**1.** Lectures about basic info of pollution. 2. Participants working on maps to express which urban issues linked to pollution are the most important. 3. Workshop.

## 1a. SCOPING

The first stage of

the work was the

and monitoring **3a. 1**b. 1**c**. 1a. Scoping 2a. Co-design **2b. Evaluation 3b. Monitoring Data collection** Visualisation Implementation • Quantitative: Sustainability • Quantitative: Deliberation • Maps • Online: • Co- Definition of Noise • Graphs interactive idea implementation Noise • Stakeholders problem context Air pollution • Drawings generation tool support (MAMCA) with stakeholders **Air pollution**  Identification of • Offline: **Public open data Public open data** • Participatory • Qualitative: • Qualitative: stakeholders design workshops budgeting • Recruitment of **Pictures/text Pictures/text** participants Start with another loop

2. Co-design and evaluation

of alternative solutions

# LEARNING LOOP PROCESS APPLIED TO CO-DESIGN

**1. Identification of problems** 

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**Guidelines for the Co-Design: how to solve Urban Issues** 



**3. Implementation** 

scoping of issues. It helped researchers and policymakers to better understand the perception of citizens, and helped citizens to focus on what are their priorities when talking about urban issues.

**Participants are** able to create a point of contact with policymakers as they feel that someone is listening to them on what is important.

SCOPING



## **1b. DATA COLLECTION**

The co-monitoring stage turned out to be very important as it has been an essential step to reach the codesign and it helped participants to feel they are part of the process. In LOOPER the co-monitoring was more practical as participants could decide where to monitor pollutants with both official tools and with tools for participatory sensing (qualitative and quantitative data).

### **DATA COLLECTION**

**Participants learn** how data are collected and feel more in touch with what is happening and which issues are more relevant.



## **1c. VISUALISATION**

The visualisation stage helps participants to understand if their thoughts about urban issues, and amount of pollutants present in their neighbourhood, were right or wrong. This is essential to open up their mind about the possible mitigation solutions.

#### VISUALISATION

**Stakeholders can** see the result of the work they have done with the data collection. They can have a complete idea of the situation.

 $\Xi \Box \Lambda$ 



**1.** Visualisation of data collected with official tools. Here PM10 collected with mobile stations. 2. Data collected with participatory sensing. Here PM2.5 collected with AirBeam.

## **2a. CO-DESIGN and future stages**

The visualisation stage helps participants to understand if their thoughts about urban issues of their neighbourhood were correct or incorrect. This means that when the co-design stage will start they will be able to have a complete overview of the situation. To make the most out of the co-design stage it will be possible to use a combination of online and offline tools which can help participants to express what they would like to do to solve issues.

**ARENA** 

### **CO-DESIGN**

**Stakeholders already** actively participated to previous stages, this means they have all the tools needed for the co-design. They will be helped in the process to develop ideas.

## **NEXT STEPS AND THE VADEMECUM**





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