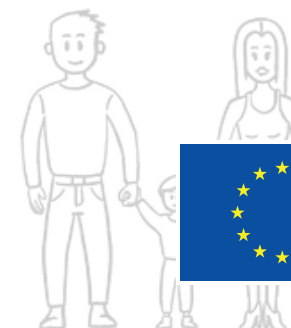
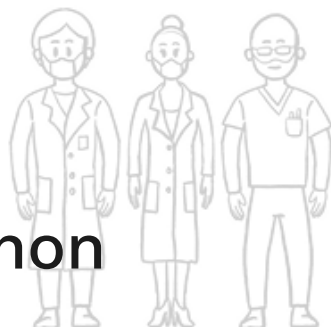


# Roadmap

## Virtual Hackathon Content



Virtual  
Hackathon



Cofinanciado por  
la Unión Europea



# Virtual Hackathon

Universities in Europe have been confronted with a sudden and rather unprepared shift towards online teaching due to the Covid19 pandemic. New tools are needed to embrace digital solutions as opportunities for collaborations and innovation processes, also beyond times of social distancing.

The Virtual Hackathon method offers a practical approach to tackle this rising need.

This document is a toolkit to accompany the participant during the hackathon.



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# 01

## Making sense



# 01

## MAKING SENSE

Making sense is about creating a deep awareness of the context, and the ability to embrace diversity and complexity. This full awareness is needed to understand the system as a whole and clearly define the right challenge to work with later.

First, it is necessary to be aware of the social, technological, economic, and environmental context where the challenge is embedded. It

goes beyond the mere depiction of the systems and seeks a deep understanding of underlying dynamics and relationships that bring about emergent behaviours and characteristics. The purpose of contextual awareness is to reveal the system to itself. Without this understanding of the hidden dynamics one solution for an apparently simple problem quite often leads to new issues and unexpected consequences. In the face of this complexity, the first step is to embrace diversity as the leverage point to get a more comprehensive understanding of the reality. The assertion that every voice in the systems carries part of the truth becomes highly relevant and should guide the sense making stage.

This awareness of the context entails perceiving the system as a wholeness made up of interconnected and interdependent parts. The attention must be diverted from the parts towards the relationships to see the whole picture and the emergent patterns.

Even more critical is the internal awareness of being part of the system and not an external agent. This is all about becoming aware of the systems and subsystems each individual and organization is part of, and the role being played. Finally, this internal awareness has to do with identifying and understanding the mental models and values that shape the way individuals and organizations perceive and interpret the reality.

The goal of this stage is becoming aware of the complex context surrounding the issue at hand, including analysing, and synthesizing how stakeholders experience the system. This context is not a fixed picture of components but rather a dynamic reality which is being continuously shaped by the intricate network of stakeholders and the relationships among them. Because of those relationships, the environment, the economy, the technology, or the society as such can be massively impacted and transformed. The objective is to understand this complexity.

# TOOL 1.1

## PENTAGONAL PROBLEM

### WHAT IT IS

Pentagonal Problem is a visual tool to help teams nail down the problem, identify its different components and details, agreeing on a common ground for future actions.

### WHEN TO USE

Whenever you face a complex problem, with multiple sides, perspectives and degrees that make it difficult to define in a single sentence or paragraph. Challenges related to climate change are a clear example of this kind of problem.

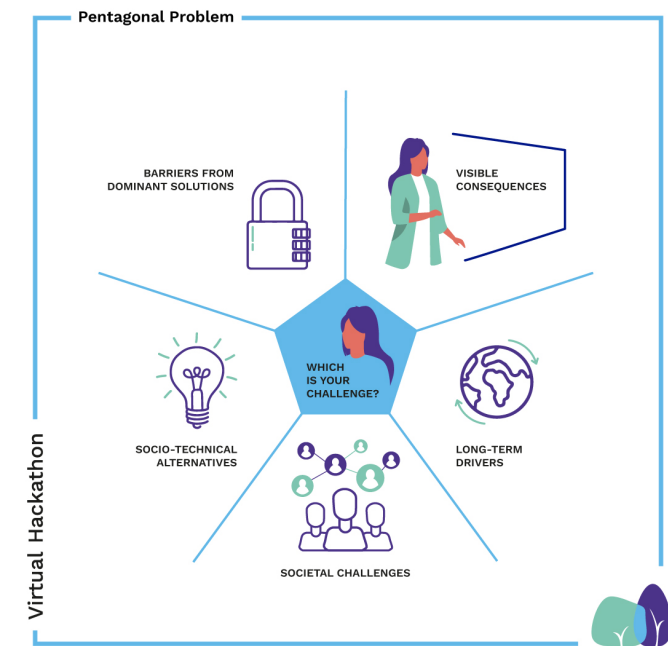
### WHY IT IS USEFUL

System innovation entails a completely different approach in the way we define and address problems. Problems are no longer simple or isolated. Instead, they can affect a big number of stakeholders with different perceptions and interests, they are cross-sectorial, long-term, and interconnected with the ecosystem and societal structures.

In this context we need more comprehensive tools to better define, state and understand current problems. Pentagonal problem is a tool that starts with your own perspective of the problem, and helps you to deepen your understanding by including different aspects of it. Using this tool, you will be better prepared to look for system solutions.

### HOW LONG

The pentagonal problem is a very easy-going technique. The extension in a classroom can vary from 1 to 2 hours, and its preparation is also very quick, just print the canvas and prepare markers and post-its.



# THE PROCESS

## STEP 1. Define yourself and state your problem. (10 min)

The pentagon accounts for yourself (as an individual or team). Take into account that the same problem is perceived in different ways and shapes by different actors, therefore it is essential to start by defining yourself. After that, try to describe the problem in one single sentence or short paragraph. Try to be conversational within the group. The goal here is to describe the overall problem or challenge you are facing as if you were in a conversation with other colleagues. Avoid any piece of information that is not necessary to understand the “big picture” problem. Once you have described yourself and state your problem, it is time to define the problem through five different “faces”.

## STEP 2. Visible Consequences (10-20 min)

In this step, it is important to write down all the elements which have been described during the interviews or have come up during the previous approach to the problem. It is important that the participants are aware of the real and visible implications of the problem. Use post-it notes and write down all the ideas.

## STEP 3. Long Term Drivers (10-20 min)

Now it is time to specify the climate change related challenges or other long term drivers that your problem is facing. Pay attention to the problems with CO2 emissions, water scarcity, biodiversity or whatever they are. In the case of many participants you can make clusters with the notes and identify the main clouds of long term drivers.

## STEP 4. Social Challenges (10-20 min)

Now it is time to think of society and how it is affected by the problem.

Is societal behaviour worsening the problem or it is getting it better? What are the societal challenges underlying your project? What is the main expected or needed change? What are the visible bottlenecks? Are there any specific groups especially affected by the problem or having a significant effect on it? Are there any institutions or organizations playing a significant role? What direction are the regulations pushing towards? Using post-its, write down as many ideas as possible to get the most comprehensive picture. If necessary, cluster the notes and identify the main clouds of societal challenges.

## vSTEP 5. Socio-Technical Alternatives (10-20 min)

In this step, it is important to rescue all the possible solutions that you have found during the previous weeks. Search for solutions already implemented in other locations or ideas that came up during the interviews. It is not the moment to evaluate them or see the real application in your landscape. Just write down as many ideas

as possible and cluster them in different topics or type of solutions.

### STEP 6. Dominant solutions (10-20 min)

When we think about the status-quo of our system, several elements act as dominant solutions which avoid change and transition to more sustainable ones. Identifying these elements will help us to plan future actions and future allies in our proposals. It is also interesting to define them in order to understand the whole system.

### STEP 7 Debrief (10-20 min)

Once you have completed the pentagonal description of your project, go over the first problem statement and how it has been enriched with the inputs coming from very different sources. Do you think you got a thorough description of your challenge? Did you get a new understanding of your problem? In your description, do you feel you included more than necessary? Would it be possible and advisable to cut something out in order to better explain the problem? Or,

do you think you are still leaving something out?

Do you think your challenge is a technical problem, a social problem, an environmental problem... or a mixture of them? Does one of the “faces” seem more important than the others? Regarding the variety of inputs, do you consider it important to gather different perspectives about the challenge?

Now try to rephrase the problem statement taking into consideration all the inputs you obtained. Are you able to come to a consensus for the new definition? Is it easier or more difficult to broaden such a definition? Do you consider it is possible to get everybody committed with a new definition of the problem?

### PRACTICAL TIPS

- Try to be casual when it comes to defining the problem, avoid overly complex sentences.
- The more ideas you gather for each step; the richer the final vision of your problem will be..
- Time permitting, after filling in each cell, you can try to restate the central problem, taking into consideration the ideas on the post-its. This will give you a perspective of how the problem is changing as new inputs are included, and you will experience the difficulties of integrating different approaches and inputs.



# TOOL 1.2

## Empathy Map

### WHAT IT IS

The empathy map is a visual tool that allows you to build a stakeholder profile by quickly browsing the sources of information you have close at hand. The empathy map is intended for you to put yourself into a stakeholder's shoes and thereby see the challenge from a different perspective.

### WHEN TO USE

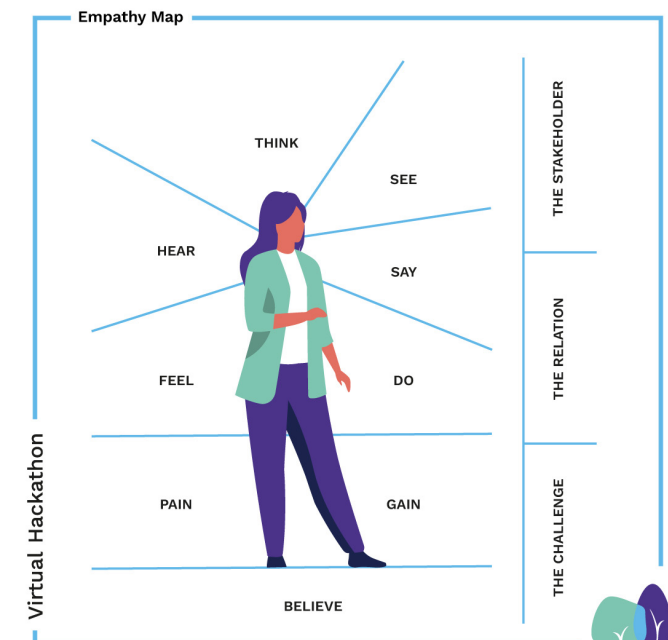
When you have carried out an identification of your potential stakeholders and want to know more about them and don't have the time or the resources to carry out in-depth market research.

### WHY IT IS USEFUL

The main value of this tool is how quickly you can get a clear and pretty accurate profile of a stakeholder.

### HOW LONG

20 min each stakeholder.



# THE PROCESS

## STEP 1. Setting the scene (10 min)

Write down the name and a short description on the specific stakeholder to be described and put it on the upper right-hand side of the canvas. Then, pay attention to the challenge you are working on. Write the problem down on a post-it and put it on the lower right-hand side of the canvas. Finally, look at the stakeholder and how he/she relates to the challenge. Is she a prospect, a client, a user of your service/product? Is she affected by your project? Or, can she affect the process of developing a new solution? If so, in which way? Describe this relation on a post-it and place it between the stakeholder and challenge description. These three notes will provide the context for the rest of the tool.

## STEP 2. Thinking and responding (10 min)

Next, the group starts trying to fill out those nine areas by responding on sticky cards to the questions linked to them. In the following paragraphs you can find a list of questions that you can use as a guideline to find your answers.

Just write them down and put them on the canvas.

### THINK (brain)

“What does he really care about?”, “What is her endgame/ deep belief?”, “What do they think about the challenge and the current market solution?”, “How do they think about their fears and hopes?”

### SEE (eyes)

“What do they see when they face the problem/challenge in their daily life?”, “What TV programs does she watch?”, “What is the context/environment they see around them?”, “What technology/ solutions does the market offer?”, “What does a typical day look like in their world?”...

### HEAR (ears)

“What do their friends/boss relatives... say?”, “What influencers do they follow and what do they say?”, “Who does he really listen to?”, (radio, forums, social media...), “What do they hear when other people use the same technology or face the same problem?”, “Is she following the big players?”

### SAY (mouth)

“What does she say regarding the challenge in a conversation?”, “Is he inspired by an inspirational idea when talking about the problem?”, “What do they say when using the current technology?”, “What opinions do they state about innovative solutions?”

### FEEL (heart)

“What do they feel when using the technology, whether in private or public?”, “What are his feelings regarding the players in the market and society, related to the challenge?”

## DO (arms/hands)

“What is their attitude in public when it comes to interacting with the technology or problem?, “What is her behaviour when using the current solutions?”, “Is he trying to do anything to defy or modify the status quo?”

## PAIN (back)

“What are the barriers they face in their day-to-day life?”, “What are their pain points when using the current solution?”, “What are their concerns about new solutions and future changes?”

## GAIN (legs)

“What do they really want from the technology?”, “What are her actual needs?”, “How do they measure success?” “What are his expectations regarding the problem in terms of solutions and general environment?”

## BELIEVE (feet)

“What do they actually believe?”, “What are their thoughts rooted in?”, “What are their implicit and explicit

assumptions about the challenge? (technology, how society reacts...)”

When you look at the completed canvas, spend some minutes reflecting on the process and the outcome.

## PRACTICAL TIPS

- This is a technique that can be enriched with others such as stakeholder interviews, shadowing, market analysis, etc.
- When searching for information try to find out what other stakeholders think about the one you are working on. It might make you change your opinion and answers.
- If there are opposite answers in some areas, keep them on the canvas, bear in mind human complexity and the fact that sometimes both answers might be right under specific circumstances.

# 02

## Framing



# 02

## FRAMING

The ultimate goal of the framing stage is to define the challenge to be addressed by the innovation team. The challenge emerges from the system, it being the stakeholders who ultimately define what the challenge to be addressed is. Additionally, that challenge is not defined in terms of something to be fixed but as a direction of change or systems' aspiration, a system to be transformed by means of innovative interventions.

Part of the framing stage is also setting the boundaries of the challenge to be defined. For example, if the overall challenge to address is the climate change, this is boundless by its own conception. The plethora of interlinkages with social, economic, environmental or technological elements makes it barely possible to be addressed in its wholeness. Instead, the boundaries for a specific innovation process have to be defined so as to the challenge can be more easily addressed. These boundaries can be geographic, topic oriented (droughts, mobility, housing...) or any other nature that help teams to frame the challenge.

# TOOL 2.1

## INNOVATION FOCUS

### WHAT IT IS

The innovation focus is a more detailed definition of the challenge that the team wants to address during the hackathon. It will be linked to the context analysis the team has performed in the previous step of the process.

### WHEN TO USE

When you want to detail and go further in the understanding of the challenge in order to approach the ideation process from a more concrete point of view, this tool will facilitate the following steps.

### WHY IT IS USEFUL

This tool will help us because the clearer we are about the challenge and the areas in which we want to have an impact, the easier it will be to carry out the ideation process.

### HOW LONG

30 minutes.



# THE PROCESS

Write down at least 8 focuses by defining in each case 4 characteristics:

## STEP 1. Transformation

Think about the transformation that answering this question can imply in the system.

## STEP 2. Stakeholders

who is involved in this innovation?

## STEP 3. Needs

Think about needs that the system (pentagonal problem) or the stakeholders (empathy map) have.

## STEP 4. Redefinition of the challenge

State the innovation focus by a question starting by “How come ... we....?. We can have several focuses for one need.

## PRACTICAL TIPS

- It will not be necessary to fill in all the gaps.

# TOOL 2.2

## TRIPLE I

### WHAT IT IS

It is a voting procedure for helping to decide which element of a list could be more interesting to pursue.

### WHEN TO USE

This tool should be used whenever there is a need to focus the challenge and focus the ideation phase.

### WHY IT IS USEFUL

This tool will be useful to facilitate the dynamics of teamwork, as it will help us to align opinions and decide on a common line of action.

### HOW LONG

5 minutes

Innovation Focus

	TRANSFORMATION	STAKEHOLDERS	NEEDS	FOCUS
1				
2				
3				
4				
5				
6				
7				
8				


Virtual Hackathon

↑ Implications of answering

↑ Stakeholders involved

↑ From Empathy Map, Pentagonal Problem

↑ How came we ... ?





# THE PROCESS

Each individual of the team has three votes for each of these categories. She can decide to give three points for one element or divide her votes.

## STEP 1 (in blue): IMPORTANCE

Each person decides which focus is more important for her.

## PRACTICAL TIPS

- 

## STEP 2 (in red): INFLUENCE

Each person votes for the focus that they think that they have more influence to change things.

## STEP 3 (in green): INNOVATION

Each person votes for the focus which solution she thinks could be more innovative.

At the end of the voting, the group decides qualitatively or/and quantitatively which innovation focus they want to select to continue the process.

# 03

## Ideation



# 03

## IDEATION

The ideation activity is like any other brainstorming activity, project teams encourage and harness the creativity of individuals to turn it into collective intelligence, more effective than the sum of its parts. Ideation is about releasing and harvesting individual creativity and turning it into collective intelligence. The ideation stage comprises the phases of generating, evaluating and improving ideas, and also involves fostering healthy creative friction, being able to integrate different perspectives.

# TOOL 3.1

## BRAIN-STORMING

### WHAT IT IS

Brainstorming is a group creativity technique used to find a solution to a specific problem. This is achieved by gathering and recording new ideas from team members in a fluid way.

This activity helps to foster and harness the creativity of individuals into collective intelligence, which is more effective than the sum of its parts.

### WHEN TO USE

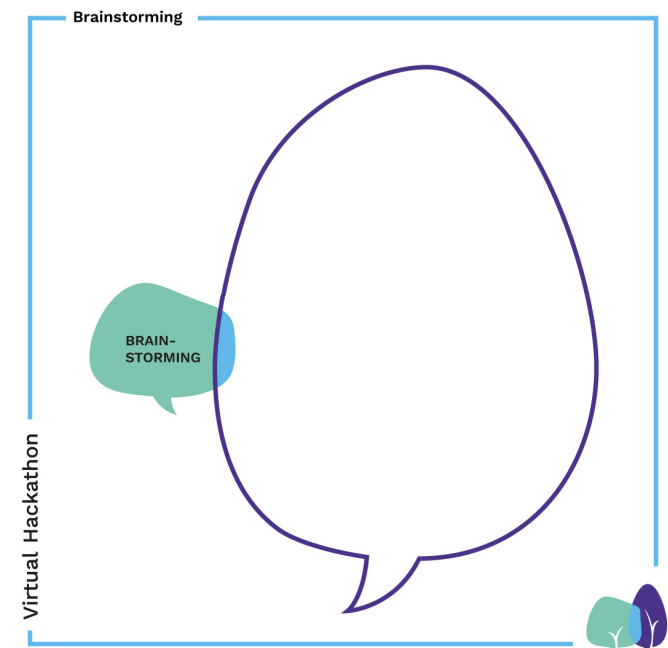
This tool should be used once we have a clear focus and understanding of the challenge we are going to face. In addition, it is important to ensure that we get the team to work in an environment that helps to foster creativity.

### WHY IT IS USEFUL

Brainstorming allows people to think more freely, without fear of judgement. It encourages open and continuous collaboration to solve problems and generate innovative ideas and helps teams generate a wealth of ideas quickly, which can be refined and merged to create the ideal solution.

### HOW LONG

2 hours.



# THE PROCESS

The brainstorming activity has to steps: Diverging and Converging and they can be repeated several times in a loop process.

## STEP 1: Diverging: Brainstorming (30-45 min)

In this part of the process, the team has to write down all the ideas they can imagine to address the innovation focus. You have to follow these four rules:

- Do not judge any idea
- It is about quantity not quality. Write down as many ideas as you might have
- Be creative, crazy ideas are welcome.
- Read other people ideas and build upon them.

## STEP 2: Converging: Organizing the ideas (60-90 min)

In this part, the team organizes the ideas using a matrix with two axis (transformative and feasibility). You have to follow these rules:

- Improve the ideas
- Be affirmative
- Consider novelty
- Think about your innovation focus

## PRACTICAL TIPS

-

# TOOL 3.2

## ANALYSIS

### WHAT IT IS

It is a visual tool that helps us to filter and choose which of the ideas we have had during the brainstorming process we want to develop. By using two matrices (feasibility and transformative) we will detect the potential impact of our ideas and it will help us to choose the one that best fits these requirements.

### WHEN TO USE

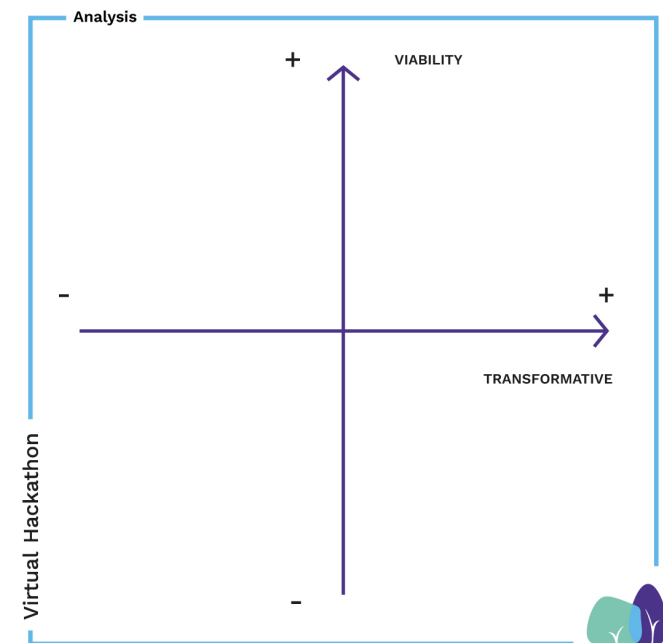
After the creative brainstorming process and before the development of the solution.

### WHY IT IS USEFUL

Because it will facilitate decision making. By placing the ideas on different scales according to their feasibility and transformational capacity, we will be able to detect the level of both variables that our ideas have and choose the one that can generate the most impact.

### HOW LONG

1 hour.



# THE PROCESS

## STEP 1: ANALYSIS (25 min)

Make a first analysis of the ideas that came out of the brainstorming and group those that are the same or very similar into the same idea.

## STEP 2: PLACE THE IDEAS (25 min)

Using the tool, place the ideas that have emerged from the ideation process in the two variables: Viability and transformative.

## STEP 3: DECISION (10 min)

As a group and taking into account the results of the matrix, decide which of the ideas you want to develop.

## PRACTICAL TIPS

-

# 04

## Solution





# 04

## SOLUTION

Once we have chosen an idea, it is important to ensure that our solution creates value for the system. Understanding value, benefits, costs, users or beneficiaries as something beyond the chrematistic perspective is also part of this mindset.

In this area, we work on developing the idea and learning how to communicate it.

# TOOL 4.1

## VALUE PROPOSITION

### WHAT IT IS

It is an activity that helps us to organise the most relevant factors of the solution that we have extracted from the brainstorming process to present our idea.

In it, we will focus on defining the idea well to make it understandable, on the value we are creating, the needs we are solving and the power of transformation that the solution can generate.

### WHEN TO USE

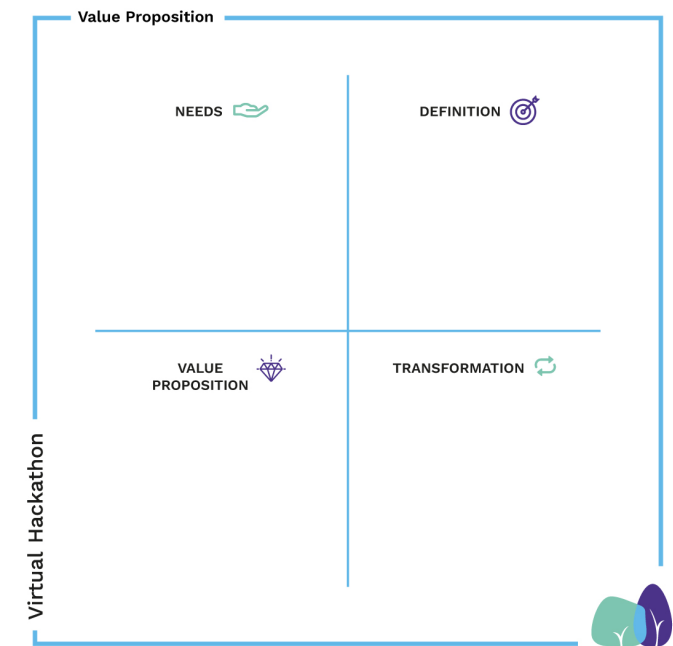
This tool should be used once we have chosen an idea, after the ideation process.

### WHY IT IS USEFUL

The development of this tool will help us to detect the strong points of our proposal and to be able to communicate them later.

### HOW LONG

1 hour.



# THE PROCESS

The team present the solution by defining and explaining five characteristics of the proposal.

## STEP 1: NEED (15 min)

The team must explain which need the solution can solve.

## PRACTICAL TIPS

- 

## STEP 2: DEFINITION (15 min)

The definition of the solution must be clear and short. It must be read in 1-2 min.

## STEP 3: VALUE PROPOSITION (15 min)

The team must explain why the proposal can help the system and which the additional value is.

## STEP 4: TRANSFORMATION (15 min)

The team must explain which transformation the solution can produce in the system related to the SDGs and Just transitions.

