CO-DESIGN IN THE DIDIY SCENARIO

Introductory Booklet

DiDIY
DIGITAL
DO IT YOURSELF

www.didiy.eu

Innovating by creativity and design

This toolkit is the result of 16 Human-Centered co-design workshops held within the framework of the EU funded project "Digital Do-It-Yourself (DiDIY)" in two different countries, Italy and Spain.

Thanks to the participation of educators, primary school teachers, makers, craftsmens, lawyers, policymakers, digital experts, representative from companies, FabLab managers, we have tested and validated a specific design process and a set of related tools focusing on **the importance of creativity and its capability to generate innovation in different areas**.
The experiences of each workshop have contributed to continuous experimentation, verification and implementation of a project-building process and of specific activities in order to produce this toolkit and guidelines.

This is a short booklet that introduces only some of the content of the DiDIY Toolkit and Guidelines. You can find the full and operative version at ideactivity.polimi.it/toolkits

You are indeed welcomed to give us your feedbacks, comments and suggestions. Reach us anytime at: ideactivity@polimi.it

The background of Digital DIY

Digital fabrication-based DIY, or simply Digital DIY (DiDIY) is an ongoing social innovation phenomenon in which collaboration and knowledge sharing are creative practices through which people increase their self-confidence and empowerment while developing new skills.

It reflects the attitude of people improving their way of life and bringing production closer to consumption (digital fabrication and distributed systems).

These practices and technologies have many potentialities that are changing the world on both personal and community levels, providing creative solutions to local, social, and environmental problems.

This social phenomenon allows an increase in diffused creativity, which represents the intangible substrate for innovation. Digital DIY enables the shared production of creative content, and therefore provides greater opportunities for co-design and the creation of collaborative value chains.

⊕ Discover more about the phenomenon of DIDIY at: www.didiy.eu

Discover the toolkit

This toolkit enables collaborative actions aimed at identifying and solving problems through the direct involvement of users.

1. WHAT IS THE POWER OF THE TOOLKIT?

• Gain confidence with Digital DIY,
• Explore the fundamental elements of DiDIY,
• Launch and solve design challenges by including the DiDIY elements.
• Use a strategic design approach to the use of digital technologies

2. WHO CAN USE THIS TOOLKIT?

Laymen and DiDIY practitioners can use the toolkit
to familiarise with a process that designers typically use when developing products and services.
Designers who are already familiar with the co-design process and can use it to facilitate others or for personal projects.

3. WHEN IS IT USEFUL?

When there is a large amount of data that would be best dealt with a structured process, a collaborative and empathic approach, or when in

need to gain knowledge. Use it to:
- Improve a service or a strategy in your organisation
- Innovate some working modality
- Activate new forms of collaboration
- Solve social, environmental and political challenges.

4. WHY WORK WITH IT?

- Immerse in DiDIY
- Understand people
- Collaborate
- Be creative

5. WHERE TO DO IT?

The toolkit can be used in local institution (private and public), small or medium enterprises, large organisations, local hubs, FabLabs.

6. HOW TO USE THE TOOLKIT?

Chek ideactivity.polimi.it to download the full toolkit and guidelines.

FUNDAMENTAL FACTORS

Digital DIY Fundamental Factors

All factors that are indispensable for the current movement linked to digital technologies in DIY, as recognized by numerous participants, are explained here.

DO IT FOR YOURSELF PERSONAL MOTIVATION

Motivation can be **intrinsic**, therefore linked to an innate predisposition of the individual and/or **extrinsic**, linked to external factors of reward and satisfaction. The different elements on which emphasis can be placed to get people involved are:

• To acquire skills
• To reinvent themselves
• Long term vision
• A sense of belonging to a community
• Hedonism/Reputation
• Showcase/Visibility
• Remuneration
• Sense of intrinsic confidence

This factor refers to a community of individuals who share common interests, vision and ethical values. Inside the community, people are encouraged to work together in a collaborative model, in which everyone is a peer. This allows for the creation of a global network of individuals and communities who share problems and issues, and grow together. In this sense, **the concept of Do It Together can sometimes switch into Solve It Together (SIT)**.

DO IT TOGETHER COMMUNITY AND SHARING

ACCESSIBILITY

The possibility of easy access to technology, knowledge and skills, both online in the virtual world, and offline in the real one. Accessibility is also translated into a simplification of the normative languages which regulate the use of the communities' shared ideas and the need to understand how to utilize the available resources, by **applying a strategic approach to accessibility**.
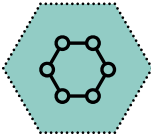
GLOCALITY

The glocal factor refers to the interrelation between local demands, resources, actions and flow of global skills. The motto is **"Think global, act local"**. From a need that originates locally, there is then diffusion of an idea at global level.

This refers to the different elements which contribute to making a project in the DiDIY context sustainable, such as: **business models, social impact, economic sustainability and planning**.

SYSTEM ECONOMY
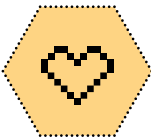
DIGITAL TECHNOLOGY AS A MEANS FOR INNOVATION

Technology allows for customisation of products based on human needs. Digital technology is a way to break down borders, and allows global expansion of different local communities' ideas and projects. Thus digital technologies are intended also as social process facilitators.

$\oplus$ You can find a lot more about the DIDIY Toolkit at: ideactivity.polimi.it/toolkits
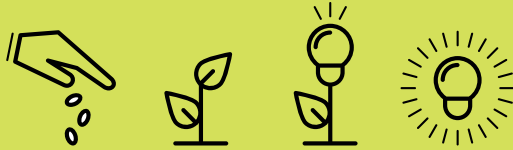
THE PROCESS

The DiDIY co-design process is a human-centred design process that, using the potential of creativity and the approach of Design Thinking, invites you, and other professionals from different backgrounds, to actively contribute with your experience to the development of ideas or strategies, using the fundamental elements of DiDIY.

Co-design sessions are spaces for experimentation, and trying out possibilities in collaborative and creative ways. During the sessions, a set of creative techniques is used to inspire the design process.

The DiDIY co-design process, is a simplified, yet exhaustive version of the creative design process, focusing on two main stages, **EXPLORE**: aims at the identification of a significant objective and its possible development in relation to a given context; and **GENERATE**: aims at delivering and prototyping ideas.

EXPLORARITVE STAGE

This phase allows the creation of a basis from which a significant and potentially viable goal can be defined. A point of view is established with regard to a specific topic/issue, taking scientific material and structured research into consideration, but also considering the target user and the market.

The **specific objectives** of the explorative stage are:
• Acquisition of knowledge of the DiDIY phenomenon through the analysis of case studies, and a clear understanding of the context
• Identification of the underlying DiDIY fundamental factors that need to be taken into consideration when creating solutions, and then transferred into the design of an idea
• Collection of project-building challenges, based on personal experience, and enriched by the preceding knowledge acquisition.

The generative stage deals with solving the project-building challenge. In order to reach these objectives, you are guided through a structured pathway made up of various activities to perform. Therefore, the explorative stage is divided into 2 sections: **IMMERSE** and **DEFINE.**

To explore means being open to new opportunities and gaining inspiration to generate innovative ideas.
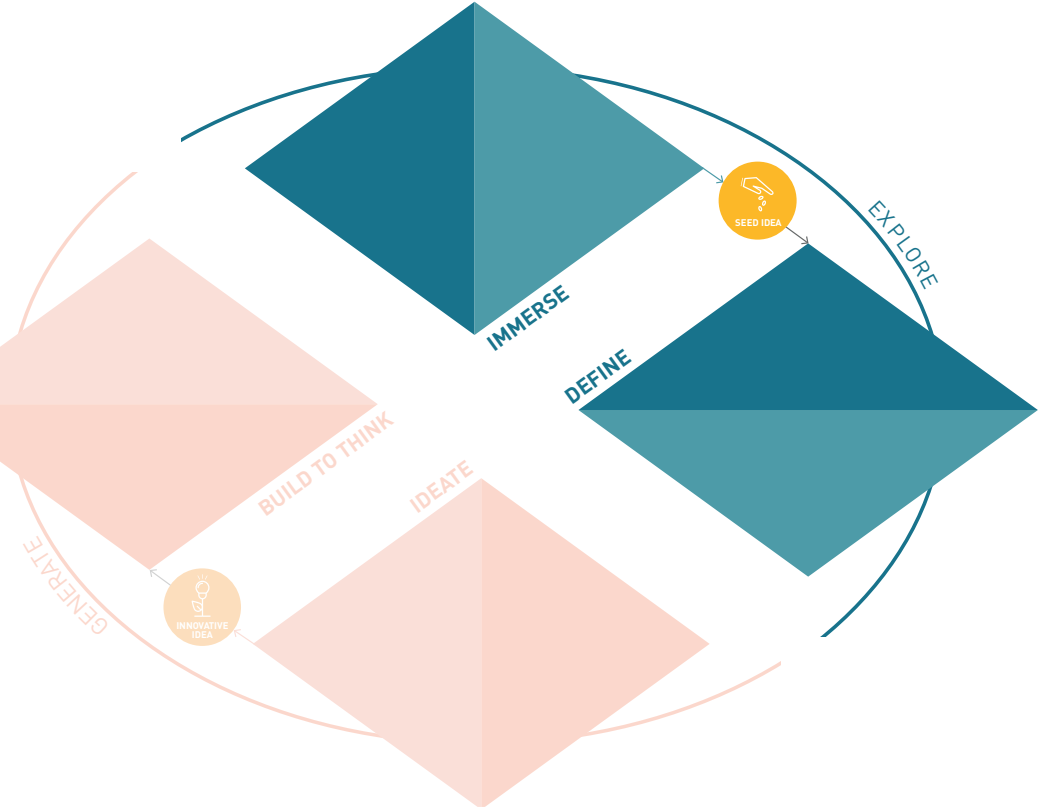
GENERATIVE STAGE

The idea generation phase usually happens through creative sessions. This activity is carried out with the support of different tools, used to stimulate creativity and create suitable solutions, consistent with the context and the goals to be achieved.

The purpose of this stage is to construct a well-defined concept, which includes the fundamental factors, and that meets the challenge in an innovative way.

The specific objectives of the generative stage are:
• Generation of many new solutions for the problem, or ways for the objective to be achieved
• Identification of the most interesting ideas and keeping the one with the most potential
• Tangible visualisation of the idea through the creation of "rough prototypes"
• Inclusion of the fundamental factors in the idea.

In order to reach these objectives, you are guided through a structured pathway made up of various activities to perform. Therefore, the explorative stage is divided into 2 sections: **IDEATE** and **BUILD TO THINK**.

Divergence and convergence are what make ideas and visions possible.
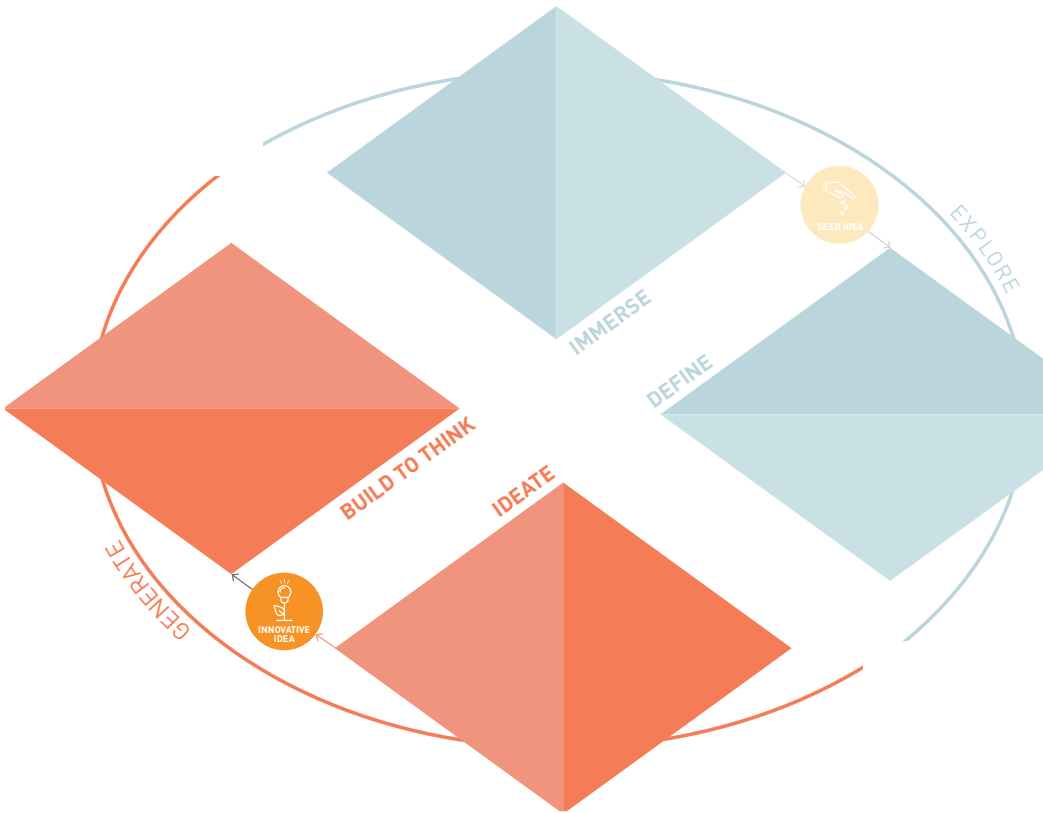
Find out more about how to Get Started as a facilitator by visiting ideactivity.polimi.it/toolkits

Be collaborative.
Put practice over theory.
Stay playful and confident.
Let creativity and
curiosity be with you!

STEPS, ACTIVITIES AND TOOLS

Immerse

In this step you will find tools to deeply engage with the social and cultural context of the Digital DIY phenomenon. The Immerse step is broken down into two parts: **Discovery** and **Desirable Outcomes**.

This "plunge into context" frequently generates a mass of information so vast that it becomes necessary to organise the data visually, in order to indicate patterns that will help to provide an understanding of the whole, and identify opportunities and challenges.

The output of the Immerse step is the **Seed Idea**.

Explore like if there is no tomorrow
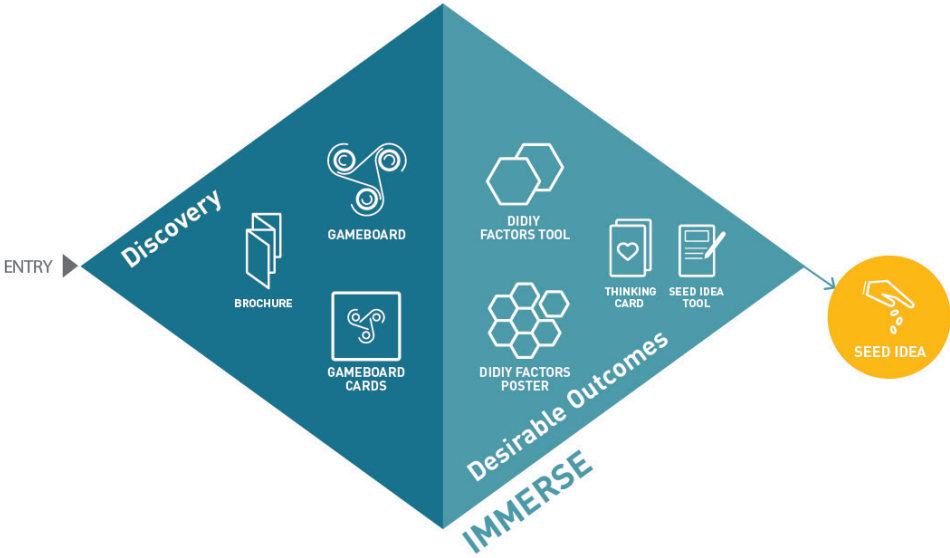
TIME

60-90mins

MODE

Reflective

DISCOVERY

Through the analysis of significant DiDIY projects, the Discovery activity helps the team to explore the phenomenon. Each DiDIY project will be analysed according to three main aspects that are usually considered during a design project: **people that enable the project with their roles**, **motivation and relationships**; **key components such as technology**, **activities**, **tools**, **and processes that enable the project**; **the positive and negative impact of the project**.

ACTIVITY STEPS:
1. Analysis
2. Mapping

TIME

90-120mins

MODE

Reflective

DESIRABLE OUTCOMES

The activity is divided into two steps that correspond to the two main objectives of the activity: understand the fundamental factors of DiDIY, and define a Seed Idea.

ACTIVITY STEPS:

1. Capture.

2. Read Fundamental factors.

3. Integrate Fundamental factors

4. Optional Create Fundamental factors.

5. Wishful thinking

6. Seed Idea

Define

The second step of the Digital DIY process is called Define. The aim of this step is to explore the field of the "Seed Idea", in order to identify a meaningful matter to be addressed and to be framed into the definition of a challenge.

The Define step is broken down into two parts: **Inspiration**, and **Frame Challenge**. Inspiration stimulates the gathering of information regarding the topic, in order to create a common and deep understanding of it among the team. Frame Challenge is the analysis of this information and the further identification of a single and concise challenge to work on for the rest of the process.

The output of the Define step is the **Meaningful Idea**.

Be brave, defeat your fears and set your own challenge.
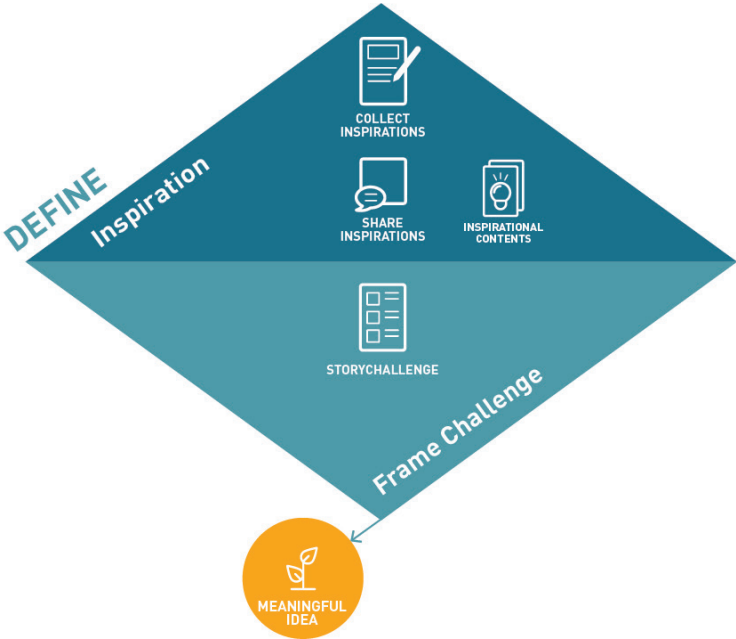
TIME

1-2weeks
+ 60mins

MODE

Reflective

INSPIRATION

This activity helps to explore what already exists in the Seed Idea's field of interest, gather related material and obtain a deeper understanding of it. It is divided in two parts: in the first, inspirations are collected individually, while the second one happens through a collaborative work session to share the information.

ACTIVITY STEPS:
1. Collect inspiration
**2. Share inspiration**

TIME
60-90mins

MODE
Hands on

FRAME CHALLENGE

The Frame Challenge activity helps to narrow down a specific issue from the broad topic related to the Seed Idea you have explored, and to identify and commonly agree on a single challenge that will guide your process. A challenge is the statement of a specific issue to be solved, intended as a design opportunity. This synthesis will be enhanced by your intuition and awareness.

ACTIVITY STEPS:
1. Re-evaluate information
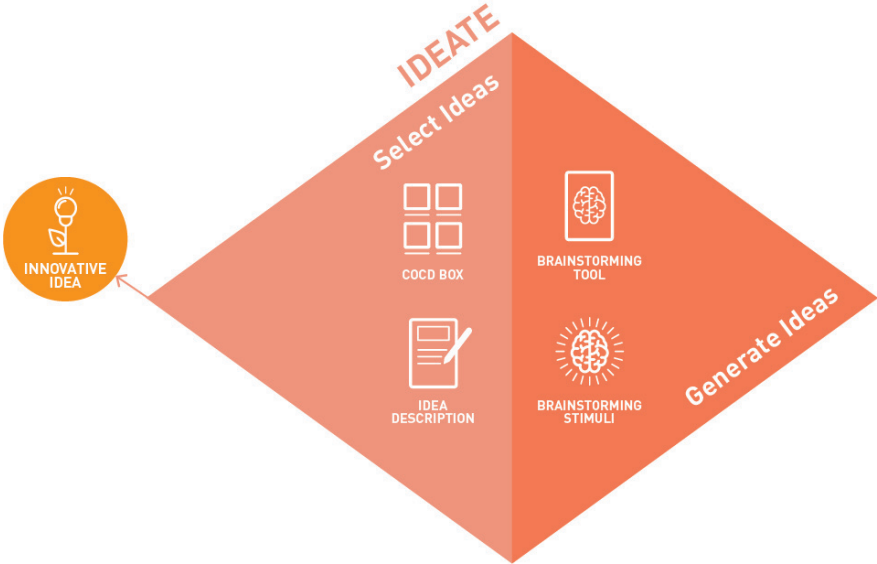**2. Meaningful challenge**
3. Storyboard
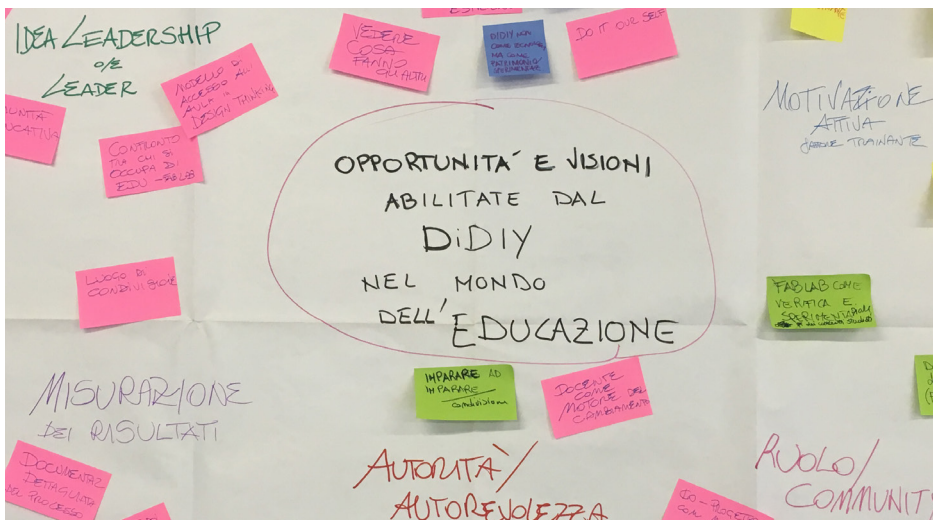
Ideate

The third step of the Digital DIY process is called Ideate. The aim of this step is to generate a meaningful solution for the challenge framed.

The Ideate step is broken down into two parts: **Generate Ideas** and **Select Idea**. During Generate Ideas, a creative session is organised and brainstorming techniques are used to stimulate creativity and come up with as many ideas as possible, in a free and non-judgmental way. During the Select Idea, the ideas generated are clustered into affinity groups, evaluated according to feasibility and originality criteria, and then selected in order to converge into a single, strong idea to be worked on for the rest of the process.

The output of the Ideate step is the **Innovative Idea**.

Free your mind

IDEATE

Select Ideas

Generate Ideas

INNOVATIVE IDEA

COCD BOX

BRAINSTORMING TOOL

IDEA DESCRIPTION

BRAINSTORMING STIMULI

TIME

60-90mins

MODE

Hands on

GENERATE IDEAS

The aim of this activity is to generate as many ideas as possible, using the brainstorming technique. This technique requires a cooperative and easygoing environment in which everyone in the team feels comfortable, and is not afraid of saying something wrong or inadequate.

ACTIVITY STEPS:
1. **Brainstorming stimuli**
2. **Present the challenge**.
3. **Brainstorm**
4. **Inspire ideas**

TIME
60-90mins

MODE
Reflective
+ Hands on

SELECT IDEA

The aim of this activity is to converge all ideas into a single, strong and commonly approved idea among those brainstormed.

ACTIVITY STEPS:
1. **Cluster the ideas**
2. **Position ideas**
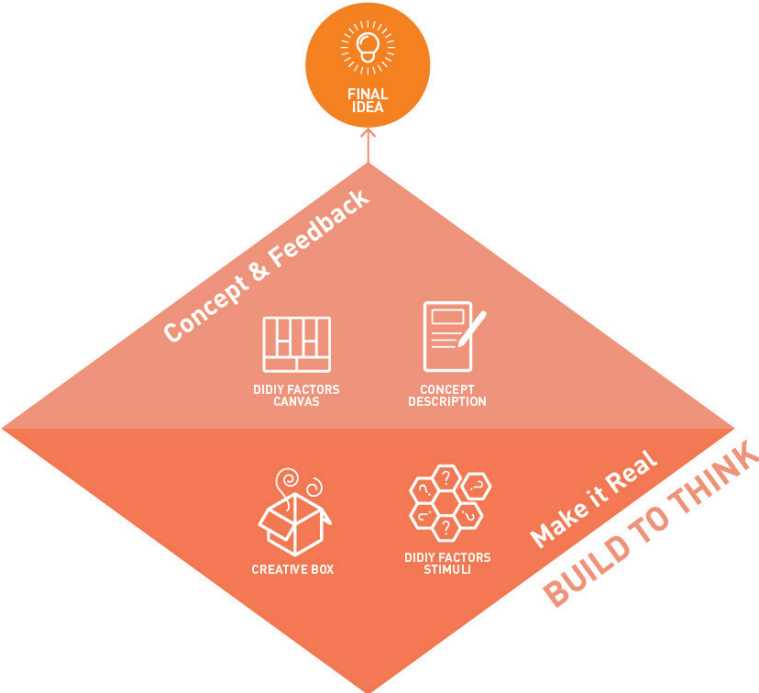3. **Vote ideas.**
4. **Describe the idea**

Build to think

The third step of the Digital DIY process is called Build to Think. In this step, the selected idea is designed and implemented with the DiDIY fundamental factors. The goal of this step is to make ideas tangible through prototyping, so as to provide continuous learning, and validation of the Innovative Idea with a collection of feedback for further development.

The team is provided with a series of raw materials (string, cardboard, games, toothpicks, Styrofoam, sticky tape, etc.), with which they produce "rough prototypes" that visualise the selected idea tangibly. The use of tangible resources enables the involvement of the team on multiple levels and through multiple sensory perception. The activities designed for this step give way to constant reinterpretation throughout the prototyping activity, in order to continuously re-establish priorities and achieve a collective product. By manipulating and assembling materials three-dimensionally, people are able to assess the quality of their idea, and immediately ascertain its success within the group.

The output of the Build to Think step is the **Final Idea**.

Think with your hands!

FINAL
IDEA

Concept & Feedback

DIDIY FACTORS
CANVAS

CONCEPT
DESCRIPTION

CREATIVE BOX

DIDIY FACTORS
STIMULI

Make it Real

BUILD TO THINK

90-120mins

Hands on

MAKE IT REAL

The selected idea is made tangible through a prototyping activity, in which a conceptual prototype is built with simple materials that are easy to manipulate.

Prototyping is a way of thinking and designing through the physical construction of an idea. This allows visualisation, which in turn aids the discussion among team members, the comprehension of the idea itself, and its further development.

ACTIVITY STEPS:
1. Rapid prototyping
2. Enrich through fundamental factors

TIME
60mins

MODE
Reflective
+ Hands on

CONCEPT & FEEDBACK

The aim of this activity is to document the fundamental factors of Digital DIY as a continuous reference point for all the team members, to reflect on it and to collect observations, criticism and comments about the developed idea. This is a fundamental step to clearly define the concept that has emerged, and how the fundamental factors have been integrated.

ACTIVITY STEPS:
1. **Describe the concept**
2. **DiDIY Factor Canvas**
3. **Collect feedback**

THE EXPERIMENTERS

THE EXPERIMENTERS
MANY THANKS, grazie mille, ¡muchas gracias, merci beaucoup to all the participants in our workshops that, with their enthusiasm and expertise, have enabled this result.

If you will be an experimenter or facilitator, please let us know your feedback or improvement.

Reach us anytime at: ideactivity@polimi.it
www.ideactivity.polimi.it

Thank you!

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Toolkit at: ideactivity.polimi.it/toolkits

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