Interreg CENTRAL EUROPE

Co-funded by the European Union

CURIOST

Circular design and development of Sustainable products in 4 key sectors in Central Europe

Version 1

May 2025



Design Thinking trainings

Deliverable 2.1.1.

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1. INTRODUCTION

This report for D2.1.1 for the CURIOST project summarizes the Design Thinking Trainings that were organized and held by the Lead Partner Biz-Up.

First, a Design Thinking workshop was held in course of the steering committee meeting in Augsburg in Nov. 2024

Secondly, a Design Thinking deep-dive webinar was held in January 2025. This webinar has been recorded, which gives PP's team members the chance to view it at a later stage.

The Design Thinking (DT) methodology will be applied in the piloting phase in Activity 2.3 by all project partners in their regions. There, the local companies will learn how to use the DT approach to develop sustainable and circular products.

2. TRAINING STRUCTURE

The Design-Thinking (DT) training was structured into two main sessions:

1. SC1 Interactive Workshop (Augsburg, 1-hour session)

   During the steering committee meeting in Nov. 2024, Biz-Up introduced the methodology to the partner and facilitated a one-hour workshop:

   - A practical, hands-on Service Design Thinking exercise focused on empathy, ideation, iteration, and prototyping, applying methods from Hasso Plattner Institute of Design at Stanford (d.school).
   - Teams worked on a real-time challenge: "Create the Perfect Travel Guide" for their partner.

2. Online Train-the-Trainer (TTT) Webinar (1-hour session)
   - A deeper theoretical introduction to Design Thinking methodology, best practices, and how to guide SMEs in applying this approach.

2.1. SC1 Interactive Workshop

During the live workshop, participants engaged in a Service Design Thinking challenge focused on developing the perfect travel guide for a partner. The exercise followed a structured process, including empathy-building, ideation, prototyping, and testing.

Time	Activity	Description
10:00 - 10:10	**Introduction to Design Thinking**	Overview of the Double Diamond model and human-centered design principles.

10:10 - 10:18	**Step 1: Understanding the User - Empathy Building**	Each participant interviewed their partner (4 min each) to understand their needs, preferences, and expectations regarding a perfect travel guide.
10:18 - 10:24	**Step 2: Deepening the Understanding**	A second round of follow-up questions was conducted to explore motivations, pain points, and deeper insights (3 min each).
10:24 - 10:27	**Step 3: Reframing the Challenge**	Participants recorded key takeaways, including goals, motivations, and insights that their partner might not be aware of (3 min).
10:27 - 10:30	**Step 4: Problem Definition**	Participants framed a clear problem statement: "My partner (name) needs a way to (meet their travel need) because (realization about their experience)."
10:30 - 10:35	**Step 5: Ideation – Radical Solutions**	Each participant brainstormed at least 5 innovative ways to address their partner's travel needs.
10:35 - 10:45	**Step 6: Sharing and Feedback**	Participants exchanged their ideas with their partner and gathered real-time feedback (5 min each).
10:45 - 10:48	**Step 7: Iteration & Refinement**	Participants reflected on feedback and refined their travel guide ideas.
10:48 - 10:58	**Step 8: Prototyping - Making the Idea Tangible**	Participants created a prototype of their travel guide (e.g., a sketch, storyboard, or interactive element).
10:58 - 11:00	**Step 9: Testing the Prototype**	Partners tested the prototype and provided feedback on what worked, what could be improved, and open questions.

Key Materials Used in the Workshop:

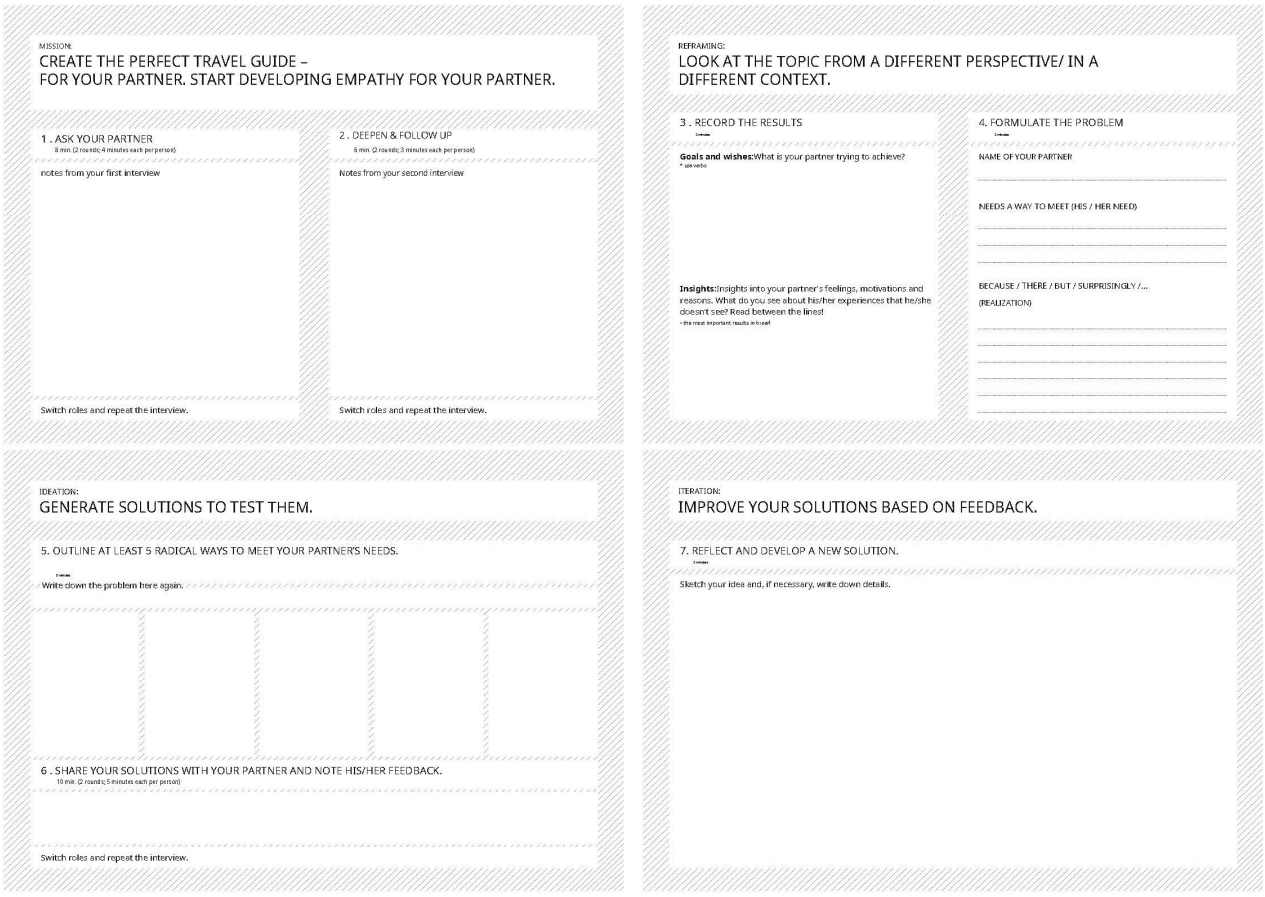
- CE-DT-Workshop.pptx – Covered Design Thinking principles, Double Diamond framework, and user-centered innovation.
- Service Design Thinking Exercise (Stanford d.school) – Guided participants through empathy-building, problem framing, ideation, and rapid prototyping.

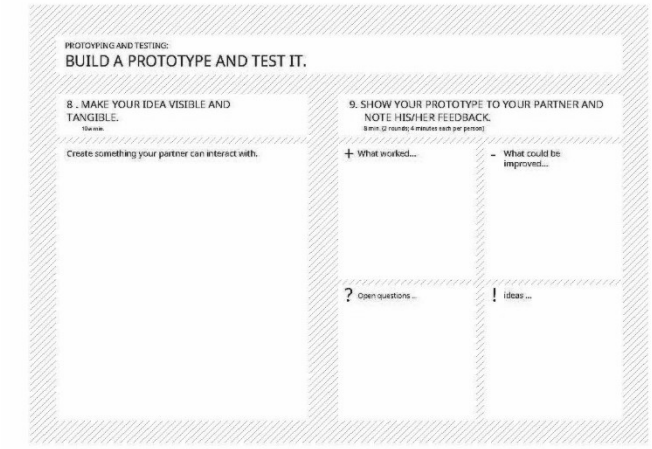
This workshop aimed at giving the partners an impression of how the methodology works in principle and how important the Empathize-phase is to really meet the customers' needs.



The workshop encouraged the participants to practice empathy through learning about each other's desires, wishes and needs, brainstorm and prototype an ideal travel guide for their partner.

The workshop was split into several phases, with interviewing the partner, creating ideas, presenting the ideas to the partner, refining them, and building or drawing a very first prototype of the best idea, and finally testing it.





In addition to learning the methodology, this workshop strengthened the relationship between the project members on an interpersonal level.



Two of the partners volunteered to demonstrate their idea and prototype. It turned out to be very different ideas, but really tailored to the respective persons, wishes and needs.

Finally, Biz-Up (Eva Breuer) summarized the main steps of the methodology on a more abstract level.

The handout and the presentation are attached as annex.

2.2. Online Train-the-Trainer Webinar (TTT)

The Design Thinking Deep Dive webinar, held on 27 January 2025, was designed to provide project partners with a complete, step-by-step methodology for conducting Design Thinking training sessions within the CURIOST project.

During the web-meeting with all partners, Eva Breuer from Biz-Up described the motivation for applying a design thinking methodology, the phases, and how the single steps could be facilitated by the project partners, including three possible time flow-charts (depending on the available time for the workshop).

This session was not just an introduction—it was a full "Train-the-Trainer" (TTT) program, ensuring that all participants were fully equipped to deliver DT workshops in their regions.

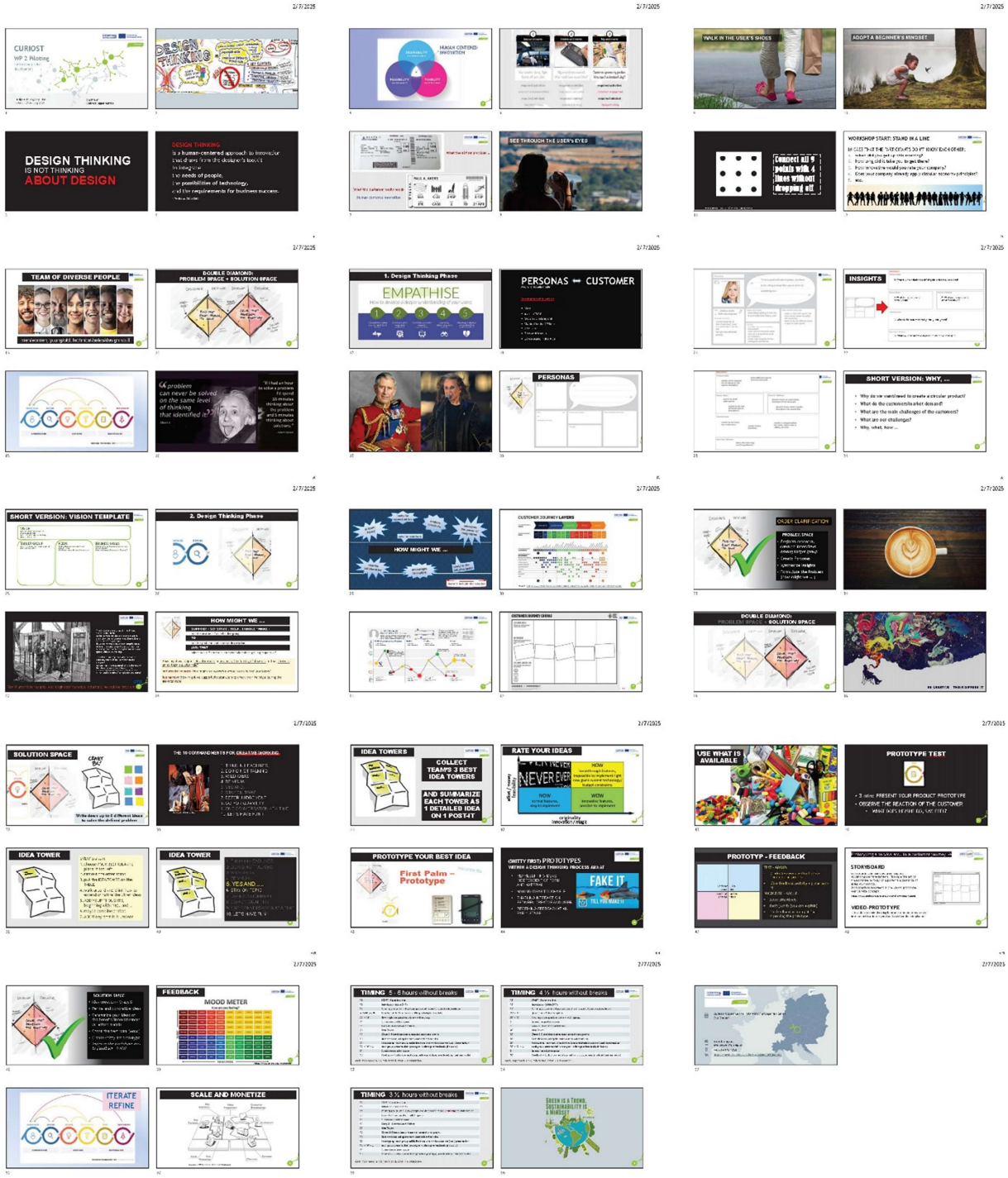
The session followed the Double Diamond Model and focused on:

- Understanding customer needs through human-centered design.
- Applying Design Thinking techniques to circular product development.
- Developing and testing innovative ideas rapidly.

The 57-slide presentation provided:

- A complete facilitator's guide, walking future trainers through every step of a DT workshop.
- Customizable training structures, offering flexibility based on different workshop durations.
- Practical tools & exercises, allowing immediate application in SME settings.

Time	Activity	Description
00:00 - 00:10	**Introduction to Design Thinking**	Overview of the Double Diamond framework (Problem Space vs. Solution Space).
		Understanding the importance of human-centered innovation in CURIOST.
00:10 - 00:20	**Empathy & Customer Understanding**	"See Through the User's Eyes" exercise: uncovering real customer needs.
		Creating Personas to structure training examples for different SME profiles.
00:20 - 00:30	**Problem Framing & Reframing**	How to define user-centered problem statements.
		Case Study: The Elevator Mirror Problem – using insights to drive innovation.
00:30 - 00:45	**Divergent Thinking & Ideation**	Brainstorming techniques: Crazy 8s, Idea Tower, Yes… And….
		Teaching methods for stimulating radical creativity in workshops.
00:45 - 00:55	**Prototyping & Testing**	Introduction to low-fidelity prototyping.
		How to guide participants in sketching, storyboarding, and iterating ideas.
00:55 - 01:10	**Adapting & Delivering DT Workshops**	Guidelines for scaling the training to different durations (1h, 3h, full-day).
		Live Q&A: Addressing challenges in applying DT in CURIOST sectors.



Training Materials Used:

- DT-Deep-Dive.pptx (57 slides) – Complete training guide for future facilitators.
- Workshop Exercises (part of PPT) – Ready-to-use templates for Personas, Problem Framing, Ideation, and Prototyping.

3. TRAINING IMPLEMENTATION

Design thinking is a human-centered methodology that encourages creative problem-solving and innovation. It's particularly effective in tackling complex challenges like circular transformation in the machine industry because it focuses on understanding user needs and iterating on solutions. The design thinking process is structured into five key phases: Empathize, Define, Ideate, Prototype, and Test.

1. Empathize:

The first step is to gain a deep understanding of the people or systems involved in the problem you are trying to solve. In the context of circular transformation, this means empathizing with various stakeholders, including machine users, operators, manufacturers, suppliers, and recyclers, to identify their pain points and needs related to sustainability. Techniques such as interviews, observation, and user journey mapping help uncover insights into the challenges to be overcome by the new product. For instance, understanding how a user struggles with current products/situation can reveal opportunities for circular innovation. This step is crucial because solutions must align with the real-world needs of stakeholders for them to be effective and adaptable.

2. Define:

Once you have a deep understanding of the stakeholders, the next step is to clearly define the problem based on the insights gained during the Empathize phase. In the Define phase, the focus is on narrowing down the broader challenge into a specific problem statement. In the context of circular transformation, this could mean defining a clear challenge like "How might we design machines that are easier to disassemble and recycle?" or "How might we reduce material waste in the manufacturing process?" A well-defined problem is critical as it guides the entire innovation process and ensures that the team's efforts are focused on solving the most impactful issue. The Define phase transforms empathy-driven insights into actionable opportunities for circularity.

3. Ideate:

Ideation is the creative brainstorming phase where teams generate a wide range of potential solutions to the defined problem. This step encourages divergent thinking—exploring as many ideas as possible without worrying about feasibility in the initial stages. Various brainstorming techniques can be used, such as mind mapping, role-playing, and "how might we" questions. In the context of circular transformation, ideas might range from creating machines with fewer components for easier recycling to developing shared maintenance services to extend product life. The goal of this phase is to generate innovative, out-of-the-box solutions that challenge existing practices and introduce new ways to apply circular economy principles. It's essential to foster an open, collaborative environment where all ideas are welcome, as even the wildest ideas can spark creative breakthroughs.

4. Prototype:

After selecting the most promising ideas from the Ideate phase, the next step is to create prototypes. Prototyping is about building tangible representations of your ideas to explore and test their viability. These prototypes can range from simple sketches or models to more advanced simulations or working versions of a product. In the machine industry, prototypes might include physical models of redesigned machine parts or process diagrams for new recycling systems. The key is to start small and rapidly develop prototypes that can be tested and iterated upon. Prototyping allows teams to experiment with different approaches and

identify potential flaws or improvements before moving to full-scale implementation. This phase embodies the principle of "fail fast, learn fast," enabling teams to refine their ideas through hands-on experimentation.

5. Test:

In the final phase, prototypes are tested with users or stakeholders to gather feedback and evaluate how well the solution addresses the problem. Testing can involve simulations, field trials, or user feedback sessions. In the circular transformation context, testing might include piloting new circular business models, evaluating the recyclability of redesigned machine components, or assessing the efficiency of a new material recovery process. The feedback gathered during testing is essential for refining the solution and ensuring it aligns with both user needs and sustainability goals. The Test phase also allows for further iteration—based on feedback, teams may return to the earlier stages of design thinking to tweak and improve the solution. Ultimately, this process of iteration and testing helps develop solutions that are both innovative and practical, ensuring that circular strategies can be effectively implemented in the machine industry.

How design thinking can be applied to circular transformation

Design thinking is particularly well-suited to circular transformation because it encourages a systems-level view of challenges while focusing on human needs and behaviors. By applying the five phases of design thinking, organizations can creatively address the complexities of implementing circular principles across their product portfolio. For example, during the Empathize phase, understanding how different stakeholders interact with the product throughout their lifetime reveals where circularity can be improved. The Define phase helps narrow the focus to specific circular challenges, such as reducing resource use or improving end-of-life management. Through Ideation, participants generate innovative ideas that challenge linear thinking, such as modular designs or service-based models. In the Prototype and Test phases, these ideas are translated into practical, scalable solutions that can be piloted within organizations. The iterative nature of design thinking ensures that solutions are refined based on real-world feedback, making it an ideal methodology for driving circular innovation in the machine industry.

The handouts and the presentations are attached as annex.

4. RESULTS AND OUTCOMES

To evaluate the Design Thinking trainings and the developed skills from the partnership, Biz-Up created a short survey. This summary outlines the key outcomes of the design-thinking training, including skills gained, methods learned, and participants' readiness to lead workshops

- On average, the **training courses were rated with 4.8/5 points.**
- The **specific aspects of the trainings** (format, materials, relevancy, time management) were evaluated as follows:
  - Format: 40% very good, 60% good
  - Materials: 40% very good, 40% good, 20% neutral
  - Relevancy: 80% very good, 20% good

- Time management: 80% very good, 20% good

- The **skills developed through the trainings** were evaluated as follows: 20% very improved, 80% improved
- The insights gained through the trainings are:
  - "This was my first hands-on experience and so I learnt all the basics. After it I was a part of a local live event based on DT that improved my confidence about delivering the workshop with SMEs even more."
  - "The importancy to "think out of the box""
  - "The workshops gave a very good overall picture of the design thinking method. It not only summarized and systematized our previous knowledge, but also shaded light on new areas of application."
  - "The methodology that has been used, and the elements to be considered for organising a design thinking traininG2
  - "To have a different view when approaching a problem"
- The **estimation of the own readiness to conduct a Design Thinking workshop** with SME and small midcaps varies:
  - Promoting participants (key individuals who actively support and drive innovation processes by sharing knowledge, motivating others, and helping to overcome organizational barriers): 40%
  - Insecure participants (individuals who express uncertainty regarding the combination of Design Thinking and (digital) circular product development): 40%
  - Passive participants (individuals neither actively support nor are insecure): 20%
- Other comments or suggestions (obstacles to feeling confident in conducting workshops with SMEs and small midcaps, naming specific benefits for them from the Design Thinking method) are the following:
  - "Lack of knowledge on how combine Design Thinking with Circularity"
  - "SMEs, especially the ones in the mechanical field, are quite "traditional", and their attitude towards new thinking is usually conservative. Therefore, we should envisage in the training some elements that can be comfortable according to their way of thinking"
  - "I would like to carry out another in-person exercise to improve my skills"

The survey results highlight the **strong impact of the Design Thinking training**, with **high participant satisfaction**, **notable skill development**, and valuable insights—balanced by **challenges such as SME conservatism and the need for deeper integration with circularity**.

With regard to the further work in the project, in particular in *D1.4.3 Strategy uptake workshops with large number of SME and small midcaps*, the points mentioned are taken into account.

5. ANNEXES

1. Training materials (presentations, exercises, handouts)
2. Agenda from SC #1 meeting

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