EUROPEAN

POLICYBRIEF

WeCount

Citizen science for sustainable urban mobility: Empowering citizen traffic counters to shape local policy

30th of November 2021

Key Recommendations

1. **Citizen science is an invaluable tool for bottom-up policy development in urban mobility,**
2. **The European Union should continue to fund Citizen science research and innovation projects for broadscale support and alignment with the European Green Deal,**
3. **Citizen science engagement methodologies can assist the development of Sustainable Urban Mobility Plans (SUMPs) with a more inclusive, citizen-centred policy-making process.**

WeCount: Live traffic counting by citizens

One of the main challenges the WeCount project centred around was **which kind of innovative citizen science methodologies and tools are effective in empowering citizens to influence policy-making processes**. The value of citizen participation and science in urban mobility is harnessing more recognition. However, citizen engagement approaches must be well-designed and carefully implemented to empower citizens to use their data to advocate for behavioural and policy change. Involving citizens in science projects is beneficial only if their contribution is recognisable and well-identifiable in project results. Simply handing out tools (in this case, traffic counting sensors) is far from enough. Citizen engagement activities must be in place to inform citizens about how to act. **WeCount citizen science approaches proved to be effective in actively engaging the more than 1,000 citizens about the power of crowdsourced data in shaping local transport policies.** A total of 843 participants attended 52 workshops across the five case studies of the project to get informed, to analyse data collected and brainstorm about how to act. This is the challenge that this WeCount second Policy Brief addresses, **showcasing real-life examples for achieving change by proactive citizens in co-designing local traffic policies**.

MAIN RESULTS ACHIEVED

- At the time of publishing, **10% of participants have so far acted**, and policy-makers have recognised the substantial added value of the project. WeCount provided 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 creating new opportunities for transportation policy-making and research.
- An impressive **78% of all Telraam devices are still counting**, therefore, most participants stayed engaged with the project. Based on a survey, **almost half (48%) of citizens plan on using the data after the project ends**.
- Based on surveys conducted among citizen scientists, overall, **75%** saw at least some improvement in their knowledge, with 52% of these respondents seeing a drastic improvement in their knowledge on traffic and mobility, air quality and traffic safety and **how to act on it**.
- **Citizens are using the data**: **it is leading to specific policy changes; behaviour change and greater awareness**.
- We believe **data is of sufficient quality for policy-support research/consultancy**. Case study leaders have developed professional relationships with decision-makers for knowledge transfer, contacts, communication channels and strategic opportunities.
- WeCount adds to the small but growing number of projects that democratise the production of knowledge and make space for citizen-led policy change. It is clear from the project evaluation that **this approach works in making people feel empowered**.

The main results achieved are based on the findings of D5.4 – Final Summative Monitoring & Evaluation Project Report.

CITIZENS EMPOWERED TO POSITIVELY IMPACT LOCAL LEVEL POLICY-MAKING

WeCount case study neighbourhoods prepared impact stories to showcase the positive effect the initiative had in their local communities, considering the initial goals it set out to achieve. This section briefly demonstrates some of these stories, testifying to the commitment of WeCount's engaged citizen scientists and the rigour, scientific and policy-making potential of the traffic gathering data sensor, Telraam.

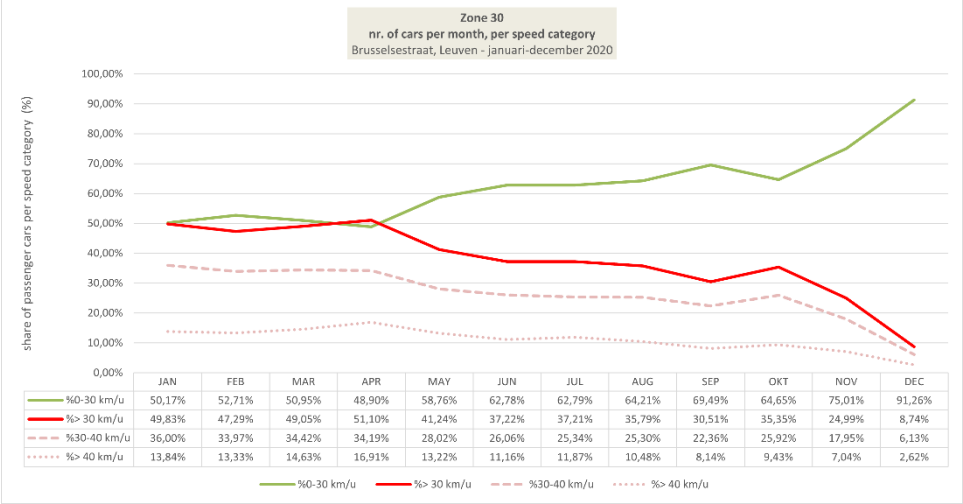
Credits: Transport & Mobility Leuven

Leuven: citizens ensure compliance with speed limit with the help of Telraam & WeCount

In Leuven, local activists joined WeCount to substantiate claims and changes they had been pushing for. A central route in the city (Brusselsestraat) had its speed limit lowered from 50km/h to 30 km/h. Despite welcoming this measure, the local citizen group "S.O.S Brusselsestraat" claimed that compliance with the speed limit remained low and campaigned to convince local authorities to implement additional measures to ensure its enforcement.

A member of the community decided to take matters into her own hands and signed up to WeCount. In her words, she did it because “The car speed was very high, and the 30 km/h limit was not respected. We wanted to demonstrate the traffic flows and ratios as well as the speed in black and white with figures to the city council and the police”.

Confronted with the claims of the citizens, now backed up with data, the local authority installed a digital sign indicating speed to the passing car in May 2020, followed by the installation of a temporary speed bump. The effect of both interventions is clear with the citizen group finding that the digital sign led to a decrease of speed limit non-compliance from 47.85% to 36.27%. The speed bump decreased non-compliance further to 8.02%.



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OKT	NOV	DEC
%0-30 km/u	50,17%	52,71%	50,95%	48,90%	58,76%	62,78%	62,79%	64,21%	69,49%	64,65%	75,01%	91,26%
%> 30 km/u	49,83%	47,29%	49,05%	51,10%	41,24%	37,22%	37,21%	35,79%	30,51%	35,35%	24,99%	8,74%
%30-40 km/u	36,00%	33,97%	34,42%	34,19%	28,02%	26,06%	25,34%	25,30%	22,36%	25,92%	17,95%	6,13%
%> 40 km/u	13,84%	13,33%	14,63%	16,91%	13,22%	11,16%	11,87%	10,48%	8,14%	9,43%	7,04%	2,62%

Credits: Ludo Proost

Barcelona residents achieve lowering street speed limit using self-gathered Telraam data

In the central neighbourhood of Gracia in Barcelona, in Calle Ros de Olano - a small and narrow street - road safety and high traffic volumes had become an issue for citizens over the past two decades. This led to the creation of the activist citizen science group, *Fumuts Ros de Olano*, which strives to use low-cost technologies to gather data and enable positive change.

Several of their members were already experienced in using environmental sensors to collectively gather data-driven evidence of the situation in the street, focusing on air quality and noise pollution.

In May 2020, two representatives of the *Fumuts Ros de Olano* community installed two traffic counting Telraam sensors on their windows, to gather traffic data. After generating sufficient data, the community used this information to lobby the local authorities on social media and in person, leading to a subsequent reduction to the speed limit to 10km/h. The group have been monitoring compliance ever since.

Social media post announcing the new measures in Calle Ros de Olano

Ljubljana students propose new street and traffic arrangements using traffic sensor data

Students from the Department of Urbanism at the University of Ljubljana used the data obtained from the Telraam devices to assess the traffic flows and the adequacy of road infrastructure in the Slovenian Capital. The students became advocates for WeCount, reaching out to local residents to join the project, set up sensors and gathering data that could address their mobility concerns.

They presented the project to residents of the city of Ljubljana and asked them to join WeCount either as members or as users of the Telraam device. Then, each student chose a road section visible from the sensors' cameras, outlining the existing street location and traffic indicators (i.e., the width of the road profile in relation to the road users =- car drivers, pedestrians, cyclists, etc.). Finally, the students compared the analysis of the selected street segment plan and section with collected Telraam data, which allowed them the opportunity to assess the traffic flows and the adequacy of road infrastructure. If these two did not match, they suggested improvements to the road profile and traffic arrangement, as a part of the Strategic Spatial Planning course at the Faculty of Architecture.

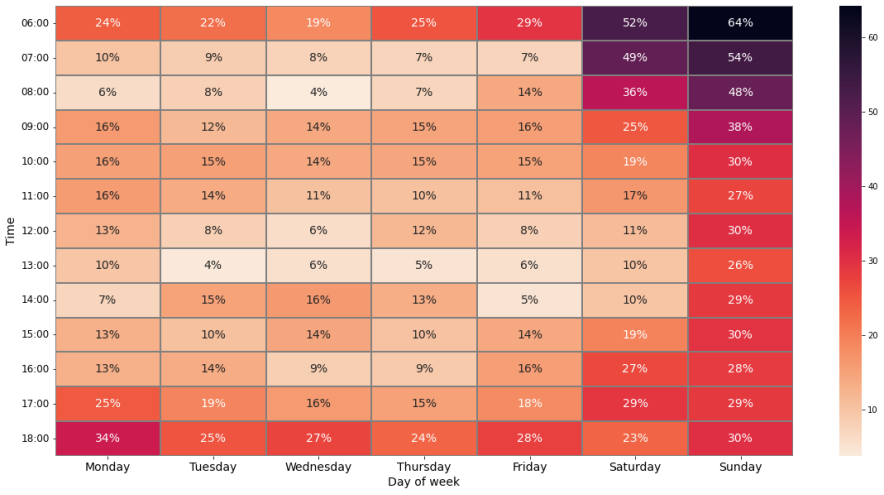
Redesigning the street profiles to reach better distribution of street space for various street users in Ljubljana.

By involving urban planning students, WeCount helped broaden their horizons and teach them about citizen science and, through that, investing in future planners who will work in city and planning offices. WeCount's educational merit lies in its ability to empower the next generation of advocates. Additional relevant positive outcomes are evident in Leuven's s plan of a school hub and network of sensors, the work carried out in Dublin (see story below), and the [educational materials] created by the University of West of England.

Dublin schools monitor traffic and air quality

Dublin partners teamed up with schools, organising workshops to teach school children to assemble Telraam traffic counters and educating them on the importance of citizen science. School officials followed the deployment of counters throughout the city, as it became evident that traffic and air quality around schools is a major concern for citizens involved. As a response, WeCount invited schools to host traffic counters and air quality monitors during the second round of sensor deployment.

Four local authorities in the Greater Dublin Area caught wind of the initiative, resulting in the Dublin City Council approaching the project team with a list of more than thirty schools. Dublin City Council asked WeCount to install traffic and air quality monitors in schools selected for the [School Zone Initiative] - an initiative to reduce congestion and increase safety at the school gate -, as this will provide an objective measure of the effectiveness of this initiative.



Average percentage of cars exceeding the speed limit by weekday and time of day

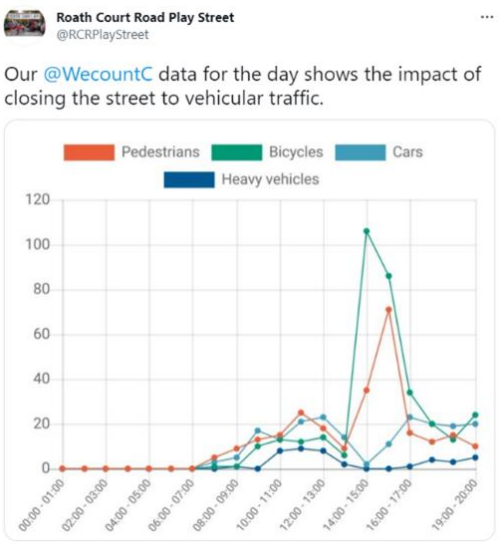
The lockdown in Dublin in the first half of 2021 resulted in delays in the delivery and installation of monitors. However, preliminary results from selected schools are promising interesting datasets. The figure shows data for May 2021 from a traffic counter located near a school in the Blackrock area. During the early morning and early evening, more than a third of cars are exceeding the 50km/h speed limit. The percentage of cars exceeding the speed limit only drops below 10% during the morning rush hour and tends to be 10%-20% during the day. This has important implications for children walking or cycling to school.

Once the traffic and air quality monitors are installed in the schools, the datasets will be invaluable to the schools. Not only will they provide objective measurements to support applications for traffic calming measures, but they can also be used for educational purposes inside and outside of the classroom.

Cardiff citizens' voices amplified by WeCount

The Cardiff case study is a great example of the diverse forms activism takes, and the enthusiasm citizens have to make a difference for sustainable and inclusive urban mobility.

How citizens have used the data to support their activism varies. Many focused on providing regular updates using the Telraam data to highlight transport issues, conversely, others used the data to highlight positives and what can be achieved. For example, Roath Court Play Streets used the Telraam data to illustrate the success of their play street initiative seeing more pedestrians and cyclists. Other activism included reaching out to local councillors on email and on social media, writing blog posts, performing their own analysis on the data and using the sensor/ data as a pedagogical tool for students. Interestingly, two participants reflected on how the project has contributed to a shift in their activism: *"*(…), I'll be honest with you, because I didn't think there was anything within my power to change the situation, you know, but there was a [Council] consultation after I installed the Telraam… so I did respond to that consultation. And probably, because I did have the Telraam, it gave me a bit more impetus to do it."



Example of social media activism in Cardiff

There are no physical transport interventions in place that can be directly attributed to WeCount (yet) but there is plenty of evidence to show that it has empowered citizens and given them agency to challenge the *status quo* and campaign for change. As one citizen stated, *"*Putting the numbers on social media has helped amplify [the problems], with people from all across Cardiff commenting their shock, demanding action and sharing their own numbers (…) we hope the data will also be used to shape future traffic schemes in our area, with our local Living Streets Group liaising with the Council (...)".

Policy Implications and Recommendations

As evidenced in the previous section, WeCount activities bore fruit by achieving instances of bottom-up local policy-making (i.e., installation of speed-sensors and bumps, involvement with local schools, etc.). Work remains to be done, as ideally more participants could have taken a more active role in the project, but nonetheless, the stories above highlight the potential of WeCount and citizen science in kick-starting more dialogues between citizens and local policy-makers.

These experiences together with additional evaluation-focused outputs of project activities uncover the need for recommendations to take WeCount's results a step further, for the incorporation in existing policy tools (SUMPs), but also shine a light on the needed actions to ensure Citizen science remains an extremely useful methodology for mobility planning, shaping traffic policies and beyond.

1. **Citizen science is an invaluable tool for bottom-up policy development in urban mobility**

Each of the impact stories presented above makes it clear that citizen science initiatives can support policy-development processes which serve the people affected by them. Decisions made without the involvement of citizens are harder to get accepted and to comply with, especially in fields like urban mobility, which affects everyone. Thus bottom-up policy development can be a great help for local and regional authorities to

implement policies that are backed by the inputs of locals based on their own experiences and discoveries. The engagement and networked approach, fostering relation between the project team and amongst citizens, enables and facilitate evidence-based dialogue between citizens and decision-makers.

2. The European Union should continue to fund Citizen science research and innovation projects, backed by strategic policy/institutional support, for broadscale support and alignment with the European Green Deal.

Citizen science projects are growing, and as we have evidence, shows promise in the field of urban mobility. To capitalise on the rich, locally relevant data and citizen enthusiasm that these projects afford to policy-making processes, institutional support is required.

The European Union can send a clear message on the importance of Citizen science activities by ensuring that it occupies a central place in its policies. These policies need to be backed up by adequate and well-identifiable funding mechanisms.

Horizon 2020 was the main research and innovation instrument promoted by the EU, and it included a dedicated Programme to science with and for Society (the SwafS), with bi-yearly Work Programmes, in which citizen science projects played a prominent role. However, Horizon Europe, the new instrument for the next programming period, has scattered Citizen science funding across its different Clusters. Undoubtedly, interdisciplinary research is needed, and the composition of these cross-sectorial multidisciplinary clusters strives to promote it. Though, along the way, the important dimension of Citizen science loses strategic importance, by being scattered across clusters.

Citizen science needs to be funded continuously in Horizon Europe (and subsequent programmes) to ensure its transition into the mainstream and to refine the techniques and methodologies for more effective engagement.

When compared to large scale demonstration projects, citizen science entails substantially lower investment, than other existing actions/technologies with high return, particularly in local-level policy-making, as evidenced in the impact stories described above. A specific example of the scientific validation of WeCount data and its "spill over" into policy design and/or monitoring is reflected in its use by Belgian Air Quality researchers and students at VUB to track COVID-measures compliance (i.e., lockdown enforcement).

3. Citizen science engagement methodologies can assist the development of Sustainable Urban Mobility Plans (SUMPs), with a more inclusive, citizen-centred, policy-making process.

One of the main existing tools specifically for urban mobility planning are the Sustainable Urban Mobility Plans (SUMPs) developed by the ELTIS Platform. The design of SUMPs in European cities typically include a step of citizen engagement/consultation, to better inform the process of policy-design. However, citizen engagement/consultation is often forgotten in the later steps of the SUMP cycle, concerning implementation and evaluation.

Citizen science and the methodology[1] developed and employed in WeCount can serve as an additional tool to actively involve citizens in this entire planning process, allowing them to identify what the local urban mobility priorities are, contribute to their co-design, data collection, analysis, and implementation. An overall sense of ownership in the creation process of policies leads to higher acceptance of measures, while ensuring that they are closer to citizen's needs and expectations, therefore, involving citizens in all stages of the SUMP planning process must be considered in future SUMP development processes.

[1] For more information on WeCount's Methodology please refer to Policy Brief #1: https://we-count.net/_uploads/WeCount_Policy_Brief_1_final.pdf

About WeCount

The WeCount project is the first European Citizen science initiative enabling citizens to create a substantially better understanding of road traffic flows and car speeds at the local level. WeCount gathered insights into the impact of local road transport on issues such as air pollution, public health, and road safety. It offered citizens the mechanisms to generate evidence and utilise tools to quantify urban traffic road flows; understand and challenge mobility behaviour; proactively lead urban mobility discourse and **participate in co-designing traffic policy** as evidenced in local impact stories described below. WeCount used innovative low cost, automated, road traffic counting sensors (the Telraam sensor) and multi-stakeholder engagement mechanisms (workshops and online interactions) across **five case study cities: Leuven (BE), Madrid/Barcelona (ES), Ljubljana (SI), Dublin (IE) and Cardiff (UK).**

PROJECT INFORMATION

PROJECT NAME

WeCount (Citizens Observing UrbaN Transport)

COORDINATOR

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CONSORTIUM

Transport & Mobility Leuven - Leuven, Belgium
POLIS Network – Brussels, Belgium
Mobiel21 - Leuven, Belgium
University of the West of England – Bristol, United Kingdom
University College Dublin – Dublin, Republic of Ireland
Ideas for Change – Madrid, Spain

FUNDING SCHEME

Horizon 2020 Framework Programme for Research and Innovation (2014-2020), SwafS-15-2018-2019 Exploring and supporting citizen science, grant agreement No. 872743.

DURATION

December 2019 – November 2021 (24 months)

BUDGET

EU contribution : 1 957 897,5 €.

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FOR MORE INFORMATION

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FURTHER READING (IMPACT STORIES)

Leuven citizens ensure speed compliance with the help of low-cost traffic counting sensor
Barcelona residents achieve lowering street speed limit building on self-generated data
Students from Ljubljana propose new street and traffic arrangements using data from traffic counting sensors
Dublin schools successfully monitor traffic and air quality with the help of WeCount
Empowering the citizen: how the WeCount Project has helped amplify the voice of Cardiff citizens