Idea Generation

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IDEA GENERATION

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Contents

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- Applying Creative Thinking to the advanced textile sector

    - Key aspects for an effective brainstorming

    - Tools and techniques to stimulate creativity and select ideas

- Considering the end-user perspective
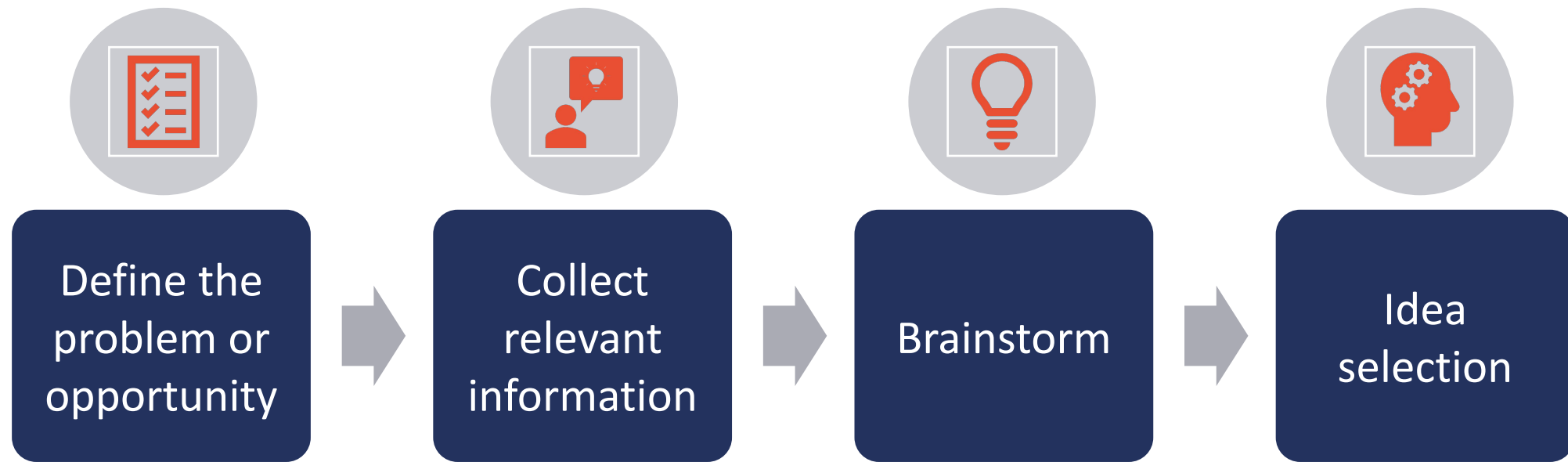
Idea Generation

SET PROBLEMS / OPPORTUNITIES

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The idea generation process

Define the problem or opportunity → Collect relevant information → Brainstorm → Idea selection

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Problem definition process

Establish the need		Understand the problem / collect information	
What is the basic need?	Es. new solutions to recycle smart textiles materials after life ending	**What the cause?**	Es. complexity of material composition
Who will benefit?	Define all the stakeholders who will benefit from the problem' solution. Es. differentiate between BTC or BTB	**What solution already exist?**	Widen your search to include trade journals, field studies, past research, competitors
		What are the constraints?	Es. funding, lack of adequate technology to process the materials

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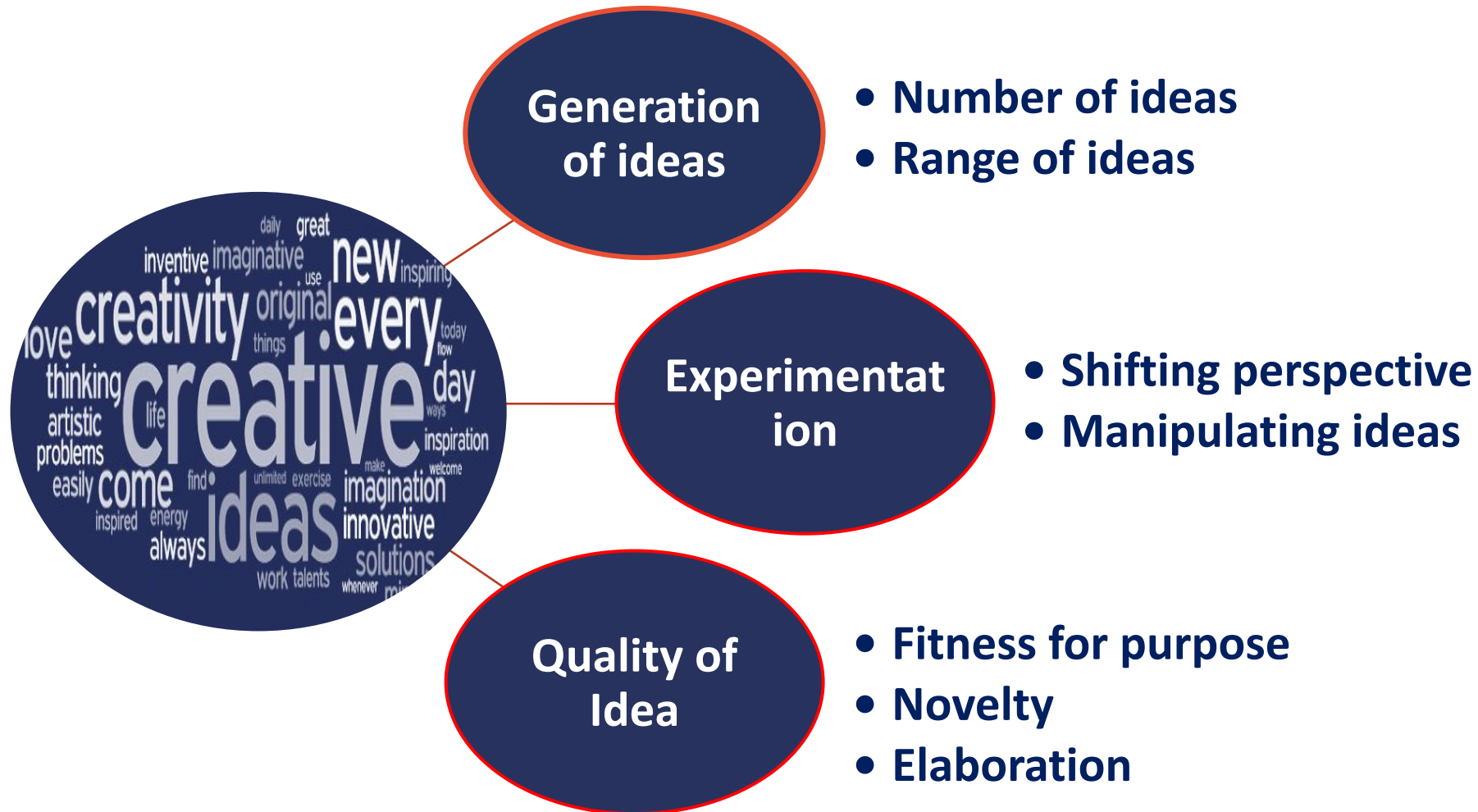# APPLYING CREATIVE THINKING TO THE ADVANCED AND SMART TEXTILE SECTOR

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ACER's Creative Thinking Framework

Generation of ideas

- **Number of ideas**
- **Range of ideas**

Experimentation

- **Shifting perspective**
- **Manipulating ideas**

Quality of Idea

- **Fitness for purpose**
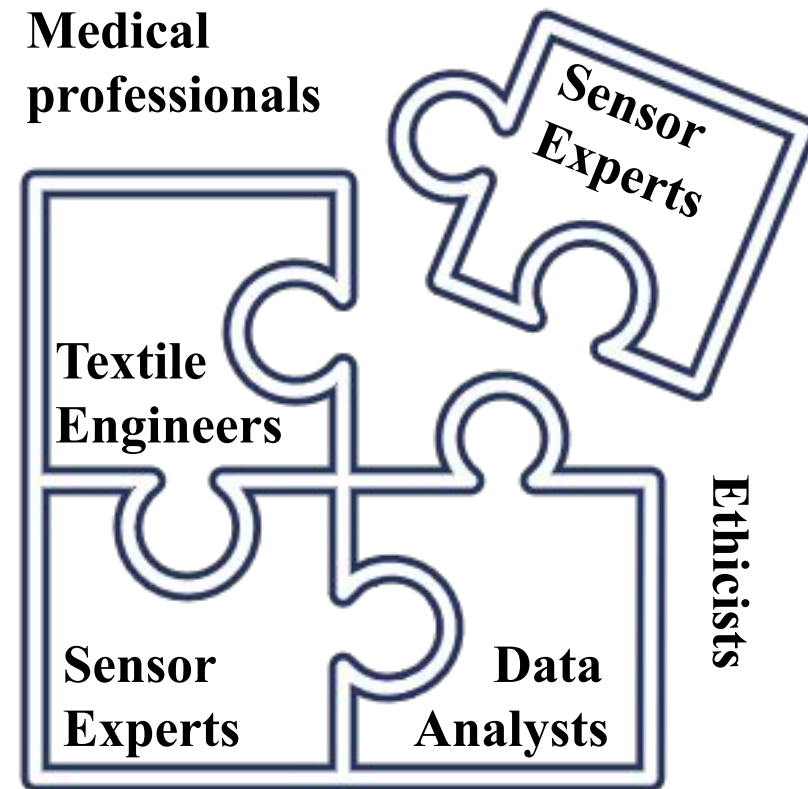- **Novelty**
- **Elaboration**

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KEY ASPECTS FOR AN EFFECTIVE BRAINSTORMING

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Set up the right working group

- Define the optimal size

- Include different actors with special expertise

- Consider the specific goals and objectives

Es. objective = come up with new ideas related to a smart textile product in the medical field

Medical professionals

Sensor Experts

Textile Engineers

Sensor Experts

Data Analysts

Ethicists

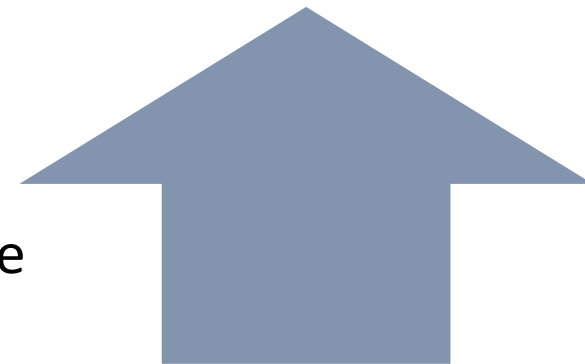HACKTEX

Define constraints

Set constraints or limitations to the defined problem / challenge to guide the design process

Challenge: Develop a wearable that integrates smart textiles to improve safety for outdoor activities

Constrains: The product should be:

- washable and durable, as it is for outdoor use

- comfortable to wear for extended periods of time

- affordable and accessible

- designed with sustainability in mind

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TOOLS AND TECHNIQUES TO STIMULATE CREATIVITY AND SELECT IDEAS

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A card based ideation Toolkit for IoT

Domain cards summarize the goals and the people who will be impacted by your invention.

Technology cards provide simple descriptions of technology like: things, sensors, data and user interfaces.

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A card based ideation Toolkit for IoT

Sixth Sense

GOAL
Create an idea that gives the user some kind of superpower, like new types of senses, perceiving new information, etc.

EXAMPLE
A necklace that changes color based on the air quality of your surroundings.

Missions

Creativity

WHAT
Ideas that solve the problem in a clever and unusual way.

HOW TO JUDGE
Does the product idea surprise you or make you think twice about the problem? Would you turn your head if you saw someone else using it?

Criteria

MISSIONS

The purpose, value or utility that your IoT idea provides to people.

tilestoolkit.io

CRITERIA

Reflection criteria to help evaluate your IoT idea.

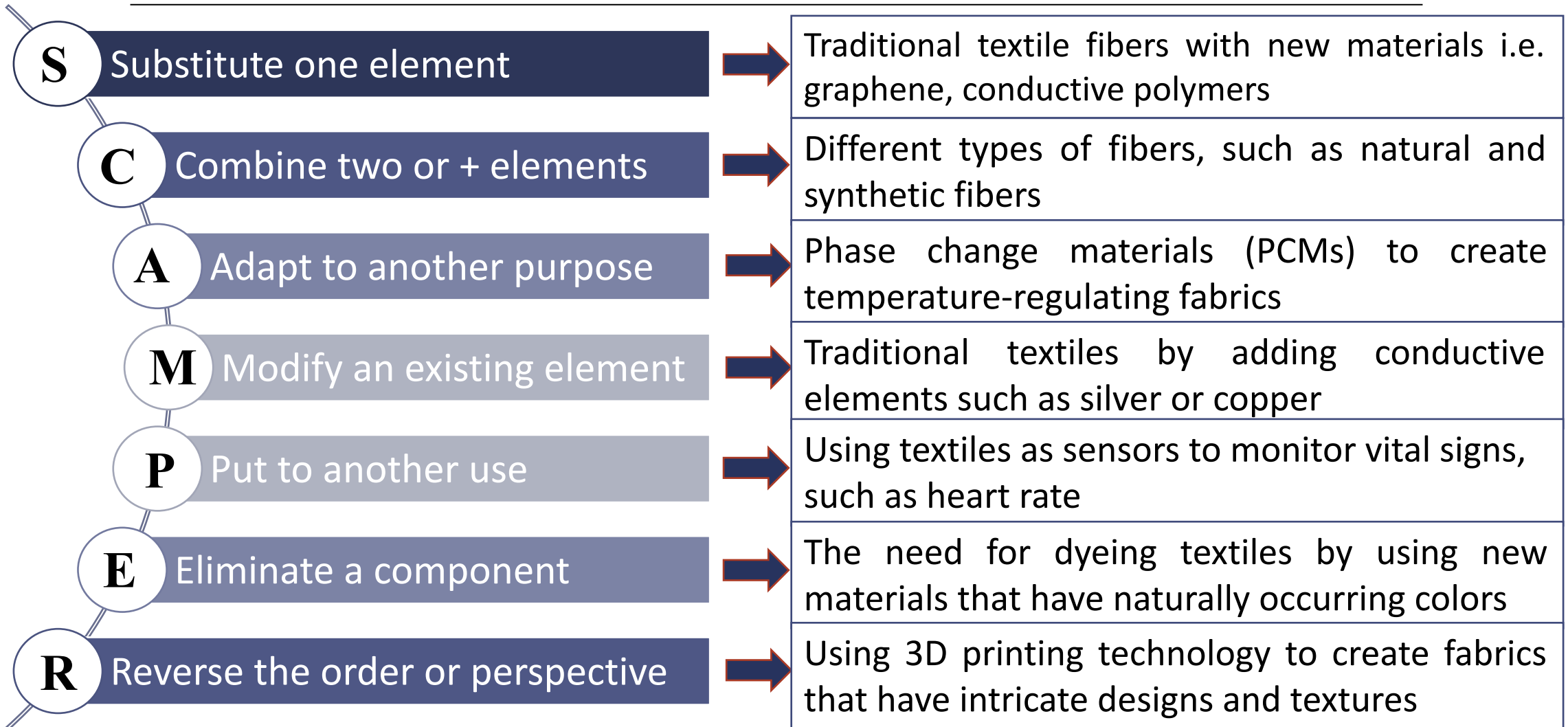tilestoolkit.io

Mission cards spice up your mix by providing provocative design goals.
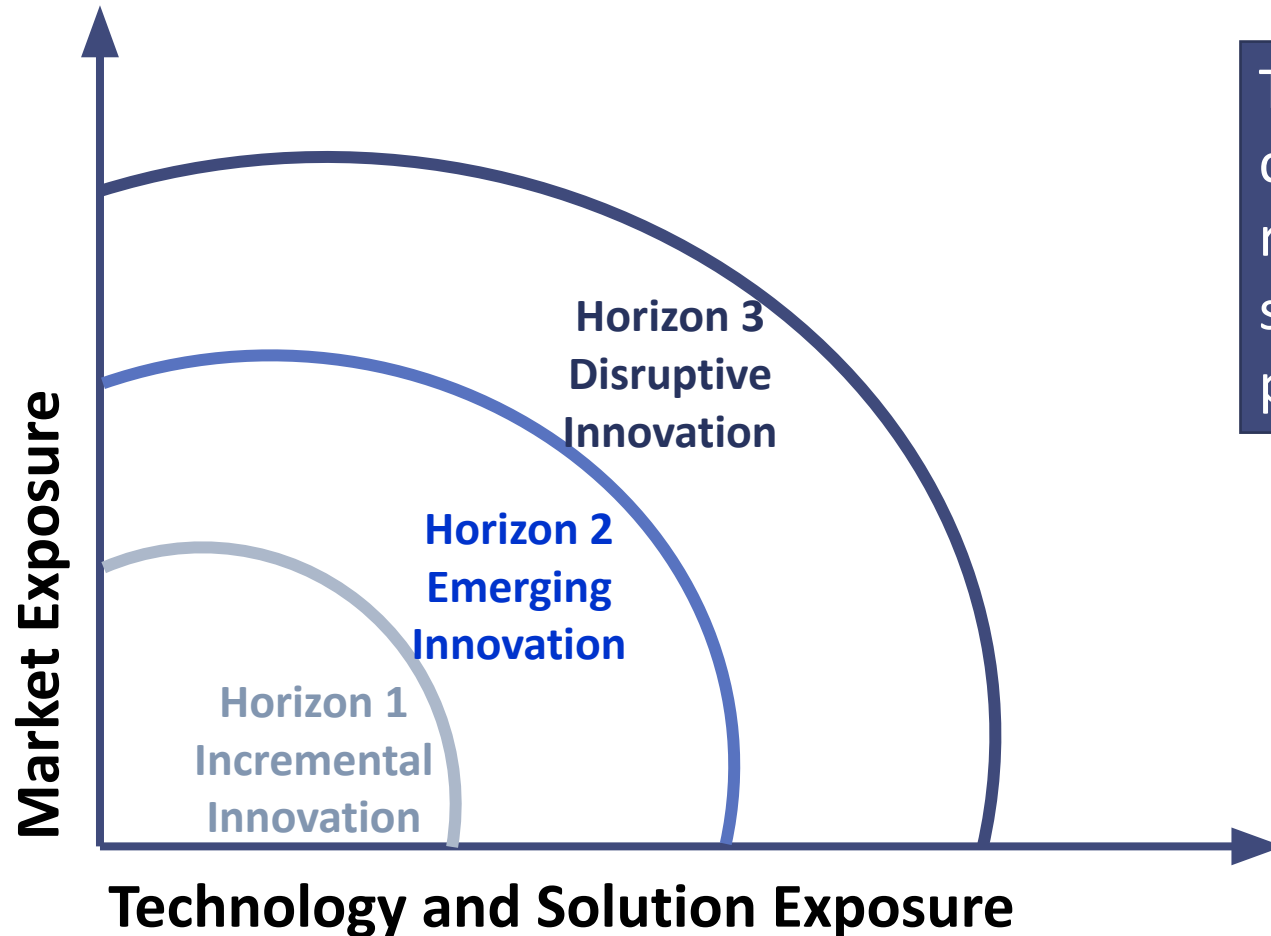
Criteria cards help to reflect and converge towards meaningful ideas.

1. Select cards that are relevant to the smart textile sector
2. Use the prompts on the cards to generate ideas for smart textile projects
3. Consider the textile material
4. Combine with other technologies
5. Iterate and Refine

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The SCAMPER technique

S — Substitute one element	Traditional textile fibers with new materials i.e. graphene, conductive polymers
C — Combine two or + elements	Different types of fibers, such as natural and synthetic fibers
A — Adapt to another purpose	Phase change materials (PCMs) to create temperature-regulating fabrics
M — Modify an existing element	Traditional textiles by adding conductive elements such as silver or copper
P — Put to another use	Using textiles as sensors to monitor vital signs, such as heart rate
E — Eliminate a component	The need for dyeing textiles by using new materials that have naturally occurring colors
R — Reverse the order or perspective	Using 3D printing technology to create fabrics that have intricate designs and textures

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3 Horizon Framework for idea selection

The Three Horizon Model can help you prioritize resources and build a sustainable innovation portfolio over time
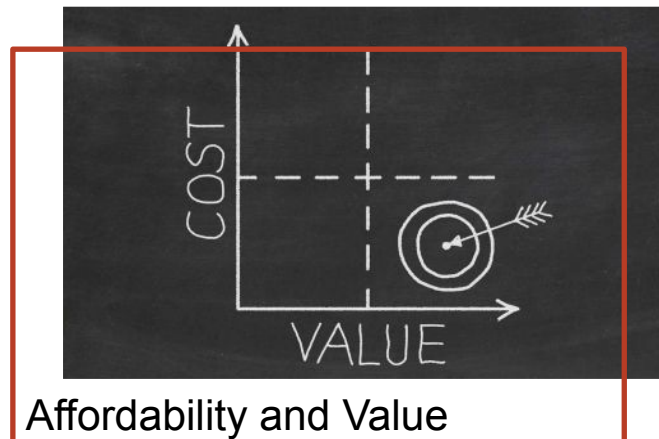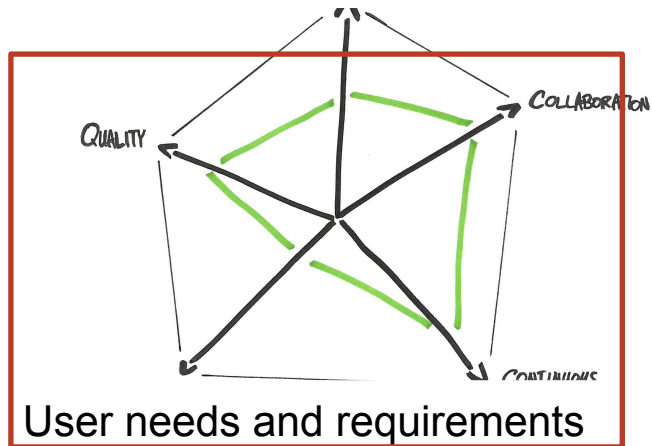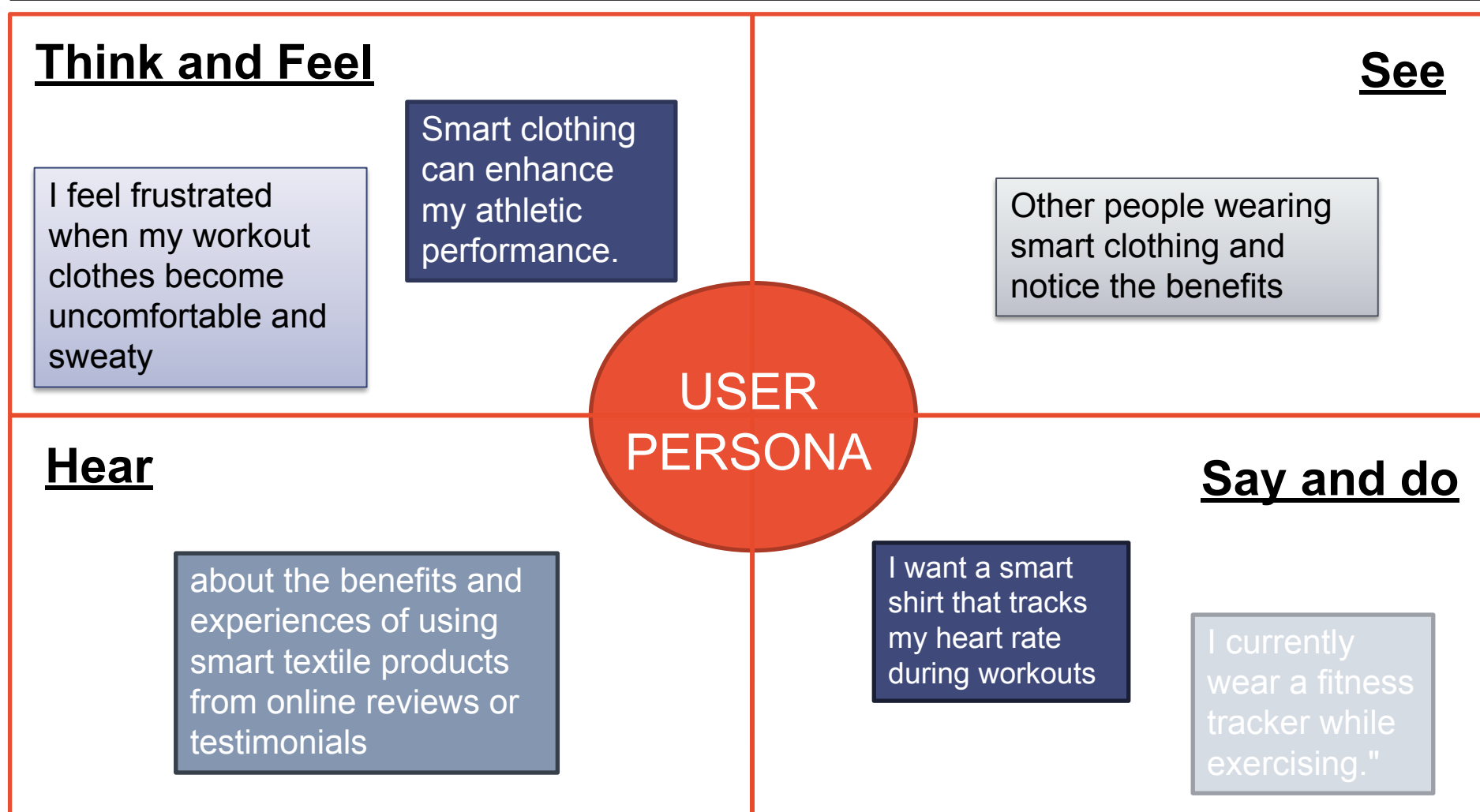
CONSIDETING THE END-USER PERSPECTIVE

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Key points to keep in mind

User needs and requirements

User Experience design

Safety and Health

Affordability and Value

Feedback and Iteration

Empathy map

Think and Feel

Smart clothing can enhance my athletic performance.

I feel frustrated when my workout clothes become uncomfortable and sweaty

See

Other people wearing smart clothing and notice the benefits

USER PERSONA

Hear

about the benefits and experiences of using smart textile products from online reviews or testimonials

Say and do

I want a smart shirt that tracks my heart rate during workouts

I currently wear a fitness tracker while exercising."

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Summary

- The worth of the ideas will depend upon the way you define your problems

- Creative thinking is the ability to produce innovative ideas

- Setting up the right working group and define constraints to a challenge will determine the effectiveness of the ideation process

- Creativity techniques, as brainstorming cards and SCAMPER, represent methods that promote creative thinking

- The 3 Horizon Framework is a strategic tool that helps organizations to identify and prioritize opportunities for innovation and growth

- When designing a new product It is foundamental to take into accout the user perspectives to be successful into the market

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