WATER RESOURCE MANAGEMENT

An introduction to design thinking

GDAŃSK, 2020

BALTIC SOUTH BRIDGE

FOR GREEN TECH FUTURE!

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Author

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She is looking for solutions that allow to achieve the goals of the organization and respond to the real needs of users.

Using the service design approach, she designed solutions for corporations, SMEs, public institutions and NGOs. The service design approach is also used to collect requirements for IT systems. Experienced moderator of processes and workshops based on service design and design thinking methodology.

Speaker at many conferences devoted to service design, including Element Talks, Experience Camp, World Usability Day, European Economic Forum.

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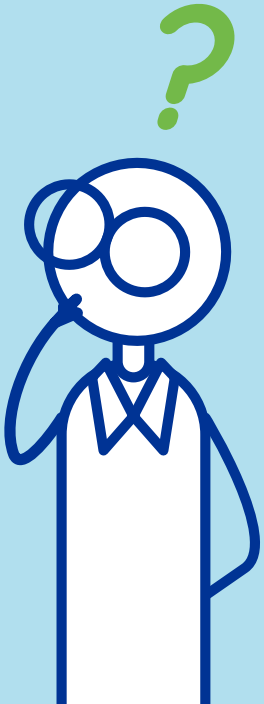
What is DESIGN THINKING ?



Design thinking is an approach that helps us to find a satisfying solution for wicked problems.

Wicked problems are the ones that:

- have many potential solutions

- engage many stakeholders

- are vague (we know that there is a problem, but we can't call it precisely)

Design thinking helps us to look for solutions systematically and support us with various tools.

Design is
as much about creation
as it is about exploration and analyzes.

The process is composed of five main stages:

EXPLORATION 1

LEARNING ABOUT THE CONTEXT, USERS. TRYING TO UNDERSTAND THE TOPIC DEEPLY WE WILL WORK ON

DEFINING THE DESIGN CHALLENGE 2

DECIDING WHAT EXACT PROBLEM WE NEED TO SOLVE TO HAVE AN IMPACT ON THE CURRENT SITUATION

IDEATION 3

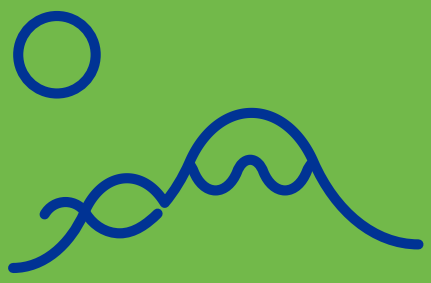
GENERATING IDEAS THAT WILL SOLVE THE PROBLEM

PROTOTYPING 4

MAKING IDEAS TANGIBLE WITH LIMITED RESOURCES

TESTING 5

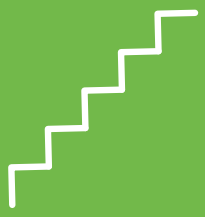
VALIDATING THE CONCEPTS WITH OTHERS



EXPLORATION

DEFINING THE PROBLEM

IDEATION



PROTOTYPING + TESTING

Design thinking is all about people, their needs, expectations. We try to discover them and find a way to answer them.

NOTE: IF YOU ALREADY HAVE A SOLUTION THEN YOU DON'T NEED TO GO THROUGH THE DESIGN THINKING PROCESS.

IT CAN BE HELPFUL IF THERE IS A CHANGE REQUIRED BUT YOU ARE STILL LOOKING FOR AN IDEA THAT WILL HELP YOU TO REACH IT.

DESIGN THINKING
in practice

DESIGN THINKING IS ABOUT DOING, EXPERIMENTING AND EXPLORING. WE SELECTED FOR YOU SOME TOOLS THAT WILL HELP YOU TO GO THROUGH THE PROCESS AND TAKE MOST OUT OF IT.

NOTE: DON'T WORK ALONE

DESIGN THINKING IS A COLLABORATIVE ACTIVITY. IT WORKS WHEN YOU HAVE PEOPLE WITH DIFFERENT EXPERIENCES AND PASSIONS AROUND YOU. THINK WHICH COLLEAGUES YOU CAN INVITE TO YOUR PROJECT.

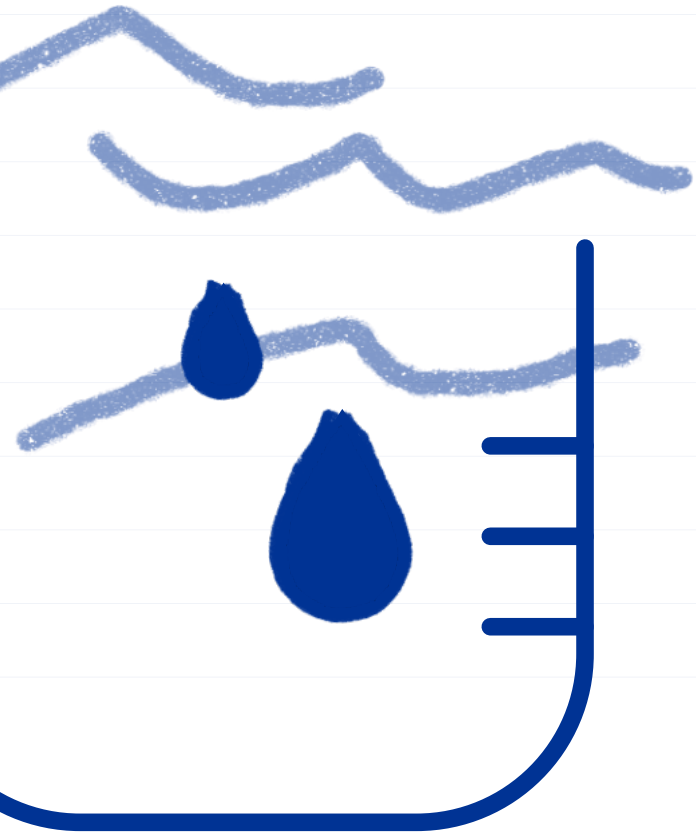
USUALLY, PROJECT TEAMS HAVE FROM 4 TO 6 MEMBERS.

Defining the scope:

WATER RESOURCE MANAGEMENT is a theme that links many different stakeholders and is very complex.

It can be discussed from the agriculture, city, industry perspective. In our case, we want to encourage you to think about it in microscale: from the household perspective. We believe that it's worth to start the change from yourself as well as that small changes may have a signi-ficant impact.

We may also be interested in making the theme more popular among our peers.



SCOPE OF OUR PROJECT WILL BE:

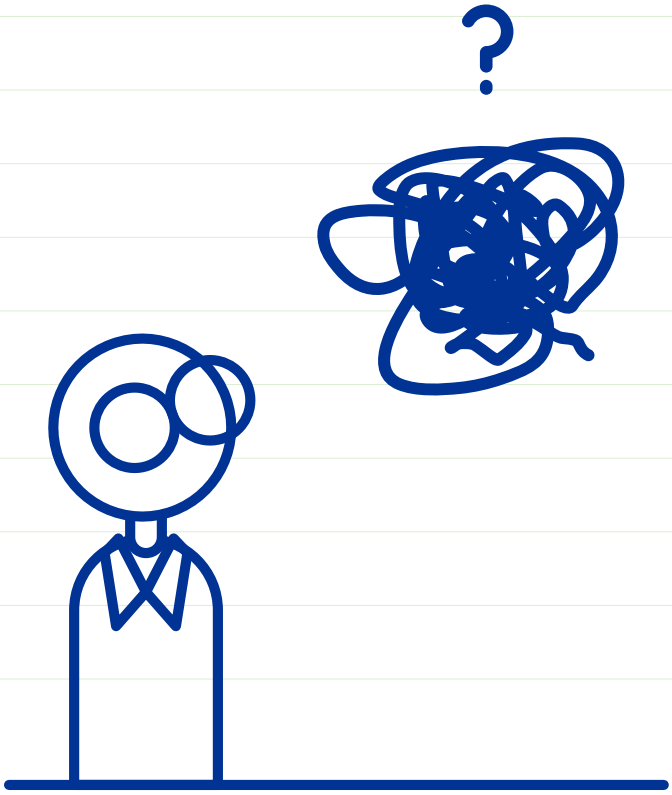
Water resource management at home and in the garden.

ACTIVITY:

Write ten sentences about how current situation looks like: how people use water in their homes, what behaviors are popular etc. Think about different aspects of the topic such as behaviors, emotions, objects, situations. In the next step, write ten statements about how the situations should look like. What would be the perfect situation? Look at both sides and write it what areas actions need to be taken to move from current situation to the expected one: e.g., objects that help to save water / new behavior patterns / new way of reusing water (e.g., to splash the toilet we use water from washing dishes, etc.) Find from 3 to 5 areas. Vote on which area you want to concentrate during the design thinking process.

DESIGNING A NEW WORLD

DESIGNING THE CHANGE STARTS WITH THE DREAM OF HOW THE WORLD SHOULD LOOK LIKE. BEFORE WE BEGIN TO THINK ABOUT ACTIVITIES, WE NEEDTO DEFINE HOW WE WANT TO CHANGE THE CURRENT SITUATION. THIS PERSPECTIVE HELPS TO COME WITH MORE EXCITING IDEAS AND OPEN OUR MINDS FOR NEW SOLUTIONS.



BEFORE SOLVING THE PROBLEM, YOU NEED TO LEARN ABOUT IT.

DISCOVERY

BEFORE SOLVING THE PROBLEM, YOU NEED TO LEARN ABOUT IT.

WE NEED TO IMMERSE IN THE TOPIC, UNDERSTAND DIFFERENT ASPECTS OF IT. OUR DISCOVERY PHASE WILL BE COMPOSED OF THREE MAIN STAGES:

- GENERAL INFORMATION
- SURROUNDING
- USERS

General information:

Let's start with the big picture of the topic. We need to learn a bit more about water resource management.

Narrow your exploration to the theme you decided to work on.

ACTIVITY:

EACH MEMBER OF YOUR GROUP SHOULD FIND AND READ SOME ARTICLES ABOUT THE SUBJECT. TRY TO FIND SOME CASE STUDIES THAT PRESENT HOW DIFFERENT COMMUNITIES, INSTITUTIONS WERE IMPLEMENTING CHANGES RELATED TO YOUR TOPIC. WRITE DOWN ESSENTIAL AND INTERESTING FACTS. SHARE YOUR NOTES WITH OTHER MEMBERS OF YOUR TEAM. PREPARE TOGETHER THE POSTER NOT TO LOSE ANY CRITICAL PIECE OF INFORMATION.

SURROUNDING

Identify what places, institutions, are related to the scope of your projects, who may have an impact on your project.

ACTIVITY:

CREATE A LIST OF ORGANIZATION, INSTITUTIONS, TYPE OF USERS THAT NEED TO BE ENGAGED IN THE CHANGE.

SPLIT THEM INTO THREE GROUPS:

- CRUCIAL FOR THE PROJECT ✱
- IMPORTANT ●
- LESS IMPORTANT ○

USERS

Last but not least, think about people

WHO WILL BENEFIT FROM YOUR SOLUTION? FOR WHOM YOU ARE DESIGNING IT?

While working on solutions, we need to define what problems we want to solve and who has them. Even if you think that everyone can benefit out of your concept, decide for whom you will dedicate it in the first place. Understanding users is crucial for our process.

At the beginning of your decision process, take a look at the effect of your work, and see what users type were selected as a crucial one. You should concentrate your design process on them.

It may also happen that there were no chosen users as critical stakeholders - just institutions. Then spend some time in your group and try to find an answer on a question: For whom we should design our solution. Name 1 or 2 groups.

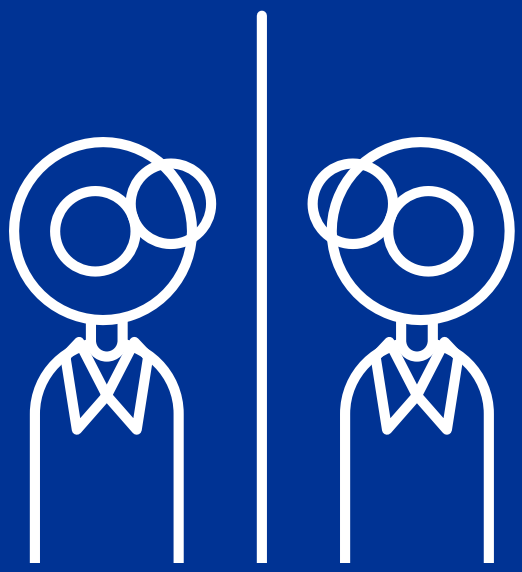
ACTIVITY:

PREPARE THE PERSONA USING THE PREPARED CANVAS. PERSONA IS A WAY TO PRESENT AND COMMUNICATE TO OTHERS EASILY FOR WHOM YOU ARE DESIGNING FOR. ADDITIONALLY, TO EXPLORE OUR USERS' WORLD BETTER IDENTIFY IN WHAT SITUATION AND HOW OUR PERSONA USES WATER AT HOME. TO MAKE MOST OF THIS ACTIVITY THINK ABOUT THE DAY THAT OUR PERSONA SPENDS THE WHOLE TIME AT HOME. MARK WITH RED PENCIL SITUATIONS WHERE YOU SEE THE POTENTIAL FOR IMPROVEMENT.

After you have prepared the persona and empathy map, there is a tricky part. While filling in the canvas, you have written down your impressions. Now you should challenge your perspective with REAL USERS.

MEET WITH PEOPLE
WHO FIT IN THE PROFILE:
E.G. PEOPLE FOR WHOM IT IS IMPORTANT TO BE ENVIRONMENTAL FRIENDLY.

DURING THE MEETINGS, YOU SHOULD LEARN WHY THEY BEHAVE THAT WAY? WHY THE THEME IS OR ISN'T ESSENTIAL FOR THEM.



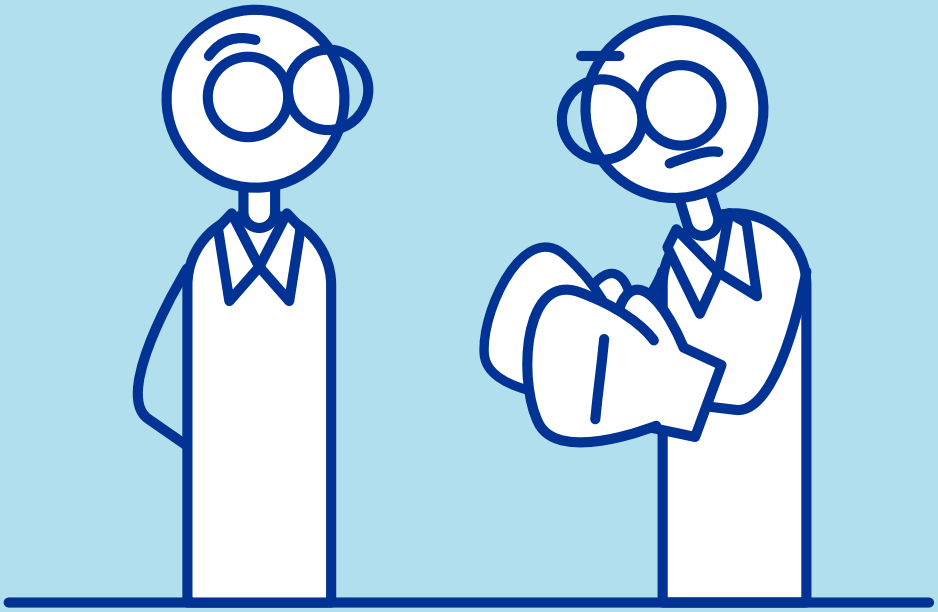
Very often we came with great ideas that don't solve any problems, and as a result, no one want to use them.
We want to avoid this situation. Thus we define the challenge after we have learned about our users' needs.

Defining

THE DESIGN CHALLENGE

THE DESIGN CHALLENGE IS USUALLY DEFINED IN THE FORM OF THE QUESTION:

How might we help (WHO) in (WHAT), so that (EFFECT)?



WHO:

WRITE DOWN WHAT GROUPS YOUR PERSONA REPRESENTS

WHAT:

WHAT PROBLEM OF OUR PERSONA WE WANT TO SOLVE

EFFECT:

WHAT IS THE EXPECTED OUTCOME OF THE SOLUTION

EXAMPLE:

How might we help people who own the garden to organize the garden more sustainably, so that they will use less water?

How might we help big families to use water for cooking more efficient so that they will see also financial value that comes from it?

How might we educate children to save the water so that they will make it with joy?

ACTIVITY:

WRITE DOWN "HOW MIGHT WE" SENTENCE. KEEP IN MIND THAT THE HARDEST PART IS NOT TO MAKE THE CHALLENGE TOO NARROW EITHER TOO WIDTH. IT NEEDS TO BE SPECIFIC, BUT WHEN YOU THINK ABOUT IT AT LEAST A FEW DIFFERENT IDEAS SHOULD COME TO YOUR MIND. PUT ALL CHALLENGES ON THE BOARD. DISCUSS TOGETHER WITH YOUR TEAM ON WHICH ONE YOU WOULD LIKE TO CONCENTRATE.

IDEATION

During the next stage of the process, you will have a chance to generate some ideas.

We will use two methods that will help you to find exciting solutions for your challenge.

Before you start, remember about fundamental rules of the ideation phase.

THERE ARE NO BAD IDEAS

WORK AS A TEAM
- INSPIRE EACH OTHER

DURING THE FIRST STAGE OF THE PROCESS DO NOT THINK IF IT'S PRACTICAL AND IMPLEMENTABLE

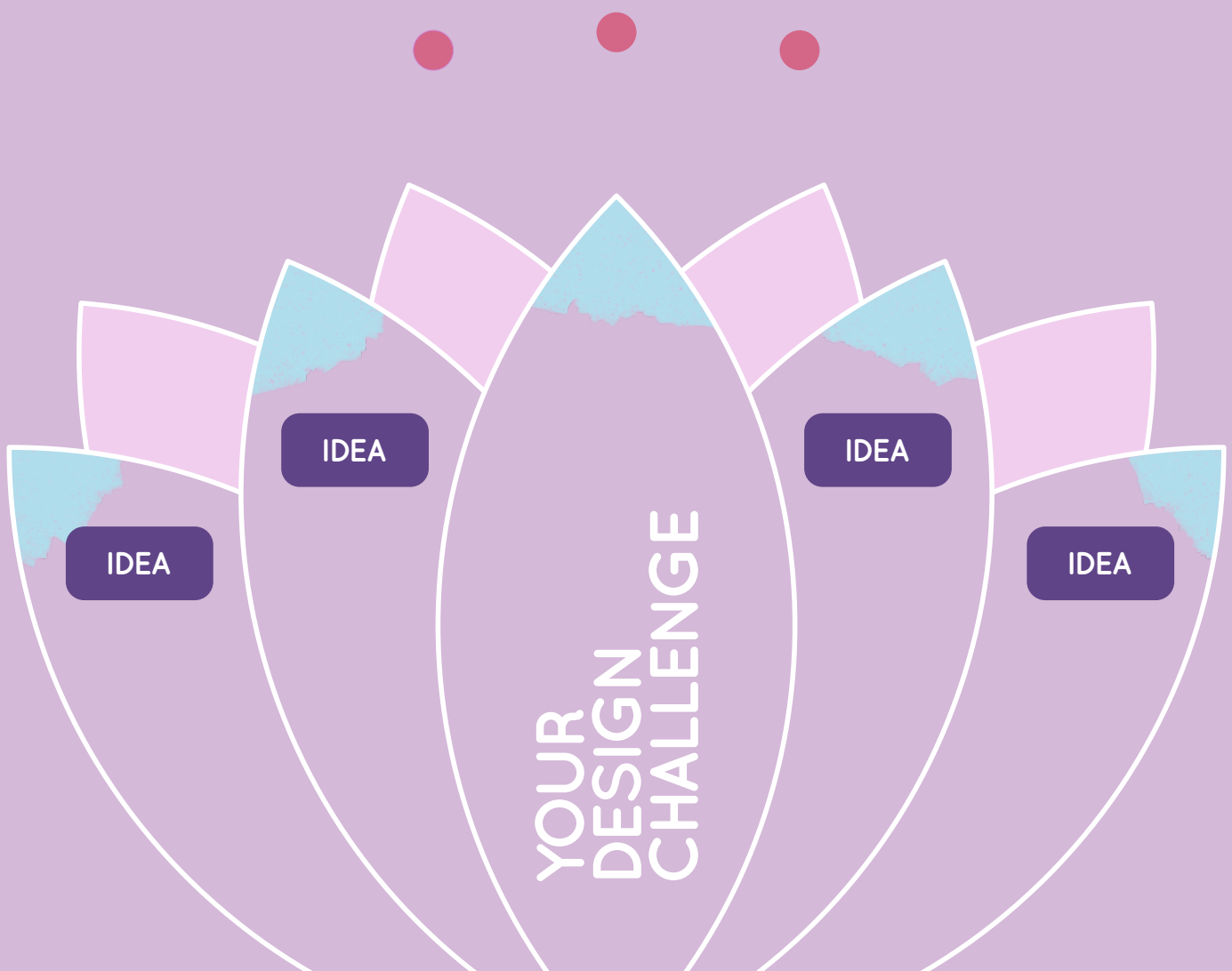
HAVE FUN !

ACTIVITY:

IN THE MIDDLE OF THE PAPER, WRITE YOUR CHALLENGE, EX. WATER MANAGEMENT AT HOME.

WORK AS A TEAM AND WRITE EIGHT IDEAS THAT COME TO YOUR MIND WHEN YOU HEAR THE CHALLENGE. YOU SHOULD WRITE DOWN THE FIRST THING THAT COMES TO YOUR MIND. TO GO THROUGH THE ACTIVITY, WE NEED TO HAVE EIGHT IDEAS. ASK EACH TEAM MEMBER TO SHARE HIS/HER ASSOCIATION. IF YOUR GROUP IS SMALLER THAN 8, DECIDE TOGETHER ABOUT MISSING ONE.

LOTUS FLOWER



IDEA 1

1 ..... 5 .....
2 ..... 6 .....
3 ..... 7 .....
4 ..... 8 .....

IDEA 2

1 ..... 5 .....
2 ..... 6 .....
3 ..... 7 .....
4 ..... 8 .....

IDEA 3

1 ..... 5 .....
2 ..... 6 .....
3 ..... 7 .....
4 ..... 8 .....

YOUR DESIGN CHALLENGE

IDEA 4

1 ..... 5 .....
2 ..... 6 .....
3 ..... 7 .....
4 ..... 8 .....

IDEA 5

1 ..... 5 .....
2 ..... 6 .....
3 ..... 7 .....
4 ..... 8 .....

IDEA 6

1 ..... 5 .....
2 ..... 6 .....
3 ..... 7 .....
4 ..... 8 .....

NOW TAKE EACH IDEA AND DEVELOP IT OR TRANSFORM:

ADD NEW ELEMENTS, MAKE IT MORE PRECISE. TO EACH IDEA, YOU SHOULD WRITE DOWN 8 ADDITIONAL DESCRIPTIONS. WHY WE NEED 8? FIRST 2-3 USUALLY COME VERY EASY TO OUR HEADS, BUT ALSO OFTEN ARE OBVIOUS. WRITING EIGHT REQUIRES WAKING UP OUR CREATIVITY, THINKING OUTSIDE THE BOX.

IF YOU WILL WRITE TOO "FLUFFY" FEATURES, THE OUTCOME OF THE ACTIVITY WON'T BE SATISFYING. WHEN YOU DEVELOP THE IDEA DON'T WRITE ADJECTIVES THAT DESCRIBE THE IDEA, BUT PRECISE ACTIONS, FEATURES.

EXAMPLE:

IF YOUR ASSOCIATION WAS: NEW RULES HOW TO USE THE WATER MORE EFFICIENTLY, YOU CAN WRITE SUCH IDEAS AS FUNNY STICKERS NEXT TO TAPS THAT REMIND US ABOUT SAVING WATER, APP THAT SHOWS US HOW MUCH WATER WE HAVE USED DURING THE DAY AND COMPARE IT TO OTHER DAYS.

ACTIVITY:

NEXT ACTIVITY WILL HELP US TO GO BEYOND MOST COMMON IDEAS. WRITE DOWN THE SENTENCE ABOUT YOUR TOPIC: "SEGREGATING WASTE (PUT HERE CRUCIAL ELEMENT FROM YOUR TOPIC) IS AS ..."

WRITE AT LEAST 6 DIFFERENT ENDINGS OF THE SENTENCE.

ANALOGY

Water management is ...

EXAMPLE 1):

WATER MANAGEMENT AT HOME IS AS: • PLAYING A MONOPOLY • BEING ON A DIET • START JOGGING • ...

PICK THE TWO MOST INSPIRING ENDINGS OF THE SENTENCE. TRY TO FIND TWO THAT ARE NOT SIMILAR TO EACH OTHER. THEN WRITE DOWN FIVE ADDITIONAL INFORMATION ABOUT EACH SELECTED ELEMENT. ALL NEED TO BE POSITIVE OR NEUTRAL.

EXAMPLE 2):

BEING ON A DIET • THERE IS A LIST OF DOS AND DON'TS • YOU NEED TO KEEP MOTIVATION ALL THE TIME • YOU FIND HEALTHY SUBSTITUTES FOR NOT HEALTHY PRODUCTS • ...

LAST PART OF THE ACTIVITY IS THE HARDEST BUT ALSO THE MOST SATISFYING ONE. TAKE EACH ELEMENT OF THE DESCRIPTION AND TRANSFORM IT INTO THE SOLUTION FOR OUR MAIN TOPIC. TRY TO TRANSFORM ALL ELEMENTS. IF YOU HAVE MORE THAN ONE IDEA, WRITE ALL OF THEM.

EXAMPLE 3):

YOU NEED TO KEEP MOTIVATION THE WHOLE TIME —> THE SWITCH FROM HOW WE USE WATER TO HOW WE SHOULD IS PHASED. AFTER EACH PHASE YOU CAN GET A BADGE AND A SMALL REWARD.

SELECT IDEAS

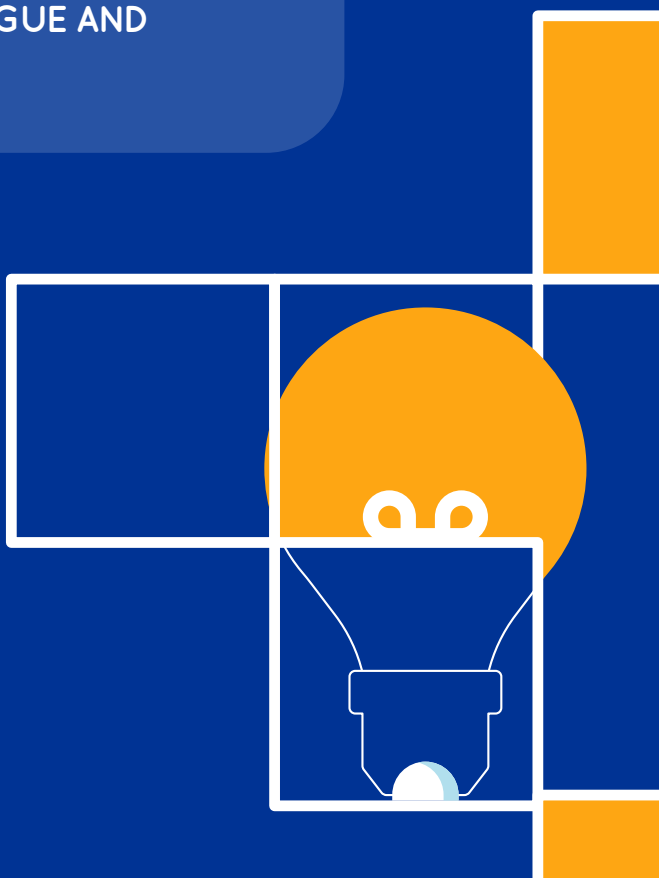
It finally comes the time to select ideas we will further develop.

At this stage of the process, we need to decide which concepts we want to invest our time.

ACTIVITY:

- REJECT - IDEAS WE DON'T WANT TO WORK
- QUICK FIXES - SIMPLE IDEAS THAT SHOULD BE EASILY IMPLEMENTED BUT DON'T NEED ANY FURTHER DEVELOPMENT
- IDEAS WE WANT TO DEVELOP - IDEAS WITH POTENTIAL BUT THAT ARE STILL VAGUE AND NEED TO BE DEVELOPED

After you will categorize your ideas concentrate on the section with the one that you want to develop. Think which ideas may be merged. Select one on which you want to focus. If you have a problem deciding - use dots method. Agree that each team member has three dots that he / she can use to vote for ideas that he sees the biggest potential.



PROTOTYPE

Probably at this stage of your work the idea is very general.

Example: prepare a guidebook how to save water at home.

Everyone who will read it may have a completely different concept of how it should work. Prototyping will help us to develop the idea and have a common understanding of it.

Prototyping is about doing, not talking, so take the materials you have next to you and try to make a paper and cardboard mock up that present the solution, make a short movie to show how rental can work, draw storyboard etc. You can also try to organize a small experiment.

ACTIVITY:

LOOK AT EXAMPLES OF PROTOTYPE AND PREPARE A PROTOTYPE OF YOUR SELECTED SOLUTION.

E.g. prepare a stickers that inform about how to save water and observe how people react or try prepare a guidebook give them few people and after a week talk with them what changes they tried to implement.

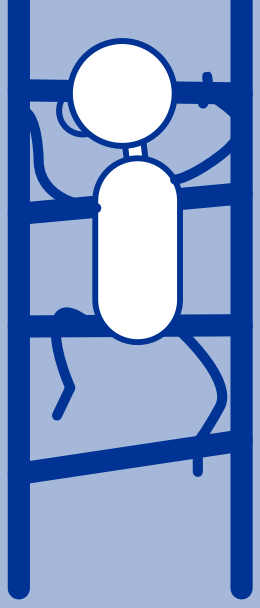
TESTING

Problem with the ideas is that we easily **fall in love** with them. That's why to minimize the risk that we will be only one who will enjoy them, we need to validate it with others.

ACTIVITY:

PRESENT YOUR IDEA TO AT LEAST SIX PEOPLE WHO FIT INTO YOUR PERSONA PROFILE. GATHER INFORMATION: WHAT THEY LIKE IN THE SOLUTION, WHICH ELEMENTS OF IT THEY PERCEIVE AS USEFUL AND VALUABLE, WHAT IMPROVEMENTS THEY WOULD LIKE TO IMPLEMENT, WHICH ELEMENTS ARE NOT CLEAR, RAISE THEIR CONCERNS

The hardest thing in testing is not trying to sell your idea. While testing, WE NEED TO LISTEN, not convincing that our solution is right.



TESTING USUALLY IS COMPOSED OF THE FOLLOWING PARTS:

PROTOTYPE PRESENTATION

(if it's possible don't explain how your prototype works, give people a chance to interact with it)

COLLECTING GENERAL OPINION

(what our testers liked about the idea and what they didn't)

ASKING QUESTIONS ABOUT PARTICULAR ELEMENTS OF THE SOLUTION

(especially the one that are still vague, or wakes up a lot of emotions in your team)

If you have decided to organize some experiments, discuss with those who participated in them, what worked and how it did, what was below expectations.

Plan your testing and fill in prepared form.

CELEBRATION AND IMPLEMENTATION

CONGRATULATION!

You have just finished your first process using a design thinking approach.

If you won't be able to implement the idea by yourself, think who may help.

Look at the institutions you mapped when discovering the surrounding and try to set up the meeting when you can present your concept.