

## Systemic Integration of Transformative Technical and Nature-based Solutions to Improve Climate Neutrality of European Cities and Regions and tackle Climate Change: the URBreath Approach



### Integrating Digital Twins and Creative Methods in Urban Co-Design: A Living Lab Workshop Experience in Cluj-Napoca

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*On May 21st, 2025, the opening day of the URBREATH General Assembly in Cluj-Napoca, all nine pilot cities participated in the **City Forum workshop**. The goal? To spark creativity, promote the exchange of Living Lab co-design experiences across cities, and demonstrate how a **Living Lab co-design session** can be both playful and powerful, especially when enhanced by one of URBREATH's core innovations: the **Digital Twin**.*

*This workshop was not just about talking; it was about taking action. Through immersive, interactive activities, participants stepped into the shoes of local stakeholders to imagine new possibilities for nature-based solutions (NBS) in urban environments.*



### **Advancing the Living Lab process: from empathy to co-creation**

This session built upon the outcomes of the autumn 2024 Living Lab workshops, which concluded the Empathise phase of URBREATH's Living Lab methodology. With a guided **train-the-trainer session** at the beginning of 2024, hands-on methods and guidelines were provided to the pilot cities to initiate the **Solution phase**. Pilot cities deployed **ideation** and **co-creation** initiatives locally with their involved and committed stakeholders to end up with diverse stakeholders collaborating to work toward integrated NBS designs. Not every city is at the same point in implementing NBS. Still, this session highlighted the collective value of their Living Lab experiences, and the enthusiasm for learning from one another was unmistakable.

### **Methodological framing: drawing and role-play as creative catalysts**

The workshop adopted a **Living Lab methodology** enriched with participatory design tools. A central innovation was the use of **drawing as a medium for creative expression**, critical reflection, and visual ideation. Participants were divided into four working groups, each focused on a randomly selected pilot city. To ensure impartiality and simulate the perspective of a first-time stakeholder, no participant was assigned to the table representing their city. Each group received: simplified **Digital Twin base map** printouts of the selected urban area (1), blank sheets, sticky notes, masking tape, and an assortment of coloured pencils and markers (2) and a trained facilitator to guide the activities and discussions (3). This hands-on, immersive approach encouraged participants to temporarily adopt the mindset of unfamiliar stakeholders, replicating the ambiguity and discovery typical of early Living Lab engagements.

### **Warm-up: building creative confidence**

To break the ice and foster a creative mindset, participants were first asked to **draw their favourite plant or tree**, an exercise moderated by *Max Beijneveld*. From tiny succulents to mighty baobabs, participants shared botanical favourites and personal stories, showing just how diverse and imaginative our URBREATH community is. Beyond its light-hearted nature, this activity served as a metaphor for the diversity of stakeholder profiles and values encountered in urban planning. The openness and humour in participants' responses created an atmosphere of trust and creative freedom.



### Round one: diagnosing urban challenges through virtual exploration

In the first main exercise, participants used **Google Street View** on their smartphones to virtually explore the preselected neighbourhood (mimicking a preferred live site-visit walk), assessing physical conditions, perceived challenges, spatial barriers, and social dynamics. They were asked to intuitively capture, through sketches, **what they felt and saw**, identifying needs, tensions, missed opportunities or design deficiencies in the public realm. The energy in the room grew as drawings were shared and discussed, allowing for a rich exchange of diverse perspectives, mirroring the diversity of unique stakeholder perspectives in real-world Living Labs.





### Round two: proposing solutions using the Digital Twin frameworks

Building on their initial impressions, participants engaged in a second round of drawing, this time directly on the Digital Twin base maps. They proposed **NBS interventions** and design solutions, using coloured markers to visually simulate different scenarios, echoing the functionalities available in the existing URBREATH Digital Twin planning tool, which was previously introduced in webinars by their technical partner, VCS.

Facilitators encouraged participants to reflect on their positionality: How would a person with a disability navigate this space? What concerns might a local business owner or a young child have? This reflexive questioning enriched the co-creation process, leading to the refinement or combination of ideas. Some initial proposals were even discarded as the groups reached more inclusive and feasible design outcomes; a compelling demonstration of **iterative, multi-stakeholder learning in action**.





### Synthesis and reflection

All group outputs were displayed in a gallery-style format, and each group proudly presented their designs, explaining the rationale behind their proposals and insights. Importantly, representatives from the pilot cities corresponding to each use case provided additional reflections:

- How did the visual exploration alter the participants' understanding of the site?
- Did outsider perspectives offer unexpected insights to the city representatives?



- How did the specific urban context influence the designs?
- How did the workshop findings match with earlier co-creation initiatives with local stakeholders?

These reflections confirmed the value of combining **visual exploration, analogue creativity, and digital mapping** as mutually reinforcing components of participatory planning.







## Conclusion and key takeaways

This workshop highlights that seeing better leads to **thinking broader and designing smarter**. By combining **Google Street View** as a virtual field visit tool with drawing techniques and Digital Twin frameworks, participants were able to co-create insightful, inclusive, and feasible NBS design concepts. This method successfully demonstrated how Living Lab principles can be operationalised in practice and provides a **replicable and scalable approach** for other cities seeking to engage diverse stakeholders in co-creation processes. We warmly encourage broader adoption of this integrated approach as part of the growing URBREATH toolkit for urban transformation.

## Disclaimer

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