CitiMeasure

Using citizen measurements to create smart, sustainable, and inclusive cities

CitiMeasure - using citizen measurements to create smart, sustainable, and inclusive cities

EC Technical Support Instrument Grant Agreement number 101046124

Call: TSI-2021-SMARTCITIES-IBA

Topic: Citizen's participation and green solutions in smart cities

Type of action: TSI-PJG

Deliverable 1.8: Pilot plans for each of the pilots

Delivery Year: 2022

This project has received funding from the European Union's Technical Support Instrument (TSI) programme under grant agreement 101046124.

DOCUMENT INFORMATION

Project Number	101046124	**Acronym**	CitiMeasure
Full title	CitiMeasure - using citizen measurements to create smart, sustainable, and inclusive cities		
Project URL	https://eurocities.eu/projects/citimeasure/		
EU Project officer	Anastasia Roufou		

Deliverable Number	D1.8	**Title**	*Pilot plans for each of the pilots*
Work package Number	1	**Title**	*Instrument development and pilots*

Date of delivery	**Contractual**	Month 9 *February 2022*	**Actual**	Month 13 *June 2022*
Dissemination Level	Public			

Authors (Partner)	Eurocities		
Responsible Author	Mohammad Gharesifard	**Email**	Mohammad.gharesifard@eurocities.eu
Partner	Eurocities		

Abstract (for dissemination)	This report presents the plans for testing the prototype of the three CitiMeasure outputs in selected pilot cases
Keywords	Pilots, pilot plans, guidelines, tools, instrument

Version Log

Version as date	**Author**	**Partner**	**Change**
2022_05_24	Mohammad Gharesifard	Eurocities	Initial document creation and outline
2022_06_23	Irene Vivas lalinde	Eurocities	Pilot plan for the Comparability tool
2022_06_24	Mohammad Gharesifard	Eurocities	Pilot plans of Roeselare, Barcelona, Bobigny, and Sensor2School
2022_06_27	Mohammad Gharesifard	Eurocities	Review of section 4.5, adding content to sections 1, 2, 3 and 5
2022_07_12	Brooke Flanagan	Eurocities	Final internal review
2022_07_07	Farida Polsbroek	BZK	External review

To cite this document:

Gharesifard, M., Vivas Lalinde, I., Flanagan, B. (2022). D1.8: Pilot plans for each of the pilots. *Deliverable report of the CitiMeasure project (grant agreement No 101046124), Brussels, Belgium.*

Contents

Table of figures

Table of Tables

Acronyms

BP	Behaviour & Policy
BZK	Ministry of the Interior and Kingdom Relations of Netherlands
CO	Comparability
CS	Citizen Science
DI	Digital Inclusion
DIY	Do it Yourself
EoI	Expression of Interest
NGO	Non-Governmental Organization
NILU	Norwegian Institute for Air Research
RIVM	Dutch National Institute for Public Health and the Environment
TBD	To be determined
TSI	Technical Support Instrument
UCD	University College Dublin
VITO	Flemish Institute for Technological Research
VIVES	University of Applied Sciences, West Flanders
WG	Working Group
WVI	West Flemish Intermunicipal

1 Executive Summary

This report presents five unique plans for testing the three CitiMeasure outputs, namely the Behaviour & Policy guidelines, the Digital Inclusion guidelines, and the Comparability tool. These plans were developed in close collaboration with the cases and includes a background about the case, aims and approach of the pilot, its timeline, role and responsibilities of the actors involved, and a monitoring and evaluation plan.

2 Introduction

2.1 ABOUT CITIMEASURE

Citizen measurement (or citizen science) initiatives contribute to a sustainable transition in European cities. By using an array of tools and instruments, citizens can play a role in the measurement and monitoring indicators on air quality, temperature, soil moisture, biodiversity, or risk management, among other environmental areas. Citizen measurement initiatives also can foster communications and interactions among stakeholders and contribute to the democratisation of science and policy. The CitiMeasure project (2021-2023) aims to bring together the experiences and expertise of European cities, organisations and networks in implementing citizen science initiatives (in the form of guidelines, toolbox, web-platform, Apps, etc.). The project builds upon the lessons learned from the Dutch City Deal Working Groups, a network of stakeholders working on the broader area of smart cities, including citizen measurement initiatives. The City Deal partners have been working closely with the Dutch Ministry of Interior and Kingdom Relations for over a year.
CitiMeasure builds upon these experiences and will use those to develop and pilot three 'instruments', namely:

1. An instrument that allows the outputs of different city measurement initiatives to be compared.
2. An instrument that safeguards the digital inclusivity of city measurement initiatives (maximising the opportunities for participation of interested individuals and communities).
3. An instrument that connects information to behaviour and policy change.

A 4th (Strategy and Oversight) working group focuses on providing strategic direction and ensuring cohesion of activities across the three Instrument Sub-Groups and the project in general. CitiMeasure will also raise awareness of the importance of citizen measurement initiatives and capitalise on the results and tools of similar citizen science projects by creating an online European Knowledge Centre with a repository of good practices.

2.2 PURPOSE OF THIS REPORT

Based on the CitiMeasure pilot guidelines (Gharesifard et al., 2022) and considering both the needs and possibilities for testing each CitiMeasure instrument, five different pilot plans are developed. This report aims to introduce these pilot plans that were co-created in a close collaboration between the CitiMeasure team and the selected pilot cases.

2.3 STRUCTURE OF THE REPORT

The next parts of this report are structure as follows. Section 3 presents the pilot strategy and the steps that were followed in selection of the CitiMeasure pilot cases. Individual pilot plans (in total 5)

are introduced in section 4. The report is concluded in Section 5, with some remarks and elaboration of next steps.

3 Pilot strategy and selection process

The CitiMeasure pilot phase provides an opportunity to test the applicability of the project's co-created instruments (guidelines and tools) in real-life use-cases. The aim of the pilot phase is to identify the strengths, weaknesses, and points for improvement, through real-life application of the instruments. As illustrated in Figure 1, the process of selecting the CitiMeasure pilots started with a call for Expressions of Interest (EoI), which was first announced in early February 2022. This EoI was shared within and beyond the CitiMeasure working groups using an online form. An information session was organized on 15 March 2022 to provide the interested cities, organizations, and projects with further information about the aims and process of the CitiMeasure pilots. The deadline for EoI was then extended until 31 March 2022. In total, 10 EoIs were registered. In April and May 2022, bilateral meetings were organized to further discuss the pilot possibilities, mutual expectations, and timelines of activities. The CitiMeasure team aimed to accommodate as many cases as possible. Nevertheless, to make the pilot phase a success, close attention was given to certain selection criteria, including interest and commitment of the pilots (cities or CS projects) in testing the CitiMeasure instrument(s), usefulness of the instrument(s) for case-specific challenges and wishes, and alignment between timeline of activities and ambitions of the case and the CitiMeasure pilot phase. At the end, we didn't end up rejecting cases, rather through bilateral meetings and discussions concluded that four pilots are best suited for testing the Behaviour & Policy guidelines, and Digital Inclusion guidelines.

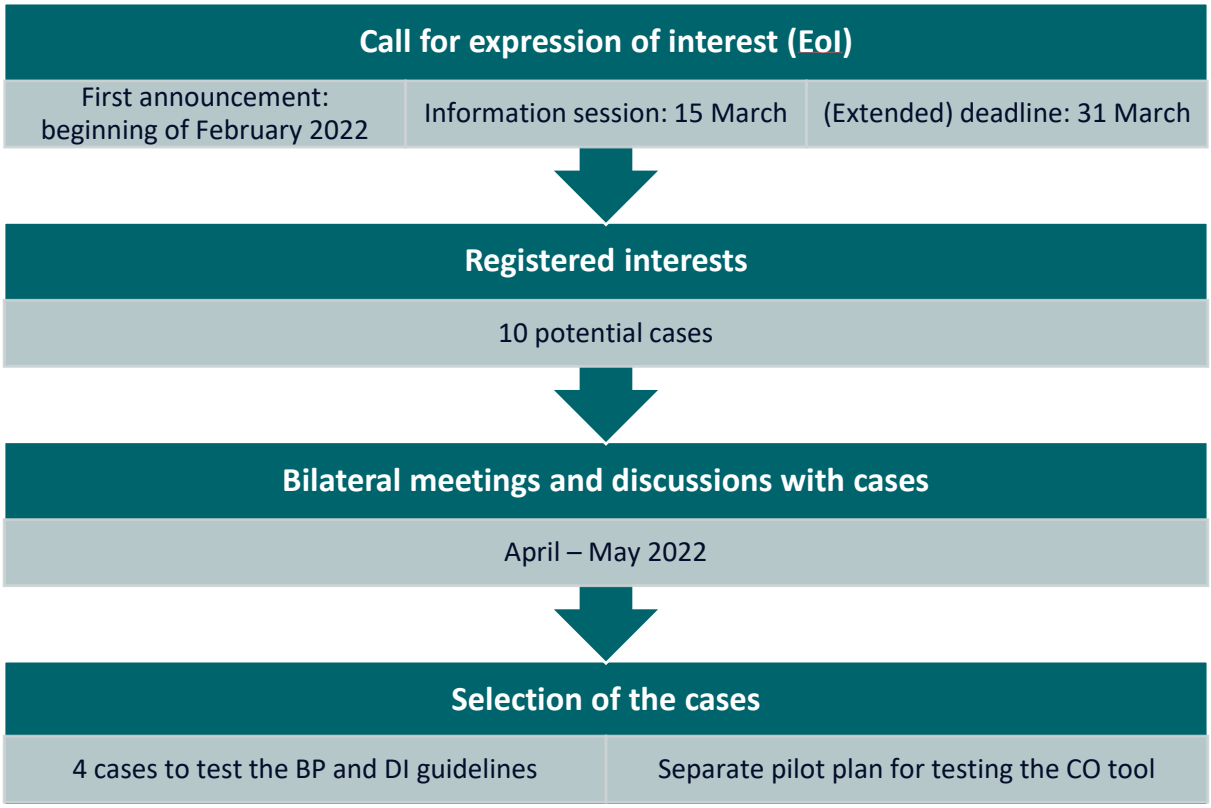


Figure 1 The process of selecting the CitiMeasure pilot cases

Figure 2 provides a visual summary of the Selected pilots to test the CitiMeasure Behaviour & Policy and Digital Inclusion guidelines. The pilot plans for these cases are elaborated and explained in sections 4.1 to 4.4 of this report. Due to the different nature of the CitiMeasure Comparability tool (i.e., a tool in form of a repository of air quality monitoring initiatives), a separate plan was developed for testing this instrument that is presented in Section 4.5.

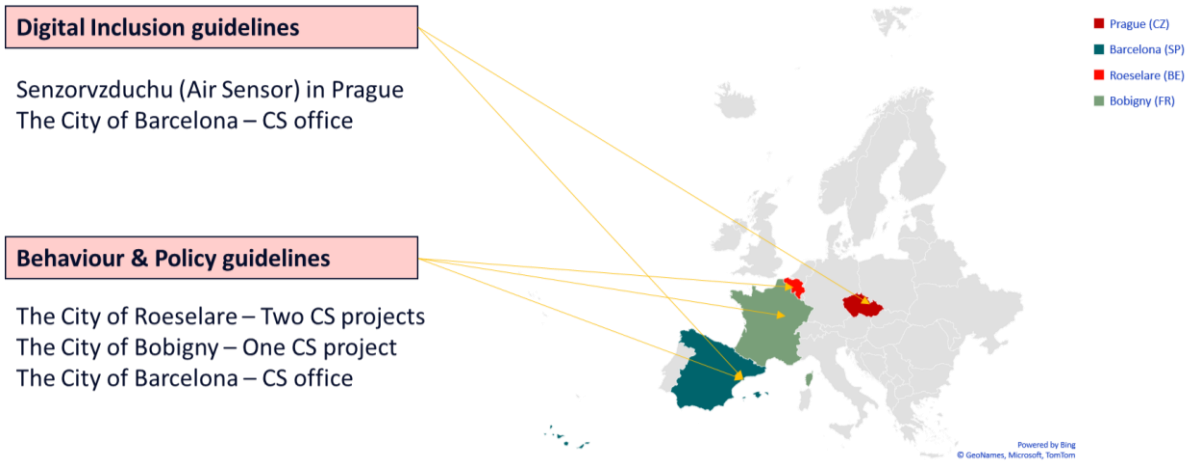


Figure 2 Selected pilots to test the CitiMeasure Behaviour & Policy and Digital Inclusion guidelines

4 CitiMeasure pilot plans

As presented in the previous section, in addition to the special pilot plan for the Comparability tool, CitiMeasure will have four local pilots. Three of these pilots are in collaboration with cities of Roeselare, Barcelona and Bobigny, and one in collaboration with the Sensor2School initiative in Prague. This section is dedicated to presenting the details of each pilot plan. These plans are co-created in close collaboration with the representatives of the pilot cases. We would like to acknowledge the contribution of the following pilot representatives:

Table 1 List of contributors from the pilot cases

Pilot case	Pilot representative
The City of Roeselare	Jasmien Wellens, Gino Dehullu
The City of Barcelona	Diana Escobar Vicent
The City of Bobigny	Nour Diab, Camille Arthuys
Sensor2School initiative - Prague	Michael Lažan
Comparability	David Riallant

4.1 SMARTWATERLAND & AIRSL – THE CITY OF ROESELARE

4.1.1 Background

Smartwaterland and AiRsl are the first citizen sciences project of the City of Roeselare. With these projects, the city would like to connect different stakeholders, including schools, students, the city, developers, university of applied science, and to familiarize them with citizen science.

Smartwaterland is a citizen science project, through which the City of Roeselare is trying to collect precipitation data via a fine-mesh network of pluviometers and to use the data for managing water in the city in a smarter way. At the time of writing this report, the City of Roeselare is in the design stage

of Smartwaterland. As a part of this project a well-functioning pluviometer was developed, and the University of Applied Sciences (VIVES) is creating the educational packages about the use of these pluviometers for rainfall monitoring in schools. Between September and December 2022, the city would like to implement the project in a selected pilot school. The city is the project leader and coordinates project activities with different stakeholders. Other partners of Smartwaterland and their role include:

- WVI – West-Flemish intermunicipal
  - Design and testing of the housing of the pluviometer and working with the 3D-printer
- Quicksand – company of micro-electronics
  - Sensor and dashboard providers
- Vives – University of Applied Sciences
  - Academic validation and pedagogic support while making up the educational packages for the teachers
- Broederschool Roeselare
  - High and middle school where the pilot will be held
- Funder: The Flemish government who provides grants for this project via the "Smart in the City"-award

AiRsl is a previous citizen science project at the City of Roeselare that was first launched in the spring of 2018. As a part of this project, air quality measurements were carried out by citizens in streets in Roeselare in order to get a better idea of the air quality in the city. In order to do this, volunteers were provided with a measuring device that they could carry on their bicycles. This made it possible to map the air pollution in several locations of the city. The city would like to re-launch it together with Smartwaterland in September 2022. AiRsl is initiated and funded by the City of Roeselare.

4.1.2 Aim and approach of the pilot

The City of Roeselare has been a member of the CitiMeasure Behaviour & Policy and Digital Inclusion working groups. Based on the implementation plans for the two projects, Smartwaterland and AiRsl, two main aims were identified for testing ***the CitiMeasure Behaviour & Policy guidelines*** in this case:

1. To strengthen the communication efforts of Smartwaterland and AiRsl by developing a communication plan for projects to disseminate the news about activities and outcomes of the projects to the different stakeholders such as the school and parents, as well as general communication of the city.
2. To help develop robust monitoring and evaluation plans for the two projects to ensure long-term outcomes for the city, all partners and stakeholders.

4.1.3 Timeline

The planning phase of this case, including the meetings between the City of Roeselare and the Eurocities team to determine the scope and approach for the pilot happened between April and June 2022 (Figure 3).

Having developed the prototype pluviometers in April 2022, Smartwaterland plans to complete its educational packages by the end of October 2022 and roll out its monitoring activities after the autumn holidays (i.e., November-December 2022). In parallel, the relaunch of AiRsl is planned for September 2022. In preparation for the roll out of the two projects, the City of Roeselare is developing

a communication strategy, and a monitoring and evaluation plan for the two projects. The development of these two documents will start in July and is planned throughout the summer of 2022 and.

Linked to these activities at Smartwaterland and AiRsl, the piloting, feedback and refinement of the CitiMeasure Behaviour & Policy guidelines starts in July 2022 and will be ongoing throughout the development and application of the communication strategy, and a monitoring and evaluation plan for the two projects until December 2022.

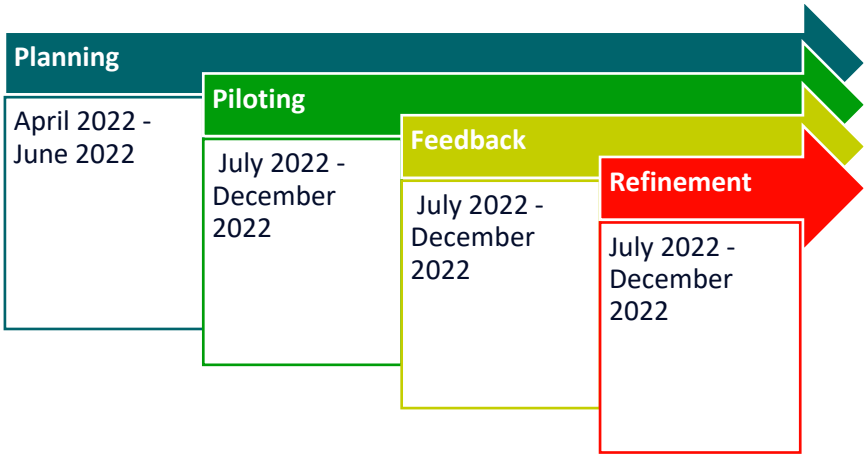


Figure 3 Timeframe of the CitiMeasure Smartwaterland & AiRsl pilot

4.1.4 Roles and responsibilities

Smartwaterland and AiRsl are both citizen sciences project of the City of Roeselare. The city is involved in the development and implementation of the projects, and as such, in charge of developing the communication strategy and the monitoring and evaluation plan for both projects.

The Eurocities team, as the coordinator of the CitiMeasure project, bring the insights and expertise from the CitiMeasure Behaviour & Policy working group and will be working closely with the City of Roeselare to select and incorporate relevant recommendations from the guidelines for developing the communication strategy and the monitoring and evaluation plan of the two projects. The Eurocities team will also act as the bridge between the pilot and the Behaviour & Policy working group to discuss and apply the lessons learned from the pilot to refine and consolidate the CitiMeasure guidelines.

4.1.5 Monitoring and evaluation plan

As a generic principle, monitoring and evaluation of pilots in CitiMeasure follows a logical a model of change (see the following Figure) and considers the CitiMeasure pilots as an intervention that require inputs, include activities, and produce outputs (products), outcomes (short/mid-term changes), and impacts (long term changes). In consultation with the City of Roeselare, the following items and indicators were defined for monitoring the CitiMeasure Smartwaterland & AiRsl pilot.

Input item	Input indicator	Activity item	Activity indicator	Output item	Output indicator	Outcome/impact item	Outcome/impact indicator
What are the main inputs required for this pilot?	*How do we measure the inputs?*	*What are the main activities in this pilot?*	*How do we measure the activities?*	*What are the main expected outputs of the pilot?*	*How do we measure the outputs?*	*What are the main expected outcomes & impacts of the pilot?*	*How do we measure the outcomes/impacts?*
• *CitiMeasure guidelines* • *The submitted document at the Government of Flanders, notes of the meetings with the partners* • *Time and inputs from the CitiMeasure team* • *Time and inputs from the City of Roeselare*	• *Availability of the documents* • *Number of hours spent by each team member*	• *Making a communication strategy* • *Making a robust evaluation plan to ensure an outcome on the long term* • *Application of the communication strategy* • *Application of the evaluation plan*	• *Number of meetings between the CitiMeasure pilot team members*	• *The communication strategy* • *A robust evaluation plan for both projects* • *Feedback received on CitiMeasure guidelines*	• *Timely delivery of the documents* • *Internal (or external) approval of the documents* • *Nature of adaptations done on the documents based on the CitiMeasure guidelines* • *Nature of the changes to the CitiMeasure guidelines based on the feedback from the city of Roeselare*	• *More awareness about climate change by policy makers but also citizens* • *More awareness about citizen science*	• *Policy decisions influenced by the data of the projects* • *More citizen sciences projects in the future*

Figure 4 Monitoring and evaluation plan of the CitiMeasure Smartwaterland & AiRsl pilot

This project has received funding from the European Union's Technical Support Instrument (TSI) programme under grant agreement 101046124.

4.2 TRAINING WORKSHOPS - THE CITY OF BARCELONA

4.2.1 Background

This pilot is a collaboration between the CitiMeasure project and the Barcelona Citizen Science Office. Since 2012, the Barcelona Citizen Science Office has been supporting citizen science by advising, accompanying, and promoting projects that want to work in the city and its Metropolitan Area. The office also works towards developing actions aimed at bringing citizens and researchers closer together and strengthening their connection with new civic and cultural agents.

4.2.2 Aim and approach of the pilot

The main aim of the pilot is to disseminate the CitiMeasure Behaviour & Policy and Digital Inclusion guidelines via the network of the Barcelona Citizen Science Office, and through that collect feedback on the guidelines from a wide range of potential end-users including city council staff, public administration officers, citizen science projects and practitioners, and other interested stakeholders.

The pilot approach in this case consists of three-step training workshops and feedback with the aforementioned stakeholders:

(1) An online needs assessment workshop, to identify the focus of the training workshops

- **Session aim and description:** Representatives from citizen science projects that collaborate with the citizen science office of Barcelona are invited to participate in this needs assessment session about the CitiMeasure project. The focus of the session will be on introducing the project, its outputs (more specifically the Behaviour & Policy and Digital Inclusion guidelines), and the plans for the pilot phase of the project. Besides introduction of the project and its outputs, the aim of the session is also to brainstorm on possible preferences for a training session on the CitiMeasure guidelines that is planned for November 2022 in Barcelona.
- **Main audience:** city council staff, public administration officers, representatives of citizen science projects
- **Date:** 14 July 2022
- **Location:** Online
- **Language:** English

(2) Training workshop on the Behaviour & Policy guidelines

- **Session aim and description:** Change in actors' behaviour such as behaviour towards environment, creating new culture of collaboration and sharing responsibilities are among the aims of many citizen science initiatives. Behaviour change resulting from citizen science interventions can occur at every level from the individual to societal, to the institutional. Nevertheless, there are several factors that may hinder such changes. Communities are heterogeneous and each person has certain perceptions, priorities and needs that drive their behaviour. In addition, challenges that citizen science projects address are often complex and existing formal processes and informal norms pretty much define actors' behaviour towards those challenges. During this roundtable discussion, we will have a deep dive into the topic of behaviour change in the field of citizen science. The aims of this session are twofold:
  - To exchange knowledge about behavioural change processes and outcomes of citizen science projects based on empirical experiences of three invited panellists.
  - To introduce a new set of guidelines at the European level that were co-created by the Behaviour & Policy working group of the CitiMeasure project and aim to help cities and citizen science projects trigger behaviour change.

- **Main audience:** citizen science projects and practitioners
- **Date:** 18-19 October 2022 (As a part of small conference on citizen science in the metropolitan area)
- **Location:** Sabadell
- **Language:** Spanish/ Catalan

(3) Training workshop on Behaviour & Policy and Digital Inclusion guidelines

- **Session aim and description:** This is a half-day training workshop session on the CitiMeasure Behaviour & Policy and Digital Inclusion guidelines. The aim is to familiarize the participants with selected parts of the two guidelines and discuss the potential of citizen science to connect citizens' challenges and interests with public policy through collaborative processes. The pilot team will invite representatives from other areas of the City Council such as Digital Innovation, Urban Planning and Ecology, Democratic Innovation, Social Services and Culture, in order to facilitate other departments to know and explore the possibilities of deploying citizen science projects as part of main programmes and policies. The workshop is planned for November 2022 and will be held in-person in Barcelona. The exact content and format of the training will be co-created by the City of Barcelona and the CitiMeasure team and based on the outputs of the first two training workshops.
- **Main audience:** city council staff, public administration officers, other interested stakeholders
- **Date:** November 2022 (the exact date to be determined- before or after the Smart City Expo World Congress 2022 that is planned for 15-17 November 2022)
- **Location:** Barcelona
- **Language:** Spanish

4.2.3 Timeline

Coordination and planning of the pilot in this case, including the meetings between the City of Barcelona and the Eurocities team to determine the scope and approach for the pilot started in April 2022 and was ongoing until June 2022.

Linked to the three steps of the pilot approach, the actual piloting of the guidelines starts with the online needs assessment workshop in July 2022, continues with the training workshop on the Behaviour & Policy guidelines in October 2022, and finishes with the training workshop in November 2022. Throughout these steps, feedback for the refinement of the guidelines will be collected, and the refinements will be concluded by December 2022 (see Figure 5).

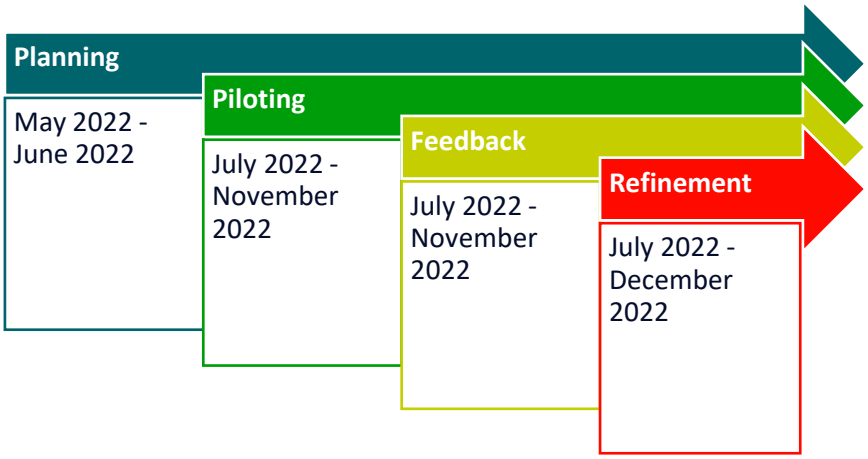


Figure 5 Timeframe of the CitiMeasure pilot in the City of Barcelona

4.2.4 Roles and responsibilities

The Citizen Science office of Barcelona will be the main contact and act as the coordinator of the pilot activities across different stakeholders and actors involved, including internal communications with the Science and Universities Department of the city. The City of Barcelona will also co-host the training and provide the venue for the training workshop in November.

The Eurocities team, as the coordinator of the CitiMeasure project, bring the insights and expertise from the CitiMeasure Behaviour & Policy and Digital Inclusion working groups, and will be working closely with the City of Barcelona to plan and run the training and stakeholder interactions. The Eurocities team will also act as the bridge between the pilot and the Behaviour & Policy and Digital Inclusion working groups to discuss and apply the lessons learned from the pilot to refine and consolidate the CitiMeasure guidelines.

4.2.5 Monitoring and evaluation plan

Following a logical model in consultation with the City of Barcelona, the following items and indicators were defined for monitoring the CitiMeasure training workshop pilot in Barcelona.

Input item	Input indicator	Activity item	Activity indicator	Output item	Output indicator	Outcome/impact item	Outcome/impact indicator
What are the main inputs required for this pilot?	*How do we measure the inputs?*	*What are the main activities in this pilot?*	*How do we measure the activities?*	*What are the main expected outputs of the pilot?*	*How do we measure the outputs?*	*What are the main expected outcomes & impacts of the pilot?*	*How do we measure the outcomes/impacts?*
• *CitiMeasure guidelines* • *Time and inputs from the CitiMeasure team* • *Time and inputs from the City of Barcelona*	• *Availability of the CitiMeasure guidelines* • *Number of hours spent by each team member*	• *Development of the training materials* • *Communications and coordination about the training workshops* • *Implementation of the workshops*	• *Number of meetings between the CitiMeasure pilot team members* • *Content of the training workshops* • *Number and nature of communications about the workshops*	• *Three training workshops* • *Feedback received on CitiMeasure guidelines*	• *Number and diversity of workshop attendees* • *Number and nature of feedback received on the CitiMeasure guidelines at the workshops* • *Number and nature of changes adopted in the CitiMeasure guidelines*	• *More awareness about citizen science among the involved participants in training* • *Deploying citizen science projects as part of main programmes and policies at different departments of the city*	• *More successful and diverse citizen sciences projects in the future*

Figure 6 Monitoring and evaluation plan of the CitiMeasure pilot in Barcelona

4.3 BALBYN'AIR – THE CITY OF BOBIGNY

4.3.1 Background

The City of Bobigny has embarked on an effort to involve citizens in awareness-raising campaigns about air quality. This is in the form of a citizen science initiative called Balbyn'air. As a part of this initiative:

- Volunteer citizens are provided with devices that they can carry and use to measure air quality across the city.
- The city provides volunteers with a notebook that has different tables for different daily activities which need transportation, e.g., going to work, pick up kids from school, grocery shopping, exercising, going for a stroll.
- For each activity, the citizen can check boxes for the means of transport, and they check boxes of how the air quality was during the trip: good, average, bad.
- Volunteers can also write down their observations such as warning, weather conditions, and other comments.
- At the end of the one-month campaign, the city provides the volunteers with an opportunity to meet and express their general remarks and astonishments during the experience as a part of a group reflection session.

4.3.2 Aim and approach of the pilot

The main ambition of the Balbyn'air campaign is to make volunteers aware about air quality in their living environment, and enable them to discuss this with their family, peers, and friends. The city also aims to encourage citizens to have a more active role and take actions to improve air quality at their end. The Balbyn'air campaign does not have an ambition to provide accurate data on air quality. For that aim, Bobigny city has implemented stationary air quality devices around the city to provide daily data on pollution in the city.

As a CitiMeasure pilot, the ambition is to use the CitiMeasure Behaviour & Policy guidelines to inform different parts of the process of Balbyn'air campaigns, more specifically the one planned for October 2022. Based on a pre-screening of the guidelines by the City of Bobigny, some main ideas have already been identified to apply the guidelines in the next Balbyn'air campaign that is planned for October 2022, including:

- *'Capturing the baseline situation':* the city is interested to compare the behaviour of volunteers regarding air quality before and after the initiative. For example, how often volunteer citizens have conversations about air quality with their friends, peers, and family. This can help capture some of the learning outcomes resulting from the campaigns.
- *'Promoting the concept of citizen science at the city'*: at Bobigny there is a service called "Local Democracy", for the next campaign representatives of the city plan to involve more colleagues from "Local Democracy" service to raise their awareness about the potential of such projects.
- *'Diversifying participation in the campaigns'*: The city will try to diversify the age and social status of volunteers in the next campaign, e.g., by involving high school students, (un)employed people, and pensioners.
- *'Citizens are more likely to engage in initiatives if they believe their actions make a difference'*: The city of Bobigny could provide citizens with examples of how the initiative and their participation can have an impact and influence policy decisions.
- *'Involving citizens in co-creation of evaluation KPIs and impact assessment'*: The city can determine the impact indicators of the initiative in collaboration with citizens.

- *'Provide opportunities for citizens to present their evidence to policy makers'*: The city can consider an opportunity for the citizens to speak directly with the elected officials and present the result of the initiative and their proposals/action plan.

4.3.3 Timeline

The planning phase of the Balbyn'air campaigns started in the first trimester of 2022.

The piloting phase officially started on May 18th 2022, where the city gathered the first group of volunteer citizens to present the initiative, and to give them the air quality monitoring devices in order for them to carry out the observations. The feedback phase occurred on June 20th 2022, where the citizens shared their experience during the one-month campaign and expressed their general remarks and findings.

Between March and June 2022, the CitiMeasure team and representatives from the City of Bobigny started planning the pilot in this case (Figure 7). Since the the CitiMeasure Balbyn'air pilot is linked to the second round of campaigns that is planned for October 2022, the actual piloting phase will be between July and October 2022, while the feedback and refinement phases are planned between July and December 2022. The CitiMeasure pilot team will start their needs assessment and planning meeting in August 2022 and plan activities and interactions to prepare for the campaigns between August and October 2022.

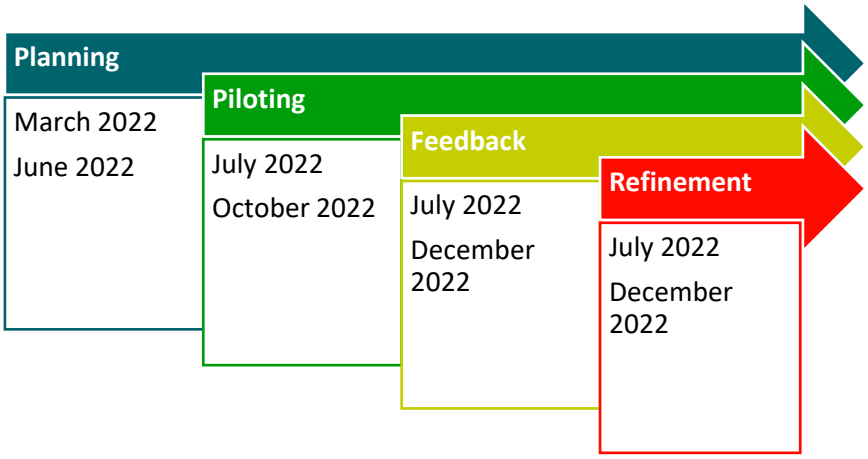


Figure 7 Timeframe of the CitiMeasure Balbyn'air pilot in the City of Bobigny

4.3.4 Roles and responsibilities

The Balbyn'air campaigns are driven, financed, and carried out by the City of Bobigny administration and elected officials. The city is therefore the local owner of the case and coordinates all the activities related to the campaigns, including their design and implementation, as well as communication of their results.

The Eurocities team, as the coordinator of the CitiMeasure project, bring the insights and expertise from the CitiMeasure Behaviour & Policy working groups, and will be working closely with the City of Bobigny to inform the design and implementation of the Balbyn'air campaigns. The Eurocities team will also act as the bridge between the pilot and the Behaviour & Policy working group to discuss and apply the lessons learned from the pilot to refine and consolidate the CitiMeasure guidelines.

4.3.5 Monitoring and evaluation plan

Figure 8 summarizes the items and indicators for monitoring the inputs, activities, outputs, outcomes and impacts of the CitiMeasure Balbyn'air pilot in Bobigny.

Input item	Input indicator	Activity item	Activity indicator	Output item	Output indicator	Outcome/impact item	Outcome/impact indicator
What are the main inputs required for this pilot?	*How do we measure the inputs?*	*What are the main activities in this pilot?*	*How do we measure the activities?*	*What are the main expected outputs of the pilot?*	*How do we measure the outputs?*	*What are the main expected outcomes & impacts of the pilot?*	*How do we measure the outcomes/impacts?*
• *CitiMeasure guidelines* • *Time and inputs from the City of Bobigny* • *Time and inputs from the CitiMeasure team*	• *Availability of the documents* • *Number of hours spent by each team member*	• *Contribution to the communication strategy of Balbyn'air* • *Contribution to the engagement efforts of Balbyn'air* • *Contribution to the evaluation and impact assessment of Balbyn'air* • *Capturing feedback on the CitiMeasure guidelines* • *Design of a before and after survey to measure the level of citizens' awareness about air quality*	• *Number of meetings between the CitiMeasure pilot team members* • *Nature of adaptations done on the documents based on the CitiMeasure guidelines* • *Nature of the changes to the CitiMeasure guidelines based on the feedback from the city of Bobigny* • *The designed surveys*	• *Improved communication strategy* • *Improved engagement strategy* • *Improved evaluation and impact assessment document* • *Improved set of CitiMeasure guidelines*	• *Nature of the improvements, based on the 1st campaign experience* • *Nature of improvements of the CitiMeasure guidelines*	• *Raised awareness of the campaign volunteers (and more broadly) citizens of Bobigny about air quality issue.* • *Improved environmental stewardship role for citizen of Bobigny, so they take an active role to speak with their family, friends and entourage about taking actions to improve air quality on their own.*	• *The results of a before and after survey on the level of awareness about air quality among citizens* • *Number and nature of actions taken by citizens to improve air quality on their own*

Figure 8 Monitoring and evaluation plan of the CitiMeasure Balbyn'air pilot

4.4 SENSOR2SCHOOL (SENZORY DO ŠKOL) - PRAGUE

4.4.1 Background

Senzorvzduchu, z.s. (in English - Air Sensor) promotes citizen air quality measurements based on the Sensor.Community DIY sensor kit solution. The initial aim of Senzorvzduchu as an NGO was to fill up the blank space of sensors between Germany and Poland on the sensor map. Nowadays, Senzorvzduchu organizes community building workshops and are active on social networks. There is a Twitter alarm bot informing citizens about the air quality PM10 pollutant above 50 µg/m3. They also have been measuring NO_2 in cooperation with Deutsche Umwelthilfe for one year in Prague. Senzorvzduchu will participate in CitiMeasure with one of their projects called Sensor2Schools (Senzorydoskol.cz) where we aim to build 50 sensors in schools together with students, giving them lectures about the possibility of citizen measurements and the importance of air quality. Students build their own sensor and start measuring in school.

4.4.2 Aim and approach of the pilot

A better understanding of the scope of tools, skills and knowledge is needed to build sensors and start measuring in schools at a larger scale. The selected schools at the Sensor2Schools are public elementary and high schools in the Czech Republic. The initiative is trying to achieve adoption of the sensors by the broader public, making them more accessible and prevalent. The higher aim is to achieve changes in perception of the air by citizens and make them aware of the quality of the air they breathe.

The aim of this CitiMeasure pilot is to test the application of the Digital Inclusion guidelines to assess the competencies required for, and acquired from, participation in the Sensor2School initiative. A before and after survey design will be used in this case that includes a 1st survey before the start of the project and a follow-up 2nd survey after 3 or 4 months of the measurements. This approach will help gain an understanding of the required competencies for participation, as well as acquired knowledge and change in the perception of students about air quality topic. The questions from the first survey will inform the formulation of the questions for the second survey. The results of the pilot are expected to provide insights for future design of similar projects. Other formats of feedback from students such as focus group discussions, structured (or video) interviews, and storytelling will be explored to support the results of the pilot.

4.4.3 Timeline

The activities at the Sensor2School initiative have started and the following steps have already been taken:

- March 2022 - Installation of the first sensor in pilot school Smíchovská střední průmyslová škola a gymnázium, Preslova 72/25 Praha 5 - Smíchov 150 21
- June 2022 - Entry of pilot school survey results of 121 pupils
- June 2022 - Installation of information banner in school
- June 2022 - Finished presentation of the project
- June 2022 - Sending first batch of the 100 offer e-mails to schools

The next steps of the process, including the surveys that are part of the CitiMeasure pilot, are planned as follows:

- September 2022 Start of the project – lectures and building sensors in schools
- September – October 2022 – installation and presentation month, first surveys
- November –December 2022 – evaluation phase, second surveys

Linked to this planning at the Sensor2School initiative, Figure 9 summarizes the planning, piloting, feedback, and refinement phases of the CitiMeasure pilot in this case.

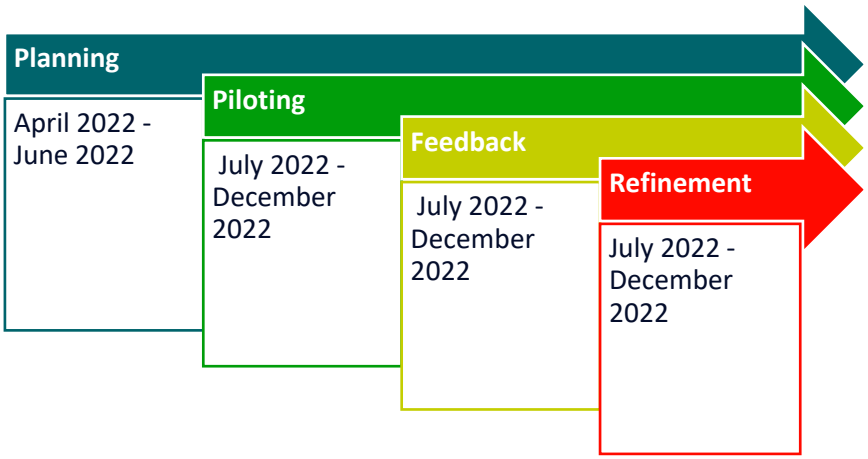


Figure 9 Timeframe of the CitiMeasure Sensor2School pilot

4.4.4 Roles and responsibilities

Senzorvzduchu, as the owner of the local case, provides a real-life case of citizen science, with specific needs, to test the CitiMeasure Digital Inclusion guidelines. Coordination of the activities at the case level and participation in the design, implementation and analysis of the pilots are among the other roles and responsibilities of Senzorvzduchu.

The Eurocities team, as the coordinator of the CitiMeasure project, bring the insights and expertise from the CitiMeasure Digital Inclusion working groups, and will be working closely with Senzorvzduchu to inform the design, implementation, and analysis of the surveys. The Eurocities team will also act as the bridge between the pilot and the Digital Inclusion working group to discuss and apply the lessons learned from the pilot to refine and consolidate the CitiMeasure guidelines.

4.4.5 Monitoring and evaluation plan

A summary of the items and indicators for monitoring the inputs, activities, outputs, outcomes and impacts of the CitiMeasure Sensor2School pilot is summarized in Figure 10.

Input item	Input indicator	Activity item	Activity indicator	Output item	Output indicator	Outcome/impact item	Outcome/impact indicator
What are the main inputs required for this pilot?	*How do we measure the inputs?*	*What are the main activities in this pilot?*	*How do we measure the activities?*	*What are the main expected outputs of the pilot?*	*How do we measure the outputs?*	*What are the main expected outcomes & impacts of the pilot?*	*How do we measure the outcomes/impacts?*
• *Schools, students and devices as a part of the Sensor2School project* • *CitiMeasure guidelines* • *Time and inputs from the CitiMeasure team* • *Time and inputs from Senzorvzduchu* • *Expertise on the topics of citizen science and competencies*	• *Number of connected schools, students and devices* • *Number of survey participants* • *Availability of the CitiMeasure guidelines* • *Number of hours spent by each team member* • *Expertise on the topic of citizen science and competencies among the pilot team and WG members*	• *Design, implementation, and evaluation survey 1* • *Design, implementation, and evaluation survey 2*	• *Nature of the insights from the CitiMeasure guidelines for informing the survey design and analysis* • *Number and nature of recommendations chose for informing the project processes*	• *Improved understanding of the issue of competencies for participation in Sensor2School*	• *Evaluation survey 1 and survey 2 will compare and identify knowledge gained by the students*	• *Behavioural change* • *Educated citizens* • *Engaged citizens* • *Estimated reach 9000 citizens with 50 sensors* • *Word of mouth, snowball effect about air quality* • *Critical thinking and positive presentation of the community*	• *Change in actions* • *Media mentions* • *Number of connected sensors* • *Citizen initiatives participation* • *Number of members of our NGO*

Figure 10 Monitoring and evaluation plan of the CitiMeasure Sensor2School pilot

4.5 COMPARABILITY TOOL

4.5.1 Aim and approach of the pilot

The CitiMeasure Comparability WG aims to facilitate information sharing across different cities and organizations involved in air quality monitoring by creating an inventory of air quality monitoring activities and approaches. The comparability tool is an online tool focusing on capturing information about different air quality initiatives and the stories behind them (who is doing them, what exactly they are doing, and how they are doing the measurements). The tool has been co-designed by CitiMeasure working group members, with the support of an external expert.

These are three main aims of the pilot phase:

1. Polish the online tool by testing it internally to make sure that the wording and structure fits for purpose for a wider audience.
2. Add a minimum of 50 initiatives to both improve the user experience and create a pool of initiatives that can attract people to use the tool in the development or implementation of their own initiative.
3. Disseminate the tool as a unique online experience to share valuable information with the aim of improving the comparability of air quality initiatives.

This inventory will be updated and maintained by Eurocities during the pilot phase.

4.5.2 Timeline

The Comparability tool follows this timeline:

- **Planning (May-June 2022)**: The CitiMeasure team, in consultation with an external expert, designs the process for testing the comparability tool and provide a pilot plan with the specific steps and volunteer cities and organisations by June 2022. As part of this process, the CitiMeasure Team works with Karma, the developers of the European Knowledge Centre, to transform the mocked-up version of the tool into an operational prototype.
- **Piloting (July – November 2022):** The CitiMeasure comparability tool will be tested through an iterative process that consists of three rounds:

    - The first (internal) round– reach out to at least 10 cities and organizations to share information about their air quality initiative(s) by end of July 2022. These volunteers will be mostly members of the Comparability working group which will be contacted using internal communication channels. Through a guided process in 1-1 meetings of approximately 30 minutes, selected cities and organisations will complete the information requested to represent their initiative(s) on the CitiMeasure tool. Some cities and organizations that have already shown interest in this step include:
        - Sensor.Community
        - Ghent
        - University of Aveiro
        - Sensor2School
        - Air Sentinels
        - Bobigny
        - Roeselare
        - Belfast
        - Fab Lab Barcelona
        - +1 (TBD)

- Second (internal) round – reach out to the remaining members of the Comparability WG (see list below) who have not taken part in the first step and other interested parties to include at least 20 initiatives in the tool by the end of September. The methodology will be the same as in the first round, a 30-minutes guided process to fill the information requested in the tool. Some identified cities and organizations who will be invited for this round include:
  - Civity
  - Torino
  - UCD
  - Barcelona
  - Maribor
  - Debrecen
  - Dublin
  - NILU
  - Rumia
  - ICTU
  - RIVM
  - VITO
  - Kunak
  - AirParif
  - Antwerp

- Third (external) round of testing – October to November 2022

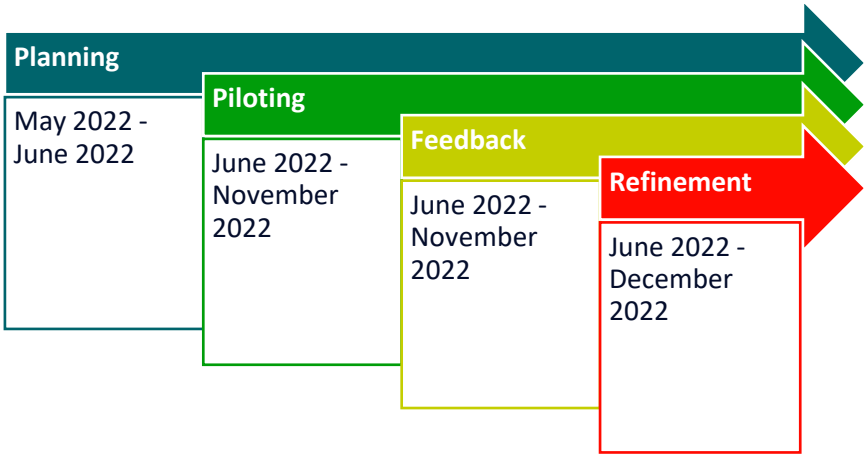
  The main aim of this round is to engage external cities, organizations, and projects that might not have heard of the CitiMeasure project, but also stakeholders in other networks such as the City Deal programme. In this last round, the aim is to reach out to 30 additional cities or organisations. These entities will be mostly identified through the projects captured in the CitiMeasure (Vivas Lalinde et al., 2021) and the COMPAIR landscape reviews (see full list in Annex 1). In addition, we will target members of the Eurocities air quality working group and the City Deal partners. The cities, organizations, and projects that express interest to be part of this third round will be provided with training materials to fill in the information requested in the comparability tool without the need of guided 1-1 assistance.

- **Feedback (June- November 2022):** Throughout the piloting phase, there will be feedback loops from the volunteers to improve the testing phase and design the training material which will be ready by October 2022.

- **Refinement (June, September, and November):**

  The interactions and activities that are designed for the refinement of the CitiMeasure Comparability tool include:
  - First session with working groups on June 22, 2022: Presentation of the prototype of the tool, which will be ready in the beginning of June, and its latest improvements to WG members.
  - Second session with working groups in September 2022: Presentation of the updated version of the tool to display the first results (around 20 initiatives from the first and second rounds). The working group members will review the inputs from the 20 initiatives to see if they are correct.

- Presentation of the tool at the European Week of Regions and Cities 2022. This presentation will be the kick-off of the third round as we will have the opportunity to present the tool to people who have never heard about the project nor the tool.
- Potential collaborations with World Data League and University of Muenster in October/November 2022. In parallel to the last round of testing, we might collaborate with external entities in further improving, testing, and disseminating the comparability tool. For example, we plan to reach out to the data scientist community through the World Data League.
- The updated version of the tool and results (at least 50 initiatives registered in the tool) will be ready by the end of the pilot phase.



4.5.3 Roles and responsibilities

The Eurocities team will organize the guided test process with the working group members to improve the user-experience as well as the format and wording of the comparability tool. The CitiMeasure team will also collaborate closely with the developers (KARMA) for incorporating potential improvements in the tool. The CitiMeasure team will also manage the backend of the inventory by accepting or rejecting submissions with the support of the KARMA team.

The working group members will provide feedback during and after the guided tests. External volunteers will be sent a feedback form to provide information about how to further improve the process.

4.5.4 Monitoring and evaluation plan

The following items and indicators were defined for monitoring the comparability tool:

Inputs → Activities → Outputs → Outcomes & Impacts

Input item	Input indicator	Activity item	Activity indicator	Output item	Output indicator	Outcome/impact item	Outcome/impact indicator
What are the main inputs required for this pilot?	*How do we measure the inputs?*	*What are the main activities in this pilot?*	*How do we measure the activities?*	*What are the main expected outputs of the pilot?*	*How do we measure the outputs?*	*What are the main expected outcomes & impacts of the pilot?*	*How do we measure the outcomes/impacts?*
• *Information about air quality initiatives* • *Time and inputs from the CitiMeasure team* • *Time and inputs from representatives of volunteer initiatives* • *Time and inputs from the developers* •	• *Number of hours spent by each team member*	• *Capturing feedback on the CitiMeasure tool* • *Receiving feedback and suggestions of the working group members* • *Communications and coordination for technical development of the tool with KARMA*	• *Number of meetings between the CitiMeasure team and volunteers* • *Nature of adaptations done on the tool based on the feedback*	• *Final prototype of the comparability tool*	• *Timely delivery of the tool* • *Internal (or external) approval*	• *Increase comparability of air quality citizen data by focusing on the stories collected in the tool* • *More awareness about citizen science*	• *More citizen sciences projects in the future* • *More trust in air quality citizen science initiatives*

5 Concluding remarks and next steps

This report presented five pilot plans for testing the first prototypes of the CitiMeasure instruments, namely the Behaviour & Policy guidelines, the Digital Inclusion guidelines, and the Comparability tool that were co-created by the CitiMeasure working groups. There are various possibilities for testing the CitiMeasure outputs and this links to the wide range of applications for these products. Besides the test strategy for the Comparability tool that is based on its application in multiple cases, each one of the other pilot cases are involved in testing two of the CitiMeasure outputs. More specifically, while the training workshops in Barcelona focus on both the Behaviour & Policy and Digital Inclusion guidelines, the pilot cases of Roeselare, Bobigny and Sensor2School each focus on testing one of the guidelines and participate in the test of the CitiMeasure Comparability tool. Each pilot plan includes a specific timeline of activities that will be followed to test each instrument and collect feedback for their improvements. The final versions of the CitiMeasure instruments are planned to be ready by December 2022.

References

Gharesifard, M., Vivas Lalinde, I., Flanagan, B. (2022). D1.7 Pilot guidelines. Deliverable report of the CitiMeasure project (grant agreement No101046124), Brussels, Belgium.

Vivas Lalinde, Gharesifard, M., Flanagan, B. (2021). D1.1: Report of landscape review. Deliverable report of the CitiMeasure project (grant agreement No 101046124), Brussels, Belgium.

Annex 1

List of potential initiatives
CitiMeasure Landscape review
AIR BREAK- Co-producing healthy clean commuting air spots in town
AIRbezen Oost-Vlaanderen
AirClean School (Environmental agencies)
AiREAS
AIR-HERITAGE
Apeldoorn in Data
Arnhems Peil
Bodegraven-Reeuwijk
Boeren en Buren
Breathe Brno
CAPTOR
CITI-SENSE
CitiSense MOB
CLAiR-CITY
CLAIRO
Coping & Resilience
CS Garrotxa
CurieuzenAir
CurieuzeNeuzen
CurieuzeNeuzen In De Tuin
DIAMS
DivAirCity
D-NOSES
ESAIRE
Gelderse Valei
hackAIR
Hollandse Luchten
HOPE
ICARUS
InfluenceAir
INNOAIR
iSCAPE Improving the Smart Control of Air Pollution in Europe
iSpex
Lansingerland
Lucht voor Leidschemdam Voorburg
Luftdata
Maaspoort Meet
MySense
NO2 No Grazie
Onze Lucht
Samen Duurzaam Zeist
Samen houtrook meten

Samen Luchtkwaliteit Meten in ZuidHolland’
Samen Meten Zuid-Holland
Samenmeten
Scapeler
Senshagen
Smart emission portal
Snuffelfiets
Stadslab Luchtkwaliteit
Sympnia
TransfAIR
Urban AirQ
Urwatair
Vigilantes del aire
Vigilantes del cierzo
Waddinxveen
WeCount
Zuidplas
COMPAIR landscape review
AirBG
Dustcounters
HEAL Sofia
IQAir Sofia
METER.AC
BerlinAIR NO2 Atlas
HEAL
Measuring the Berlin Air
PolDiv
SenseBox
ExpAIR
HASSELair
Leuvenair
Luchtpijp
Meet Mee Mechelen
Cos4Cloud