WECOUNT

WeCount: Citizens Observing UrbaN Transport

Deliverable 5.1: Monitoring and Evaluation Framework

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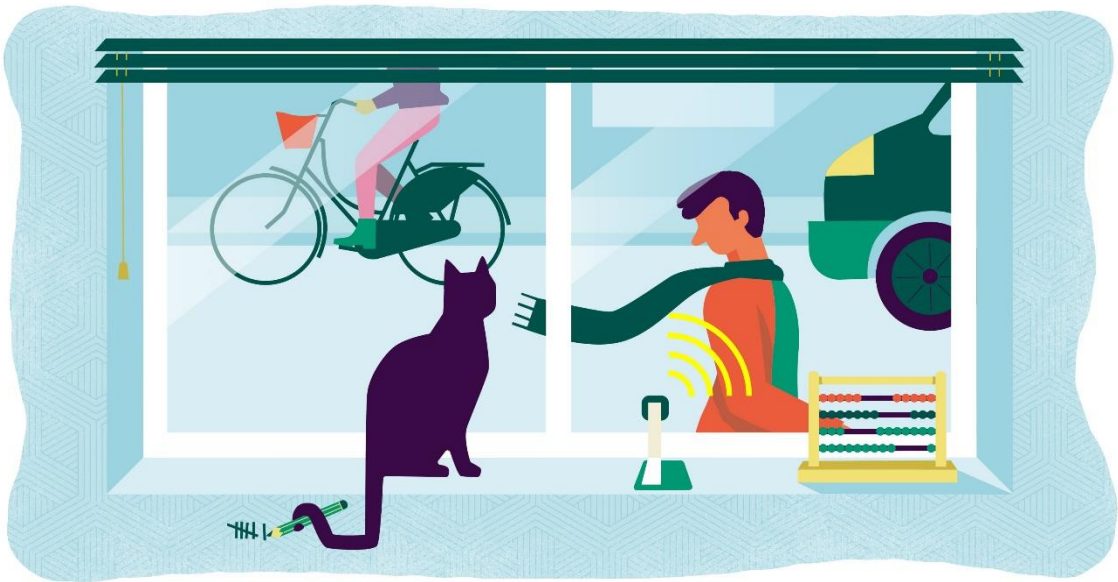

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Description	This framework details the purpose of evaluating the WeCount public engagement process and the framework for analysis. As well as outlining the evaluation rationale, it will also serve as a record of all evaluation methodologies for each Work Package (WP) in the project. The evaluation has been designed by Margarida Sardo (UWE), with inputs from Elke Franchois (Mobiel21), Ilse Vleugels (Mobiel21) and Kris Vanherle (TML). The evaluation will be conducted in collaboration with the City case studies, who are responsible for applying the evaluation framework. The UWE point of contact is Margarida Sardo (margarida.sardo@uwe.ac.uk).

Version History

Version	Updated By	Date	Changes / Comments
V1.0	Margarida Sardo	06/12/19	Framework draft
V2.0	Margarida Sardo	08/01/20	Inputs from Mobiel 21 added
V3.0	Kris Vanherle	13/01/20	Inputs from TML added
V4.0	Margarida Sardo	21/01/20	Details added
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Contents

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1 Evaluation Rationale

WeCount, Citizens Observing Urban Transport, is a Horizon 2020 funded project, part of a Science with and for Society (SwafS) call (H2020-SwafS-2018-2020). WeCount is a Citizen Science project working across five cities in Europe to empower citizens to take a leading role in the production of data, evidence and knowledge around mobility in their own neighbourhoods, and at the street level. The project will follow participatory citizen science methods to co-create and use innovative low cost, automated, road traffic counting sensors (i.e. Telraam) and multi-stakeholder engagement mechanisms in five pilots in Madrid, Ljubljana, Dublin, Cardiff and Leuven. Following this approach, we will be able to quantify local road transport (cars, HGV, active travel modes and speed), produce scientific knowledge in the field of mobility and environmental pollution, and co-design informed solutions to tackle a variety of road transport challenges. Moreover, the project will provide cost-effective data for local authorities, at a far greater temporal and spatial scale than what would be possible in classic traffic counting campaigns, thereby opening up new opportunities for transportation policy-making and research.

This Evaluation Framework will examine whether the Objectives and Goals set out in the WeCount Dissemination and Communication Strategy D6.1 and the WeCount Overview of WeCount communication activities D6.4 have been achieved, in particular referring to the following Research Objectives:

1. WeCount will advance citizens (and broader scientific) knowledge on traffic counting, transport management and related impacts.

2. WeCount will establish a durable ecosystem for citizen science traffic counting and related impacts.

3. WeCount will lower the technology threshold to reach a more diverse audience and ensure broader citizen inclusiveness.

4. WeCount will demonstrate the diverse potential applications, in five use cases, to tackle five different societal issues related to local road traffic.

5. WeCount will achieve meaningful research and local policy change, as a direct result of the evidence collected from the citizen science activities.

1.1 Researchers and public engagement with research

WeCount sits within a global context for public engagement with science and technology within the science communication field[1]. Worldwide, there is continuing encouragement (funded and policy

[1] Davies, S.R. (2013). Constituting Public Engagement: Meanings and Genealogies of PEST in Two U.K. Studies. Science Communication. doi: 10.1177/1075547013478203.

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driven) for more researchers to engage with the public around their research[2]. The UK National Coordinating Centre for Public Engagement (NCCPE) defines public engagement thus:

"Public engagement describes the myriad of ways in which the activity and benefits of higher education and research can be shared with the public. Engagement is by definition a two-way process, involving interaction and listening, with the goal of generating mutual benefit". (NCCPE, online)[3].

WeCount has also been designed to fulfil the principles of upstream engagement, outlined in the EU 'Responsible, Research and Innovation' toolkit as:

"*Doing science and innovation with society and for society, including the involvement of society 'very upstream' in the processes of research and innovation to align their outcomes with the values of society".*

Five partner cities are directly shaping the project; they are Madrid in Spain; Ljubljana in Slovenia; Dublin in Ireland; Cardiff in the UK and Leuven in Belgium. Residents (participants, and other) can get involved through multiple and all kinds of workshops (educational and informative, co-creation workshops…), hackathons and activities in local schools. In addition to these activities, residents can also get involved through other communication channels such as website, Facebook page, newsletters, etc.. This Evaluation Framework will explore how successfully WeCount has been in reaching out to a diverse audience, what changes or impacts can be detected in their knowledge on traffic counting, transport management and related impacts.

1.2 Learning about traffic counting and transport management

Raising awareness of transport management is a broad concept, and as such the Dissemination and Communication strategy (D6.1) outlines how 'learning' about traffic counting and transport management will be a central aim of WeCount communications. Learning is a broad concept described in the Informal Science Learning literature and outlined in the 'Generic Learning Outcomes'[4], whereby learning may involve the development or deepening of skills, knowledge, understanding, values, ideas and feelings. These impacts are measured across five core domains as outlined in Table 1:

- Attitudes and Values
- Knowledge and Understanding
- Enjoyment, Inspiration and Creativity
- Skills
- Behaviour and Progression

Evaluation of the WP activities will attempt to measure the impacts of the WeCount project across these domains, for all identified audiences.

[2] Poliakoff, E. & Webb, T. (2007). What factors predict scientists' intentions to participate in public engagement activities?. Science Communication, 29(2), p. 242.
[3] National Coordinating Centre for Public Engagement. (2014). What is public engagement? Available at: http://www.publicengagement.ac.uk/what/ [Assessed December 2019].
[4] Arts Council. (2019). https://www.artscouncil.org.uk/measuring-outcomes/generic-learning-outcomes [Assessed December 2019].

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Table 1: Generic Learning Outcomes (GLO)

GLO domain	**Example of outcomes**
Attitudes and Values	Perceptions Opinions about ourselves (e.g. self-efficacy) Opinions or attitudes towards other people Increased motivation Attitudes towards an organisation Positive and negative attitudes in relation to an experience
Enjoyment, inspiration, creativity	Having fun Being surprised Innovative thoughts Creativity Exploration, experimentation and making Being inspired
Knowledge and Understanding	Knowing what or about something Learning facts or information Making sense of something Deepening understanding Making links and relationships between things
Skills	Knowing how to do something Being able to do new things Intellectual skills Social skills Communication skills Physical skills
Activity, behaviour, progression	What people do What people intend to do What people have done Reported or observed actions A change in the way that people manage their lives

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2 Evaluation Strategy

2.1 Methodology

Evaluation is a process that takes place before, during and after an activity. Formative evaluation allows the researchers to adapt to meet the needs of audiences, while summative evaluation allows the assessment of the quality of the activity being delivered, the delivery process itself and what impacts, if any, it had on the participants. In WeCount, the evaluation strategy will be both formative and summative. Evaluation is crucial to understand if WeCount aims and objectives have been achieved and to critically reflect on the activities and delivery processes. Evaluation data can be used to improve activities, better plan future events and to demonstrate achievements[5].

A variety of methods will be used to evaluate the events and the project overall. The evaluation methodology is designed to collect high quality data in an easy and straightforward way that works for all partners and across cities. All evaluation methodologies will attempt to answer the following research questions which cut across all the WPs.

2.1.1 WeCount Objectives and related research questions for evaluation

The WeCount citizen science approach will be tested in five different pilot cases. The pilots in Leuven and Madrid will start up in Spring 2020. At these two test sites, the (prototypes of) tools, materials and supporting activities developed in WP2 and WP3 will be tested (WP4) and evaluated (WP5). Based on the output and user feedback (WP5), the tools and materials will be further improved and refined (in WP2 and WP3) and tested in the three other pilot sites Ljubljana, Cardiff and Dublin from Autumn 2020 onwards (WP4).

For each of the five WeCount research objectives, we have defined a number of evaluation questions. These questions will guide us in monitoring and evaluating the project.

Objective 1. WeCount will advance citizens (and broader scientific) knowledge on traffic counting, transport management and related impacts

Research questions/topics:

- Examine and collect evidence of use of data by the citizens. Examine evidence of improved ability to autonomously deploy digital sensor technologies in their homes.
- Explore citizens' attitudes, values, knowledge and behaviour towards traffic counting, traffic management and travel behaviour and find out whether changes occur due to participation in the pilots.

[5] UKRI (n/d). Excellence with impact. Available at https://www.ukri.org/innovation/excellence-with-impact/ [Assessed December 2019].

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- Investigate citizens' participation at the various types of co-design workshops organised in the five pilots (e.g. hackathons, datathons, window chats, ..).
- Measure user experience/acceptance of the WeCount data platform, data dash boards, etc. Are the data generated at the pilots being understood by citizens?

Objective 2. WeCount will establish a durable ecosystem for citizen science traffic counting and related impacts.

Research questions:

- Record the percentage of the sensors installed without any hands-on support (by only using the manual, instructions video, step-by-step via the website). Do improvements in supporting materials made based on experiences in Leuven and Madrid give better results in Cardiff, Dublin and Ljubljana?
- What is the role of local champions (i.e. very engaged citizens)? What can we learn from their experience in the pilots in order to make the WeCount platform more durable?
- What is the retention rate of citizens active on the WeCount platform after one year? What are reasons for drop-out and how can these be overcome?

Objective 3. WeCount will lower the technology threshold to reach a more diverse audience and ensure broader citizen inclusiveness.

Research questions/topics:

- Are we engaging citizens who provide meaningful representation of local populations regarding gender, social deprivation, education, etc. in the various activities (co-design workshops, life events, registrations at the platform, etc.)?
- Does WeCount succeed in also reaching the hard-to-reach target groups (e.g. lower income groups, ethnic minorities). Are different genders equally represented? What community building tools work well in this regard (real life events, social media, working with a local champion, etc.)?
- Has the project reached any other audiences?
- Explore impacts on the WeCount team: challenges, learnings and any new skills. How has developing and running a citizen science project impacted on the research team?

Objective 4. WeCount will demonstrate the diverse potential applications, in five use cases, to tackle five different societal issues related to local road traffic.

Research questions/topics:

- Did WeCount succeed in creating five local citizen science networks in different contexts? Has each city managed 300 registrations? If not, why not?
- Are there differences in the success of applying WeCount to tackle different societal issues in different cities (emission reduction, congestion, speed compliance, traffic management and rat running, environmental quality (air quality, noise), liveability, network of cycle tracks)?
- Measure attitudes, expectations and acceptance of local stakeholders before and during the pilot processes and outcomes.

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Objective 5. WeCount will achieve meaningful research and local policy change, as a direct result of the evidence collected from the citizen science activities.

Research questions/topics:

- What is the impact of the WeCount community on decision-makers involved (such as local politicians, officials, etc.)?
- Examine and collect evidence of use of data by the citizens. Are the data generated and the engagement activities being used by citizens themselves, for instance by impacting local attitudes, increasing local advocacy, influencing citizen behaviour and increasing engagement with local policy-making?
- Collect evidence for policy changes (not per se implementation but public statements from policy-makers, strategy/vision document).
- Is the quality of the data high enough to be used in scientific policy support research/consultancy?

2.2 Evaluation linked to the pilot activities

The research questions and topics defined in the above paragraph will be taken on board in the five pilot cases at different steps of their implementation. The table below lists up the different implementation steps in the left column. The right hand column sums up evaluation activities linked to the particular step.

Table 2. Pilot activities and evaluation plans

Steps in the case studies	Evaluation activities and assessment indicators
1. Define/finetune target areas, target groups, targets, define message	
2. Design and prepare community building activities	
3. Design WeCount platform, prepare the devices	- Registration process to include basic demographic questions
4. Roll out community building actions and materials	- Assessment of different communication/recruitment tools (online as well as life) used in terms of: o Number of citizens showing an interest (take part in event, have a look at webpage, number of likes on Facebook, number of retweets, etc.) o Number of actions/activities undertaken (number of local meetings/contacts with citizens, number of meetings with local stakeholders, number of newsletters sent, etc.) o Profile of interested citizens (representative of the targeted neighbourhood (min.% hard to reach groups, age, male/female ratio)

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Steps in the case studies	Evaluation activities and assessment indicators
	○ Citizens feedback on the WeCount info received - Number of local champions recruited, and their profile, motivations, etc.
5. Co-design	- Feedback of citizens and stakeholders (local authorities, community leaders, etc.) participating at WeCount co-design workshops - Number and profile of participants at co-design work shops - Number of different citizen research questions captured (that can currently be addressed by Telraam) - Number of different citizen research questions captured (that cannot (yet) be addressed by Telraam) - Motivation, expectations of participating citizens
6. Launch of WeCount platform and start (pre)registrations	- Number of citizens registered on the WeCount platform - Profile of citizens registered and their intended engagement in WeCount activities
7. Kick off workshop (distribution of sensors, citizen science workshop)	- Number of citizens participating at the workshop (and their profile) - User assessment/feedback of the participants at the workshop (assembly instructions, installation video, registration platform, etc.) - Feedback from the local champions on the assembly instructions, etc. and on the training received - Participation and feedback of stakeholders at the workshop
8. Data collection, analysis and interpretation	- Number of sensors operational and counting - % sensors started up without any help - % problems in starting up (and reasons, link with socio-demo profiles) - % drop-out after XX months (and reasons, links with socio-demo profile) - Number and types of recurrent questions by citizens by diff channels (Zendesk, phone, etc.) - User assessment of Zendesk, of local champion interventions - Feedback by local Champions of their role - Assessment of user experiences taking part at hackathons - Number and profile of participants taking part at hackathons - Assessment /feedback of citizens taking part at window chats - Number and profile of citizens taking part at window chats - Assessment / feedback on data dashboards by citizens (profile) - Type of and feedback from stakeholders participating at workshops
9. Policy interaction	- Feedback of the local authorities taking part at WeCount workshops

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Steps in the case studies	Evaluation activities and assessment indicators
	- Number of policy measures proposed based on sensor data - Feedback by citizens on policy measures based on sensor data - Intentions of citizens on future involvements in citizen science projects

2.3 Research Methods

All data collection will comply with the D7.3 Ethics Framework, including informed consent through Participant Information Sheets and Consent approval.

2.3.1 Online surveys

Online surveys are a convenient method to gather participants' views and thoughts about events and activities. By using online surveys, we would not take away the participants' attention from the activities they are engaging with. In addition, online surveys take away the pressure of being interviewed, making participants more comfortable[6] and eliminating interviewer-bias.

The online surveys will be designed to be short, quick and easy to complete and will mostly include closed questions. This will also assist in making translation and data analysis straightforward. Closed questions present the respondents with a list of options and do not discriminate against less responsive participants[7]. Open-ended questions allow participants to provide answers in their own terms[8] and can be included where more reflective answers are needed, but should ideally be kept to a minimum, since they tend to have a lower response rate[7].

Online surveys will be used, for example, to evaluate the workshops, as well as used towards the end of the project, to access a more general participants' experience.

When appropriate (both in terms of location and because it may suit audiences best), online surveys will be adapted and a paper survey offered instead. For consistency, the same questions will be asked across online and paper surveys.

In addition to online surveys, the Telraam registration process will include some profile, attitude and expectation questions, which will be collected whenever a citizen decides to register interest in having a Telraam.

[6] Couper, M, Traugott, M and Lamias, M. (2002). 'Web Survey Design and Administration', Public Opinion Quarterly, Vol. 35, pp.230-53.
[7] De Vaus, D. (2002). Surveys in Social Research. Social Research Today. 5th ed. New York: Routhedge.
[8] Grand, A., & Sardo, M. (2017). What works in the field? Evaluating informal science events. Frontiers in Communication, 2(22), 1-6.

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2.3.2 Snapshot interviews

'Snapshot' interviews are a quick and focussed method of gathering participants' views. They last between 90 seconds and two minutes, using a small number of consistent, clear and structured questions that allow rapid answers, to capture short and immediate feedback from participants in busy locations[9]. They may be used instead of online surveys, when appropriate, for example, when it is not possible to access the participants' email addresses.

2.3.3 Reflective logs

Staff running events and workshops will be asked to keep a reflective log. A reflective log form and guidance to fill it in will be provided, making it easy and straightforward to use. Reflective logs might be dealt with by email, when appropriate. Having access to the thoughts, views, opinions and post-event reflections of staff will enable triangulation with other evaluation data.

2.3.4 Interviews

Interviews are judged in the literature to be a useful evaluation method as they directly access the observations, insights and the experiences of the participants[10]. The interviews will be designed as semi-structured and the schedule will include open-ended questions allowing participants to provide answers in their own terms[9].

2.3.4.1 With Local Champions

In-depth qualitative interviews will take place with local champions across the five case study cities. These interviews aim to explore the relationship between WeCount and the Local Champions, as well as successes and challenges. These interviews will take place at different stages of the implementation of the case studies.

2.3.4.2 With key decision-makers

In-depth qualitative interviews will take place with key decision-makers to evaluate change/demonstrate attribution. Here we will aim to monitor medium-term outcomes with key decision-makers to evaluate change/demonstrate attribution, for example, change in air quality/ health/ planning policy in partner organisations. These key decision-makers will range from local policy-makers to citizens groups, cyclist

[9] Grand, A., & Sardo, M. (2017). What works in the field? Evaluating informal science events. Frontiers in Communication, 2(22), 1-6.

[10] Tong, A., Sainsbury, P., and Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ), a 32-item checklist for interviews and focus groups. International Journal of Quality in Health Care, 19(6), 349–357.

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federations, etc. These should occur at the beginning of the interaction with these decision-makers and again towards the end of the project.

2.3.4.3 With WeCount staff

In-depth qualitative interviews will take place with WeCount staff towards the end of the project. These should occur face-to-face, over phone or Skype and aim to understand what worked well, what did not work so well, as well as challenges, barriers, new learnings and skills.

2.3.5 Autonomous evaluation methods

At larger events or in busy settings where lots of activities are happening at the same time it is useful to set up evaluation methods that do not rely on the presence of the evaluator. It is also beneficial to use methods that do not require interaction with the evaluator since participants are less 'traumatised or alienated [by] over-zealous assessment practices'[11].

Some of the autonomous methods we might consider using include:

Feedback boards

Here, a wall or a huge piece of paper is used to collect feedback from the participants. They can draw or write comments and notes about their thoughts and views about the event or the activities. The boards usually become visually attractive and it is common to see participants reading comments and feeling encouraged to leave their own. This method is not completely anonymous and may not work for all personality types. Spicer[12] recommends having a 'suggestion box' available for people who do not feel comfortable leaving their comments so publicly.

Feedback cards

Here we will design cards with simple questions and space left blank for responses. Some questions might be generic: "What do you think about this activity?" while others might be more specific: "How can we improve Telraam for you?". These are questions that might be asked in an online survey or interview (and can allow data triangulation across an event), but by using feedback cards we might be able to reach multiple or reluctant responders[13]. Feedback cards might be handed out to each participant, placed on seats or displayed on tables, etc. For anonymous collection, we will ask participants to post completed cards in highly visible, strategically located boxes.

[11] Allen, S. (2008). Tools, tips, and common issues in evaluation experimental design choices. In A. Friedman (Ed.), Framework for evaluating impacts of informal science education projects: Report from a National Science Foundation Workshop (pp. 31–43). National Science Foundation. Retrieved from https://www.informalscience.org/sites/default/files/Eval_Framework.pdf [Assessed December 2019].

[12] Spicer, S. (2012). Evaluating your engagement activities. Developing an evaluation plan. The University of Manchester. Available from http://www.engagement.manchester.ac.uk/resources/guides_toolkits/Writing-an-evaluation-plan-for-PE.pdf [Assessed December 2019].

[13] Grand, A., & Sardo, M. (2017). What works in the field? Evaluating informal science events. Frontiers in Communication, 2(22), 1-6.

2.3.6 Demographic data

Demographic data will be collected either during the workshops or, preferably, while participants are registering for events. By collecting demographic data in advance, we aim to make the evaluation process manageable for the case study cities, as well for participants, who would not have to dedicate as much time during the events completing long surveys.

General monitoring will cover aspects such as recording:

- number of participants in all WeCount interventions
- number of registrations on the Telraam website
- number of "likes" on social media platforms

We will use Google Analytics as a passive monitoring tool for WeCount and Telraam website-traffic monitoring, with common indicators such as unique users per day/week/month, session duration, user acquire channels, user retention etc.

2.3.7 Scoping work

We will carry out an analysis of who is interested in the WeCount project and who is not, and in what way respondents are interested in participate and to what degree (having a Telraam on their window, join a workshop, participate in a hackathon etc.).

In the selected area in the case study Leuven for example, all households will receive a letter, to make them aware of WeCount, answer a couple of questions to learn about their profile, awareness, interest in participating and intent to participate and inviting them to register for WeCount. This will allow the project team to analyse who was and was not reached in the current WeCount campaign and if they have reservations in joining the project and how these reservation can be overcome. In addition, the different profiles of citizens or households who join the program will be assessed and recorded.

2.4 Work Package and task evaluation

The research methods will be utilised to assess different research questions across different WPs and tasks. Table 3 describes the activities and evaluation methods used in each step in the implementation of the case studies. Table 4 outlines the evaluation targets.

The results from these evaluations will form part of the annual Communications Reports in a formative fashion. A Summative M&E Pilot Report – Leuven & Madrid D5.2 will present the evaluation results for the two pilot cities and will be followed by a Summative M&E Case Study Report – Cardiff, Dublin & Ljubljana D5.3, where results from the remaining case studies will be presented. The final summative M&E Report will triangulate all the impacts from the project.

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Table 3. Activities and evaluation plans

Steps	Evaluation activities and assessment indicators	Evaluation methods
4. Roll out community building actions and materials	- Assessment of different communication/recruitment tools (online as well as life) used in terms of: o Number of citizens showing an interest (take part in event, have a look at webpage, number of likes on Facebook, number of retweets, etc.) o Number of actions/activities undertaken (number of local meetings/contacts with citizens, number of meetings with local stakeholders, number of newsletters sent, etc.) o Profile of interested citizens (representative of the targeted neighbourhood (min.% hard to reach groups, age, %m/v) o Citizens feedback on the WeCount info received - Number of local champions recruited, and their profile, motivations, etc.	Reflective logs Feedback board/cards Snapshot interviews In-depth interviews
5. Co-design	- Feedback of citizens and stakeholders (local authorities, community leaders, etc.) participating at WeCount co-design workshops - Number and profile of participants at co-design work shops - Number of different citizen research questions captured (that can currently be addressed by Telraam) - Number of different citizen research questions captured (that cannot (yet) be addressed by Telraam) - Motivation, expectations of participating citizens	Reflective logs Feedback board/cards In-depth interviews In-depth interviews
6. Launch of WeCount platform and start (pre)registrations	- Number of citizens registered on the WeCount platform - Profile of citizens registered and their intended engagement in WeCount activities	Online survey
7. Kick off workshop (distribution of sensors, citizen science workshop)	- Number of citizens participating at the workshop (and their profile) - User assessment/feedback of the participants at the workshop (assembly instructions, installation video, registration platform, etc.) - Feedback from the local champions on the	Reflective logs Feedback board/cards Snapshot interviews In-depth interviews Reflective logs; in-

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Steps	Evaluation activities and assessment indicators	Evaluation methods
	assembly instructions, etc. and on the training received - Participation and feedback of stakeholders at the workshop	depth interviews
8. Data collection, analysis and interpretation	- Number of sensors operational and counting - % sensors started up without any help - % problems in starting up (and reasons, link with socio-demo profiles) - 10% drop-out after 4-5 months (and reasons, links with socio-demo profile) - Number and types of recurrent questions by citizens by diff channels (Zendesk, phone, etc.) - User assessment of Zendesk, of local champion interventions - Feedback by local Champions of their role - Assessment of user experiences taking part at hackathons - Number and profile of participants taking part at hackathons, - Assessment /feedback of citizens taking part at window chats - Number and profile of citizens taking part at window chats - Assessment / feedback on data dashboards by citizens (profile) - Type of and feedback from stakeholders participating at workshops	Snapshot interview Snapshot interviews Online survey In-depth interviews Reflective logs; feedback board/card Attendance monitoring Online survey Reflective logs; in-depth interviews
9. Policy interaction	- Feedback of the local authorities taking part at WeCount workshops - Number of policy measures proposed based on sensor data - Feedback by citizens on policy measures based on sensor data - Intentions of citizens on future involvements in citizen science projects	Reflective logs; in-depth interviews

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Table 4: Evaluation targets and measurements

Return rates for evaluation are based on the literature as well as on our vast experience using surveys. These are minimum targets and we will aim to go higher. Recent return rates from the literature: Funkhouser et al. (2014)[14] had between 2.5% and 26% return rate; Bulkley et al. (2016)[15] had 25%.

Objective	Evaluation target	Measures of success
Objective 1. WeCount will advance citizens (and broader scientific) knowledge on traffic counting, transport management and related impacts	Collect feedback from 20% of total number of participants, total across all case studies, using online surveys. Collect feedback from 20% of total number of participants, total across all case studies, using interviews and/or autonomous methods.	Evidence of impacts such as learnings and any new skills. Evidence of changes in attitude and expectations related to the technology and the linked societal issues e.g. air pollution, safety, cycling etc.
Objective 2. WeCount will establish a durable ecosystem for citizen science traffic counting and related impacts.	Collect feedback from 20% of total number of participants, total across all case studies, using online surveys. Complete one reflective log per workshop (for staff running the workshop).	Evidence of user experience of the technology.
Objective 3. WeCount will lower the technology threshold to reach a more diverse audience and ensure broader citizen inclusiveness.	Collect feedback from 20% of total number of participants, total across all case studies, using online surveys and/or interviews.	Evidence that, for most of the devices (+/-85%), the accuracy of the car counting volumes is high enough (+/-85%). Evidence of impacts such as learnings and any new skills. Evidence of changes in attitude and expectations related to the technology and the linked societal issues e.g. air pollution, safety, cycling etc.

[14] Funkhouser, E., Fellows, J. L., Gordan, V. V., Rindal, D. B., Foy, P. J., Gilbert, G. H. and National Dental Practice-Based Research Network Collaborative Group (2014), Supplementing online surveys with a mailed option to reduce bias and improve response rate: the National Dental Practice-Based Research Network. J Public Health Dent, 74: 276–282.
[15] Bulkley J, Stoneburner A, Leo M, Clark A, Beadle K, Vesco KK. (2016). Design, implementation, and response rates from an online patient survey to assess genitourinary symptoms and related health care experiences of postmenopausal women. J Patient Cent Res Rev. 3:225.

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Objective	Evaluation target	Measures of success
Objective 4. WeCount will demonstrate the diverse potential applications, in five use cases, to tackle five different societal issues related to local road traffic.	Achieve 20% completed online surveys. Complete one reflective log per workshop/event.	Evidence of user experience of the technology. Evidence of impacts such as learnings and any new skills. Evidence of changes in attitude and expectations related to the technology and the linked societal issues e.g. air pollution, safety, cycling etc.
Objective 5. WeCount will achieve meaningful research and local policy change, as a direct result of the evidence collected from the citizen science activities.	Complete 3-4in-depth interviews with key decision-makers, per case study city.	Evidence of impacts such as learnings and any new skills. Evidence of changes in attitude and expectations related to the technology and the linked societal issues e.g. air pollution, safety, cycling etc. Evidence of policy changes.
Dissemination & communication	Record all traditional media, social media and online coverage. Record participation in academic conferences, reports and journals.	Evidence of user experience of the technology. Evidence of impacts such as learnings and any new skills. Evidence of changes in attitude and expectations related to the technology and the linked societal issues e.g. air pollution, safety, cycling etc.
Internal impacts	Complete 8-10 in-depth interviews with WeCount staff (two staff members per city).	Evidence of impacts on the WeCount staff, such as learnings and any new skills. An account of challenges faced.

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2.5 Evaluation Dissemination

An in-depth Final Summative Monitoring & Evaluation Report D5.4 will be prepared and shared at the end of the project. The Evaluation Report will be disseminated through the WeCount Communication Platforms, and through WeCount Associates, as well as the EU Commission. The report will be permanently stored and available on the WeCount website and the UWE Research Repository.

Data emerging from the evaluation will be further disseminated in academic papers and conference presentations. The Communications team will target both science communication and public engagement academic journals (e.g. Science Communication, JCOM – The Journal of Science Communication, Citizen Science: Theory and Practice) as well as traffic counting, transport management and air quality journals. The same strategy will be used for participation in conferences.

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3 Annex: Draft Evaluation Toolkit

These guidelines will be formatted and adapted for each country and event, but they provide a useful framework to begin the Evaluation process. All evaluation methodologies will receive Ethics Approval in accordance with POP1 and POP2 Ethics Framework.

All evaluation tools included here are working drafts and final documents will be developed in due course.

3.1 Guidance for online surveys

This document will help and assist WeCount staff and/or Partners involved in collecting evaluation data using online surveys. This guidance should be used in evaluating:

- Expand the registration form for Telraam
- Workshops and other activities
- Schools activities
- All communication activities evaluated in an online survey

Guidance for online surveys:

1. These events/workshops involve pre-booking, where email addresses need to be collected. Please make sure you **keep all the email addresses** and update the list if you have new attendants or drop outs.

2. Towards the end of the event, before goodbyes, make sure you mention that each delegate will receive an email containing a link to a short online survey.

3. Highlight how important it is that we get feedback from them: "*It is really important for the WeCount team to hear your opinions and views about today's event*".

4. Make sure you mention the online survey is quick and simple to complete: "*The online survey will take no more than 10 minutes to complete and questions are simple and straightforward. Please make sure you complete the online survey, we would be very grateful*".

5. Soon after the event (ideally the next day) send an email to each delegate with the following text, translated into your native language:

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Dear delegate,

Thank you for participating in the [EVENT'S NAME].

We would like to invite you to complete a short online survey. The information gathered from this survey will form an important contribution to the evaluation of the WeCount project. Your feedback and comments are very important to us and we would greatly appreciate if you could spare approximately 10 minutes to complete this online survey:

[LINK TO SURVEY].

The evaluation is being carried out by researchers from the Science Communication Unit at the University of the West of England, Bristol, UK. Any information gathered will be used only for the purposes of the evaluation report and academic publications, and all data will be anonymised, meaning you will not be personally identifiable.

Thank you for your time.

Best wishes, YOUR NAME

6. One week after the event send a reminder to all delegates with the following text, translated into your native language:

Dear delegate,

Thank you for participating in the [EVENT'S NAME] on the [DATE of EVENT].

If you haven't already, could you please fill in a short online survey, as this would help us to evaluate the project.

You can find the survey here [LINK TO SURVEY]; your answers are completely anonymous and it only takes 5-10 minutes to complete.

Thank you for your time.

Best wishes,

YOUR NAME

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3.2 Post-workshop online surveys

We would like to evaluate your recent experience with the WeCount project through a few questions, which will take no longer than 5 minutes to complete and will help us improve future events. This is anonymous and data will be stored securely, treated anonymously and confidentially. This study was given ethics consent by the Research Ethics Committee of the University of the West of England, UK researchethics@uwe.ac.uk.

Completing this survey indicates that you give consent for this data to be used in this research study.

Thank you for your time.

Section A: About the workshop:

1. **How did you enjoy the workshop in general?**

☐ Really enjoyed it

☐ Enjoyed it

☐ It was OK

☐ Didn't enjoy it

☐ Didn't enjoy it at all

Any other comments:

2. **What was your favourite aspect of the workshop?**

3. **What was your least favourite aspect of the workshop?**

Section B: About the concept and the technology

4. **In your opinion, how easy it is to use Telraam?**

☐ Very easy

☐ Easy

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☐ Neither easy or difficult

☐ Difficult

☐ Very difficult

Please explain your answer:

5. **How confident are you in being able to use Telraam with minimal or no support?**

☐ Very confident

☐ Confident

☐ Neutral

☐ Somehow not confident

☐ Not confident at all

6. **What motivated you to participate in this workshop?**

7. **What were your expectations of the Telraam? This might be expectations for yourself, your street, your neighbourhood, the data generated, your relationship with the city or something else.**

<u>Section C: About you</u>

8. **What is your sex**

☐ male ☐ female ☐ other ☐ prefer not to say

9. **What is your age?**

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☐ 17 and under ☐ 18-29 ☐ 30-39 ☐ 40-49 ☐ 50-59

☐ 60+

10. What is your highest level of education?

☐ School qualification

☐ University degree/ undergraduate degree

☐ Postgraduate degree (Masters, PhD, etc.)

☐ other:_____

11. What is your occupation? _____

12. Please complete the following details about the event you attended:

Event's name (if known):

City:

Date:

Thank you.

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3.3 Online survey - Teachers

Thank you for taking the time to complete this survey. It should take around 10 minutes to complete, and will help us improve future events. Completing this survey indicates that you give consent for this data to be used in this research study. All data will be treated anonymously and confidentially.

1. How did you enjoy working with the WeCount project?

☐ Really enjoyed it

☐ Enjoyed it

☐ It was OK

☐ Didn't enjoy it

☐ Didn't enjoy it at all

Other comments:

2. How would you rate the following aspects of the WeCount Schools' activities?

	Very good	Good	Poor	Very Poor
Activity design				
General organisation				
The materials provided				

Other comments:

3. How useful were the activities in supporting your teaching about environmental issues and awareness?

☐ Very useful

☐ Quite useful

☐ Not very useful

☐ Not at all useful

Please explain further:

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4. How successful do you feel the event was in achieving the following aims?

	Very successful	Quite successful	Not very successful	Not at all successful
Increasing your students' awareness and knowledge of environmental issues?				
Motivating your students to take an interest in their city's issues around air pollution and other environmental issues?				

13. Please complete the following details about the event you have participated:

Event's name (if known):

City:

Date:

Thank you for your time.

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3.4 Guidance for live events

This document will help and assist WeCount staff and/or Partners involved in collecting evaluation data at live events. This guidance should be used in evaluating:

- Communications Events
- Workshops

This document outlines strategies and useful tips when collecting evaluation data through autonomous methods such as:

- Feedback board
- Suggestion boxes

General advice:

- ✓ Always have staff on site whose task is to encourage participation.
- ✓ The person allocated to this task should be friendly and enthusiastic in order to gently encourage participants to leave their thoughts and views on the event.
- ✓ It's important to be aware that not everyone will be comfortable to leave written feedback on a feedback wall. When that is the case, staff should provide an alternative and direct participants to the suggestion cards, which should be filled in and placed in a suggestion box.
- ✓ NOTE: there is no need to have multiple members of staff encouraging participation; 1-2 people should be enough to walk around and encourage participation in different evaluation methods.

Feedback boards:

- ✓ Place the board in a good, visible location (not hiding in a corner).
- ✓ Make sure there is a staff member encouraging participants to leave feedback.

Suggestion boxes:

- ✓ Place the suggestion boxes near the exit, so participants can fill in the cards and return them as they exit the venue.

Distribute cards to the participants, explaining why it is so important to have their feedback (Translated text: "We are collecting feedback today and it's very important to us to know your thoughts and views on this event. If you could please spare two minutes to write down a few comments that would be great, thank you!")

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3.5 Autonomous methods for live events

1. **Feedback boards**

Some examples:

"What did you think of our event?

What was your favourite aspect of this event?

Please add any comments, thoughts and suggestions. Thank you."

"What do you think of Telraam?

Please add any comments and thoughts. Thank you."

2. **Feedback cards**

Feedback cards will be designed to be eye-catching. They can include the following questions

- ✓ "What do you think of Telraam? Please add any comments and thoughts. Thank you."
- ✓ "What are your expectations for today?"

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3.6 Interviews with the WeCount Project team

Interview Schedule

Notes for interviewers:

- *Make sure participants read the information sheet and that you obtain written consent prior to commencing the interview.*
- *The interview reference is written in the top right corner of the interviewee's consent form; quote this at the start of each interview (during recording).*

Thank you very much for agreeing to participate in this interview. It won't take very long and I'd appreciate it if you could be as honest as possible regarding your views and thoughts about this event.

Thinking about your involvement:

1. Please describe your experience of participating in the WeCount project team.

2. What was your favourite aspect of being part of the project team?

3. What was your least favourite aspect of being involved?

Thinking about the project overall:

4. In your opinion, what worked well?

5. And what didn't work so well?

6. Please would you describe the sort of challenges that you and the team faced over the past two years?

7. Is there anything you would you have done differently to achieve your aims?

8. Is there anything else you would like to add regarding your involvement in the WeCount project?

Thank you for your time.

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3.7 Self-Reflective log – WeCount

Please complete this reflective log as soon as possible after the event. Ideally, it should be completed a couple of hours after the event or in the next day or two (at the latest).

General information
Event name: ▪ **Location:** **Date:** **Time:** **Brief event description (name of event, type, duration, type of participants):** **Brief description of your venue (venue type, atmosphere, etc.):**
Strengths of the event / what went well:
Weaknesses of the event / went badly:

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Improvements - In your opinion how could the event be improved? What could we have done differently?

Engagement - How easy or difficult was it to engage with the participants? (reflect only on those that apply to your activity)

1. Talk to your participants

2. Get the participants to talk to you

3. To get participants to do the activity

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Reflect on: Were the participants knowledgeable? What kinds of knowledge or understanding of the topic did they have?
Please add any other thoughts, comments or reflections about the event.

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