

# DATA ANALYSIS AND AWARENESS: OVERVIEW METHODS AND TOOLS

## ***1. Analyse the data collected with participating citizens***

Consistent with the citizen science nature of WeCount, analysing the data collected with citizens is a core element. The recommendation is to conduct one or more workshops with participating citizens fully dedicated to data analysis. If more than one angle is to be taken during this phase (e.g. analysis focused on different geographical areas such as neighbourhoods, or analysis by theme such as mobility and air quality, mobility and urban design etc.) these can be organised as one unique workshop with several parallel sessions (e.g. tables if it is a physical workshop or online rooms if it is virtual) or as a series of dedicated workshops with the relevant communities.

***Tool, Data Discussion Sheets:*** in general, the role of this tool is to offer relevant templates created for facilitating group discussions on the data collected and the overall WeCount case study experience. The data collected by Telraam gives an account of the amount of traffic in a specific place. However, the link between this data and how new knowledge informing change can be generated, can be hard to understand without specialist training. Developing an understanding can also be challenging when people have strong views on an issue. It is important to understand the measurements that have been collected and how these relate to impacts: for example, if you measure a high traffic at a certain place for a given amount of time, what does that mean in terms of informing more sustainable mobility policies? Relating measurements to action is a technique aimed at helping community members understand the broader implications of their measurements, and their options for action as a result.

***Tool, Telraam Personalised Monthly Reports:*** another important tool for enabling (ongoing) analysis and interpretation of the data collected is the feature "Monthly Report" which is available on the Telraam platform for each sensor installed within a network. This can be downloaded from the platform and already incorporates some level of analysis and more detailed visualisation of the data collected until that point. The report includes: (1) an overview of the sensing activity as well as of the quality of the data collected; (2) the average of objects per hour also compared with the previous month; (3) an overview of the 10 busiest hours within the month by mode of mobility as well as an overview of speed ranges of cars during the same period; and (4) trends in terms of daily volumes by mode of mobility.

***Method, Participatory Analysis Workshop:*** one option through which participatory analysis of the data collected can be carried out is through a workshop. This was done in several cases and often was informed by a previous analysis conducted by the research team. The format proposed includes: (1) a

presentation of the overall results and some descriptive and more specific analyses (depending on the focus of the case study); (2) the opportunity for participants to comment and discuss the results presented, for example comparing these with their initial perceptions gathered at Phase 1 (e.g. through the WeCount Traffic Timeline); (3) pre-defined exercise for participants to conduct some independent and group based analysis starting from the data visualised onto the platform.

## **2. Foster new uses of the data**

A further central characteristic of WeCount refers to the development and implementation of the open data platform where the data collected by the citizen scientists through their Telraam sensors is visualised in near-real-time. As a consequence, this newly generated data can potentially open up opportunities for developers and other interested entities or communities. In other words, the objective of this sub-phase is to explore and experiment WeCount as an open data platform where developers can re-use the data generated as a core or marginal component of new (or enriching existing) services and applications. Clearly, this set of activities require significantly high levels of IT skills.

**Tool, Telraam API:** as a technical solution for enabling others to download the data in machine readable format, WP3 provided an Application Programming Interface (API) available online at <https://telraam-api.net/>. This online resource is defined as a “*collection of publicly available API call methods that can be used to access Telraam (<https://telraam.net/>) data*” and includes all documentation needed for anyone interested in downloading and reusing raw data collected from the sensors. Different features allow for several options for filtered download of the data (e.g. by segment ID, by MAC ID). Importantly, complete information is also provided on the same page about the license associated with the Telraam data, that is Creative Commons Attribution 4.0 International Public License<sup>1</sup>.

**Method, hackathon / datathon on the results:** an additional method that could be leveraged to stimulate, enable, and facilitate developers to reuse the data for application development is that of those so-called hackathons (also called datathons). These typically take the form of contests or competitions where developers are given a limited amount of time (e.g. a day, a weekend) to design and develop new applications on top of open data portals and platforms. In WeCount, no specific tools or resources were developed for facilitating these events. Rather the focus is currently on identifying potential institutions, civic tech communities, or other developers that could be potentially interested in taking part.

## **3. Collective impact assessment**

Once the data has been collected and analysed, the focus shifts towards evaluating and assessing both the experience of participants during WeCount, and the impact

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<sup>1</sup> Available at: <https://creativecommons.org/licenses/by/4.0/legalcode>

of the case study. In other words, this sub-phase focuses on enabling a reflection on what goals have been achieved and to which extent, and any other expected or unexpected (positive and negative) outcomes of the case study.