only **one path**, using existing knowledge methodically and sequentially. Such a way of thinking is present when you, for example, solve mathematical problems. **It is typical for learning at school.**



Our modern thinking system is based upon/on linear logic. This way of thinking is very valuable in business and science. However, as it relies exclusively on the left side of our brain, logical thinking leaves little or no room for creativity and original thought.



What is Lateral Thinking?

Lateral thinking, on the other hand, is **divergent and creative**. It is a holistic, non-linear thinking style associated with the right hemisphere of the brain. It is important to note that **lateral thinking does not oppose vertical thinking**. It does, however, contrast with it. Lateral thinking is meant to complement vertical thinking, not replace it.

Lateral thinking employs creative reasoning that is not immediately obvious.

Instead of following a step-by-step approach to the problem solution typical for linear thinking, **lateral thinking relies on flexibility** in searching for creative ideas and original solutions.



Such thinking pattern occurs spontaneously, non-linear manner, generating and exploring many different ideas to reach resolutions. Lateral or divergent thinking is what we usually call **'thinking outside the box'**. It is closely associated/linked with creativity and innovation.



Since Edward de Bono introduced and popularized it in 1967, lateral thinking has been applied in various contexts, **from design to business.**



When we engage in lateral thinking, we restructure existing ideas and knowledge to develop original models and approaches. Lateral thinking is mostly understood as being controlled **by the right side of the brain.** The brain's right hemisphere is believed to be responsible for imagination, feeling, visualization, intuition, arts, and daydreaming.



When you activate the right side of your brain, you initiate non-linear thinking that allows you to:

- Spontaneously produce many original ideas
- Develop and improve your ideas
- Produce innovative solutions
- Come up with multiple ways to solve problems
- Use creativity to come to a solution



How to Determine if You Are a Linear vs. Lateral Thinker?

Neuroscience research has demonstrated that some people are more left-brained while others more often rely on the right side of their brain. **The following table can help you decide whether you are more of a linear or lateral thinker.**



Linear Thinkers	Lateral Thinkers
<p>You are methodical and rational when approaching life.</p> <p>You pay attention to how the ideas are linked when searching for the correct solution to the problem.</p> <p>You rely on evidence and existing knowledge.</p> <p>You tend to seek solutions through a single, already defined direction.</p> <p>You use rules, patterns, and consistency to make decisions and solve problems.</p>	<p>Your approach to life is intuitive, spontaneous, and artistic.</p> <p>What matters to you is the effectiveness of the conclusion, not the linear steps to follow.</p> <p>You are spontaneous and creative.</p> <p>You don't seek to follow a direction while problem-solving. Instead, you tend to restructure, test, and change existing ideas.</p> <p>You rely on creativity, spontaneity, and intuition in a decision-making process.</p>

How to Improve Lateral Thinking?

While the left side of our brain provides rational and logical solutions, the right hemisphere awakens our creativity and imagination, helping us brainstorm original solutions. Paying attention to your intuitive mind can help you see things differently and develop new, creative solutions.

Meditation can be an excellent way to awaken your creative side, get in touch with your subconscious wisdom, and improve later thinking.

EXAMPLE

A man rode into town on Monday.
He stayed for three nights and
then left on Monday. How can
that be?

A man rode into town on Monday. He stayed for three nights and then left on Monday. How can that be?

VERTICAL THINKING

If you start to think of it, it does not make any sense. It's six nights till the next Monday, not three.

A man rode into town on Monday. He stayed for three nights and then left on Monday. How can that be?

LATERAL THINKING

A careful reader, however, will spot that the man rode/travell into town, not drove into it. Since the road to town took some time, it's natural he left on Monday after spending only three nights there.

Now, this riddle is a linguistic one, but it takes a tiny conceptual shift to solve it. We don't use horses anymore, so most people automatically assume the process of riding into a town is instantaneous. Here's a more difficult riddle.

EXAMPLE

A man is wearing all black. He is walking down a street where all street lamps are off. A black car is coming towards him with its lights off but somehow manages to stop in time. How did the driver see the man?

VERTICAL THINKING: It is not possible,
considering those circumstances.

LATERAL THINKING: We assumed that such fact occurred at night. However, it might be possible to occur in broad daylight.

Barbers. It is said that the barbers of a town in Spain prefer to cut the hair of ten fat men rather than a single skinny one. Why do they prefer it that way?

VERTICAL THINKING: It is possible
because it is easier.

LATERAL THINKING: Because they
make ten times more money.

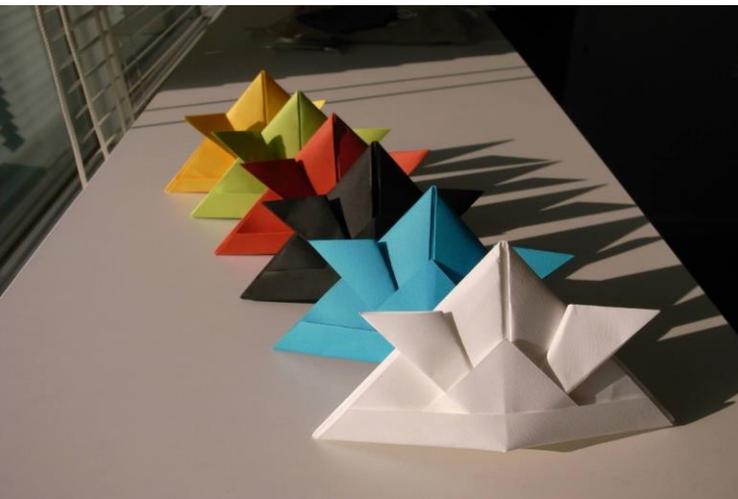
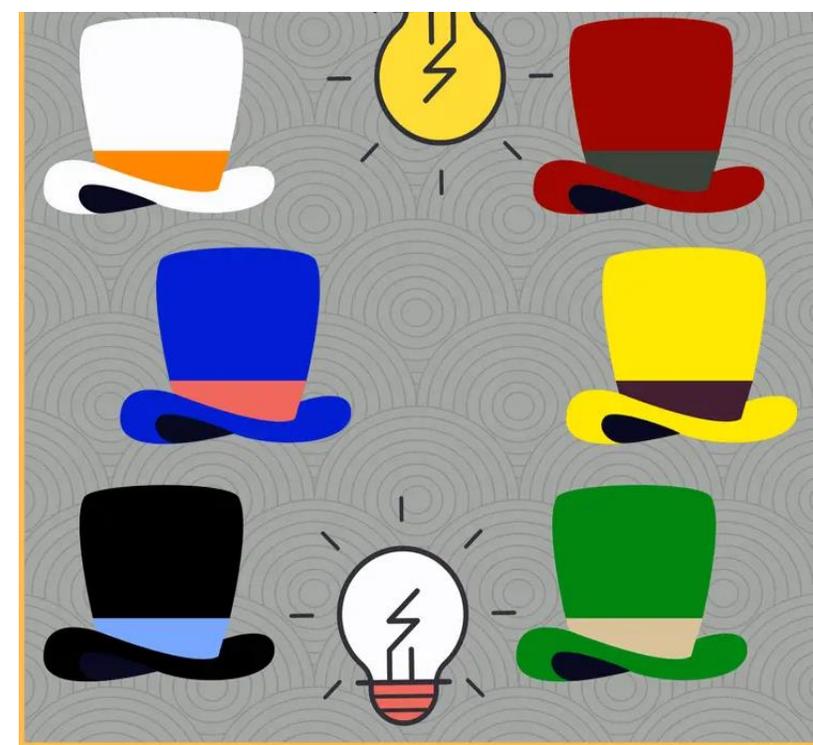
Two chess players. Two excellent chess players played five games in one day, each winning three. How is that possible?

VERTICAL THINKING: It is not possible, considering those circumstances.

LATERAL THINKING:

They did not play against each other, but against other opponents.

1.4.- Six thinking hats





Yellow
positivity



Green
creativity



Red
emotions



White
data, rationality



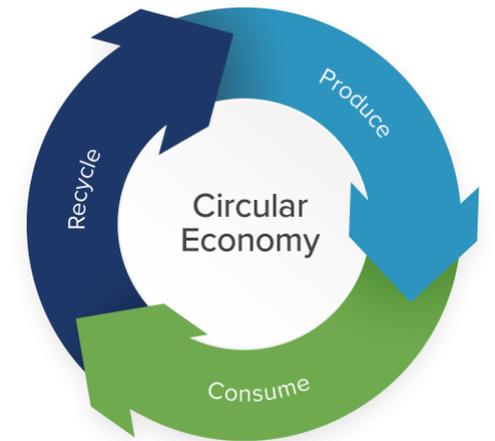
Black
negativity, caution



Blue
process, control



Problem statement: Since going hybrid in 2020, usage of our office space is low, while rent continues to rise. Do we stick with the hybrid work model or ditch the commercial office space(**improving circular economy**) and return to being fully remote, or is there an even better option? **Telecommuting.**





The role of the white hat

White-hat thinkers remain neutral, looking only at the available information without making interpretations about it. **Just the facts. This is the person who collects data,** sifts through information, and questions ideas that the others have given. It is important to avoid your own feelings in this role and look objectively at everything that is put forward.

Examples of white hat questions:

- What facts are available to us now?
- What data is missing?
- In order to achieve the project/problem objectives, what facts do we need?
- What facts are we using that might be assumptions?
- Which data might be classed as unreliable?
- Who has the data that we need?
- If there is no data can we proceed?



WHITE THINKING HAT

Questions to consider	Example statements
<p data-bbox="583 682 991 729">What do we know?</p> <p data-bbox="583 796 1105 901">What do we need to find out?</p> <p data-bbox="583 968 1200 1072">How can we get that missing information?</p>	<p data-bbox="1251 486 1806 705">“Our latest pulse survey showed that 76% of employees prefer working from home every day.”</p> <p data-bbox="1251 772 1888 1043">“I believe I read about a study that shows teams feel more connected if they come into the office at least once a week.”</p> <p data-bbox="1251 1110 1862 1272">“In the past year, 25% of our employees came into the office at least once a week.”</p>





The role of the green hat

Green hat thinking is showing ideas. It focuses on **creativity**; the possibilities, alternatives, and new ideas. **It is an opportunity to express new concepts and new perceptions.** These hatters think outside the box, looking for solutions that can break the rules and be untypical.



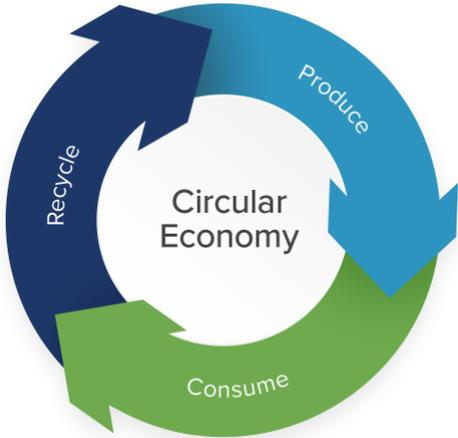
Examples of green hat questions:

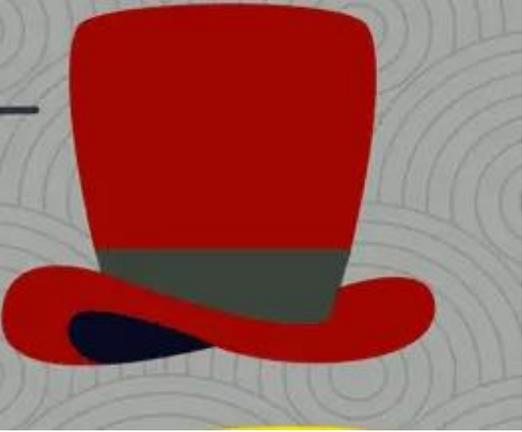
- Are there thought experiments we can do?
- Is it possible to explore new ideas or opportunities?
- What are the other options we have to carry this out?
- Are there any other scenarios we can consider based on this idea to come up with new insights?
- What kind of risks are we willing or able to accept?



GREEN THINKING HAT

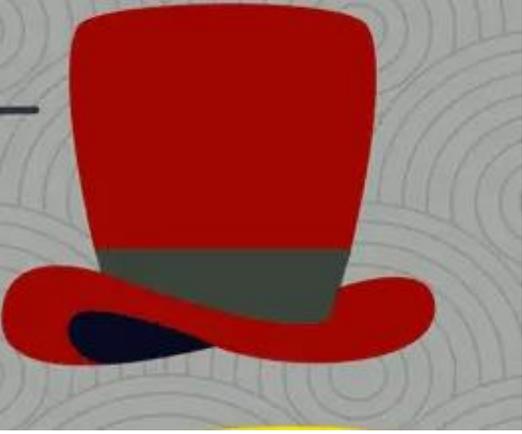
Questions to consider	Example statements
<p>What is interesting about this idea?</p> <p>What does this idea lead to?</p> <p>What are some alternatives?</p>	<p>“What about reducing the office space instead of getting rid of it entirely?”</p> <p>“Could we cut costs by switching to coworking spaces instead?”</p> <p>“We haven’t yet considered going back to fully on-site work again.”</p>





The role of the red hat (emotion)

When teams put on the red hat, individuals are **free to voice their emotions**, but not explain or justify them. The red hat phase is about normalizing and legitimizing **gut feelings**, which is an important part of the decision-making process that often gets ignored.



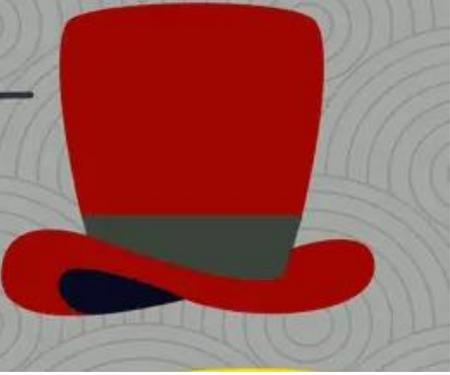
Examples of red hat questions

What is my gut telling me about this solution?

What are my feelings telling me about the choice I am about to make?

Based on my feelings, is there a better way to go about this?

Intuitively, is this the right solution to this problem?



RED THINKING HAT



Questions to consider	Example statements
How do you feel about this idea?	“I have a feeling that the people who use the office space are doing it because they feel obligated to.”
What is your gut reaction to this?	“My gut tells me that this hybrid model is a bad idea.”
Do you have any hunches?	“My red hat thinking is that team morale will fall without an in-person space to meet.”



The role of the black hat

The black hat is **the lens of caution**. Black hat thinking requires you to consider the potential risks and how you might tackle them. In fact, de Bono calls the black hat “the most valuable of all the hats and certainly the most used.”

Examples of black hat questions

What is the fatal flaw in this idea?

What is the drawback to this way of thinking?

How many ways is this likely to fail?

What are the potential risks and consequences associated with this?

Do I have the necessary resources, skills, and support to pull this off?



BLACK THINKING HAT

Questions to consider	Example statements
<p>Should we move forward on this decision?</p> <p>What are some weaknesses of this option?</p> <p>If we choose this, what could go wrong in the future?</p>	<p>“I see a danger in holding onto commercial office space because the economy is unstable and rent and inflation are on the rise.”</p> <p>“We risk missing out on top talent if we require employees to come into an office.”</p> <p>“If we don’t adopt an async-first policy, going fully remote won’t solve our problems because we’ll still be forcing a distributed team to work odd hours when they’re not at their peak productivity.”</p>



Examples of yellow hat questions

The role of the yellow hat (Benefit)

Optimism is what the yellow hat is all about. All the best-case scenarios are brought up, **the benefits, the opportunities**. All the possible advantages brought up by the green hat are looked at.



Examples of yellow hat questions

How can I best approach this problem?

How can I logically and realistically make this work?

What positive outcomes could result from this action?

What are the long-term benefits of this action?



YELLOW THINKING HAT

Questions to consider	Example statements
<p>How could we make this idea work?</p> <p>What are the strengths of this option?</p> <p>If we choose this, what could go right in the future?</p>	<p>“In the best possible scenario...” Use this to test how good of an idea it is. If the idea still has subpar outcomes even in the best possible scenario, perhaps it’s not a very good idea.</p> <p>Example: “In the best possible scenario, rent prices stabilize, inflation returns to normal, and more teammates start taking advantage of the office space. Then the productivity and camaraderie we gain will be well worth it.”</p> <p>“I have this vision...” Use this to rally people around exciting possibilities and inspire them to take action.</p> <p>Example: “I have this vision of an office-less future that’s more equitable, and through the use of technology, harnesses remote collaboration and connection.”</p>



The role of the blue hat

It is the disciplinary hat. The person given this role should mainly **supervise the whole session**. This supervisor is in charge of defining the problem and the context of the exercise, or also the objectives that need to be achieved. He should also determine which are the retained ideas and **make a statement of the project progress**.

Examples of blue hat questions

- What problem are we facing?
- What are the desired outcome?
- What will solving this problem achieve?
- What is the most effective method of proceeding?

Questions to consider

Example statements

What should we be thinking about?

Is this discussion productive so far?

Is this the real problem, or is there something else we should explore?

“I think we’ve strayed from the defined scope of this discussion. Let’s refocus on our hybrid work model and possible alternatives.”

“My blue hat thinking is that the real issue isn’t low office space usage or rising rents. The real issue is a lack of employee connection.”

“Putting on my blue hat, I think we should pause and summarize the main points of the discussion so far.”

Six Thinking Hats



