



How cities can engage with citizens through the use of social media, mapping, and apps to collect data in order to improve the processes of design, planning and implementation of mobility management measures within a SUMP.

Problem description

Previously we have collected travel data and peoples' opinions and feelings for various travel options through laborious filling in of forms and questionnaires. The advance in technology – especially in mobile phone technology – has re-defined the way we collect and map information in recent years. We can now obtain quicker, and much more practical 'real-live' data through phone apps. Such apps help us to manage and record how we live our life, monitoring what we eat, our working and leisure hours, household bills, energy usage, calorie count, exercise routine and similar items. However, for the gathering of any data, emphasis must be placed on quality of what is gathered and how it is used. This is especially relevant (and crucial in fact!) in justifying and supporting investment in measures related to SUMP development (both in planning and implementation stages), where there is a clear need for quality data. Collection of mobility data can be effectively done through a number of different methods, many of these increasingly available through mobile phones (connected to internet sites that crowdsource¹ information from a broad range and number of app users). For mobility services, we can find apps that include cycle-to-work miles and speed, walking routes, car-parking spaces, car and bike share schemes, public transport usage, e-tickets etc.

In addition to these apps, we can use mapping for journey planning to help determine the best/fastest/most practical method of travelling from one location to another, dependent on the different needs of various groups of citizens. Also, to help determine traffic flows/public transport

usage; mobility behaviour (such as daily habits, routes taken, time spent, problems encountered); and social economic factors.

These apps, and the information that they gather, must ultimately be part of a strategic planning process. This information must be able to support planning improvements by the city to mobility and accessibility measures. Therefore, the collection of data must be a process that is ongoing and not a one-off. Monitoring new planning improvements is to be done together with the revision of information previously gathered to better manage any new mobility measures in the city.

With the means now available to collect information, there can be no excuses for not involving a multitude of different stakeholders in the decision making process, and for this process to be based on informed choices and requirements.

How does it work

There are many types of social media (see simple table below) and many types of additional services that use the information generated by social media.

Why do people use those social media apps that collect their ideas and opinions and feedback? In many cases it's because this provides them a sense of belonging and empowerment, as well as because it's usually easy to contribute to and participate in. The 'belonging' and 'empowerment';

these two features are important because they are often the motivating factors, and as such, will determine the quantity (and often the quality too) of the responses received.

Mapping Apps that provide information (such as journey planners, car-share schemes and similar) are freely available and easily found on GoogleApp or equivalent.

WAZE (<https://www.waze.com/en-GB/>) is one such example of showing why people get involved in using these tools. It is one of the largest traffic and navigation apps and helps drivers to get to their destination the best possible way, avoiding congestion and hold-ups. It works based on an international community of drivers all feeding in their updates on traffic in their area to a central system that then provides this information for others. The incentive for users, is to help others and by doing so, for others to contribute so that the process of improvement to traffic routes continues and is constantly up to date and totally relevant to users. This provides a true sense of empowerment to users; being able to define for others the best possible traffic routes, and in the process, providing city road maintenance teams with up to date records of problems.

In addition, blog comments and forums are particularly useful for helping city planners determine design and implementation of new mobility measures. Several blog sites (often connected to a Facebook page) are set up by specific mobility user groups such as cyclists or disabled groups for example. Cyclists often highlight badly designed new cycle routes, gaps in cycle routes, routes with impediments on them, or ac-

cident black spots for cyclists on roads. Such crowdsourced comments are picked up by city planners (who are often members of the forums) and used to improve planning procedures.

Also, for example, information from car-share schemes and understanding why users prefer to take a private car-share car rather than other modes of transport can be used to better manage public transport routes and city parking spaces.

On a practical level, please note that if asking a group of users to sign up to a particular App, then it is wise to keep in mind that the incentive for doing so is clear to the new user; what will they get out of downloading and using the app on their personal device. Be clear in providing them with what they can expect to receive in return, what their own personal benefit will be, or what difference their usage and contribution will make. This does not need to be a financial incentive; it can be something in the form of some other personal gain (personal recognition) or a possibility to join a certain group or movement.

Benefits - and for whom they are

With the right approach, social media networks can help to raise awareness and encourage participation in many activities on transport and

Social Media	Usage
Social Networks (examples: Facebook, LinkedIn)	Allows users to connect with other people with similar interests and backgrounds.
Bookmaking sites (examples: Delicious, Stumble Upon)	Allows users to save, organise and manage links to various websites and resources on the internet.
Social news (example: Digg, Reddit)	Allows users to post various items or links to external articles and then start a contest to vote on the item itself. The items getting more votes are displayed most prominently so the decision is up to the community.
Media Sharing (examples: YouTube, Flickr)	Allowing the user to upload and share different media such as pictures and video.
Micro-blogging (example: Twitter)	Focusing on short updates displayed to anyone signed in to receive the updates.
Blog comments and forums (example: CIVITAS inter@ction)	Online forums allow members to hold conversations by posting messages. Blog comments usually focus on the topic of the blog post.

Fig 1: Different types of Social Media (CIVITAS INSIGHT No.16: Engaging the citizens of today to build the sustainable cities of tomorrow)

mobility. Social media has opened up exciting new ways of public engagement and participation. There remains however hesitancy amongst some city administrations to use these new mechanisms because they are not seen as a genuine or legitimate form of public participation. Increasingly though, these views are changing as the impact of social apps and crowdsourcing becomes wider and wider and more influential in helping to shape local city planning and development for the better. Whatever risks exist, there are more positive examples than negative, and now really is the right time for city leaders to embrace the potential of social networks.

According to the EU project CIVITAS DYN@MO, there are five benefits in using social media and mapping tools in the design, planning and implementation of urban mobility measures:

1. Reach a wider audience and involve new target groups in the mobility-planning process
2. Enhance communication between city administration and citizens, help to create wider acceptance towards a SUMP and planned mobility measures
3. Gather feedback and public opinions on the development of mobility measures and services
4. Offer a good way to provide citizens with easily accessible mobility information;
5. Combine, integrate and link several tools such as different social media groups together. Costly decisions rely on significant levels of uncertainty. With LQC projects the effects can be acknowledged and solutions validated with real life data.

Direct Beneficiaries

- **Citizens:** Especially in cities where local political and planning decision-making is increasingly being decentralized and neighbourhoods are being encouraged to more actively represent their community members. Citizens here can play a truly positive part in their city development through such data collection schemes.

- **Local Authorities:** Especially where public funding for major city to transport, public space and mobility developments is under increasing pressure for savings to be made, any schemes that are supported/justified through direct data input from citizens prove to be easier to get political support for.
- **City Planners:** Looking for data to support some of the ('less attractive') measures in SUMP development, citizen involvement provides supporting data for new schemes (for example cycling and cycling infrastructure in many cities remain an 'add-on' planning process to road building/renovation and are often 'less attractive' mobility measure practices. Cyclist blog forums seek attention for problems and/or support for planned schemes).
- **Public Transport Providers:** Journey mapping/planning provides greater understanding of service routes and can lead to increased numbers of users. PT providers will benefit through being able to propose route revision and improvements through access to journey planning data and feedback from users.
- **Alternative Mobility Providers:** Public or private companies providing bike or car share schemes for example, or local activist groups such as cycle critical mass groups can gain a better visibility and be integrated into the general urban mobility plan.
- **Shop owners / local economy:** They can measure / analyse the footfall traffic and the time that potential clients spend in their street / in their area (for them it is important to know that people not only pass quickly here but spend time (and money) in front of the shop windows or in the terraces etc.).

Case Example: CIVITAS PLUS II | Gdynia (Poland): Mobilna Gdynia platform

In February 2014, Gdynia launched an internet platform, Mobilna Gdynia, based on a concept by the Gdansk University of Technology. The main aim was to create a tool, which would allow the city to communicate with the public and stakeholders more easily and on a wider scale. It was also to help conduct consultations with the local community, especially during transport planning and the SUMP elaboration process.

The Mobilna Gdynia platform was not the city's first attempt at using social media for communication with citizens. Since 2013, Gdynia has actively used its Mobilna Gdynia Facebook profile to raise awareness, inform citizens about sustainable mobility, and get public opinion on currently implemented or planned mobility measures. Building upon this, the city decided design the website in such a way that it not only provides information and raises awareness, but also encourages citizens to join the discussion on the SUMP. This way, Gdynia hopes to learn more about the public opinion on planning issues, better understand people's attitudes and receive concrete proposals for actions to overcome mobility related problems.

One such example of a successful dialogue with citizens was an online survey on the closure of one of the Gdynia's main streets for traffic. The experiment showed that this way of communicating with the public has huge potential. More than 2,700 people completed the questionnaire, and it was viewed by over 7,000 people. Some 73 percent of respondents agreed to limit car traffic on the street and more than 60 percent out of those 2,700 also agreed on

closing the street for traffic. Around 200 traditional interviews supplemented the survey to reflect the less "technologically active" target groups. The experiences of Gdynia have shown that people are willing to contribute to discussion and express their opinions.

<http://www.civitas-initiative.eu/content/mobility-20-communication>

Disadvantages, dangers

These could include:

- Data provided is the 'wrong' data, meaning that it supports ideas that may not be right for the city to develop at this particular point in time.
- Data collected is not of a high enough quality to provide a justification for investment to be made. Data through mobile apps can be weighted sometimes too far towards regular users of mobile technology and may not perhaps be representative of the wider group of citizens.
- Local authorities do not want to receive more information that needs to be processed and then action to be taken. This adds an extra layer of responsibility upon local authorities that, if not properly managed, cannot be used. It also adds an extra layer of expectation upon the collector of the information.
- Data protection is an issue: how personal information is gathered as part of the process of registering to use an app (giving access to your location and to the phone database of files, contacts, and images).
- Poor internet connection can make the services useless and can turn users off using the apps.

- Local authorities collect the data but are not prepared to use it or do anything with it! It is collected purely as a tick-box task with no intention of using it to increase investment for future measures or improve delivery of current measures.
- Cities are afraid of the possible ‘extra’ work generated by data collection and data management and therefore decide to not use it at all. Stakeholder analysis - who are drivers, who are opponents

Stakeholder analysis - who are drivers, who are opponents

Drivers tend to be those with the technological means of keeping up to date with new apps. Also, those who are active in different communities and who want to provide decision makers with up-to-date information about local issues and problems. Active citizens in general tend to be the ones who want to use, develop and improve such means of data collecting through apps.

Also, those activists who participate in events that promote their particular cause, whether it's protection of public spaces, cycle route improvements, pedestrian rights, better PT services, etc. - these groups often drive the agenda.

Opponents are not so evident. There may be representatives within the local authority and decision making institutions fearing the increased responsibility and transparency they can be forced to assume when implementing such a system.

Legal framework

Many of the apps for such service as mentioned are country specific or even in some cases city specific. Therefore, any legal framework has to be in line with either national or European regulations, as will be the use and protection of personal data.

Policy options for cities

A fun and relatively easy option for cities to implement and promote. Ideally though, if any schemes are set up to encourage people to col-

lect or contribute to the collection of data, then the body responsible for processing such data should be ready and equipped to provide suitable feedback to people as well as to make improvements/revisions to services based on any feedback received from users.

There has to be a system in place that encourages constant improvement through data processing.

Who (in the city administration) has to deal with it

This will be dependent upon each city's different structure. It's hard to pinpoint a particular position or department. It is though safe to say that having a strong-willed politician who leads by example can help.

Additional Good/bad practice (short examples)

Traffic Agen - <http://www.trafikkagenten.no/en/about-the-traffic-agent>

With €347,000 (£290,000) in funding from the city, the Research Council of Norway and consultancy Capgemini, Vibeke Rørholt from the City of Oslo needed to find ways to create an environment where parents would feel that it was safe enough for children to walk to school. "I was supposed to make a traffic report on all roads in Oslo. That's a big job," she comments. "So I thought, why don't we ask the children how they feel on the street?" The best way to do that, she says, was to turn to gamification. Using a smartphone app, with the idea of users being "secret agents" for the city, children can send immediate reports on their route to school when they come across, for example, a difficult crossing on the street or an area of heavy traffic. Their location is tracked using GPS, so researchers can pinpoint exactly where these hazards are. Rørholt says that using this mapping information

provided by children through the app, authorities have rebuilt several big crossings and made more pavements to make it safer for pedestrians in the past year. For example, several students reported that they liked to walk through privately-owned land on part of their journey to school as it felt safer, so Oslo municipality agreed with the owner of the property that if the government created a crossing, path and handrail, he would maintain it. Data protection is an issue that might deter parents and teachers from encouraging children to use this app, but from the beginning the Traffic Agent has anonymised data. The app is integrated with Norway's school software platform which generates a code for each child to use as a login. This data is visible only to the school and project team. Rørholt also maintains that when the children start using the app from home, they don't get a report until they move at least 200 metres away. To keep some privacy for the children, not all the information is shared with parents and teachers. Although the app is in use only in the capital, Rørholt says the director of the Oslo municipality wants to see it shared across Norway, so other communities can use it at a low cost. It is a slow process: so far only 35 out of 135 schools have taken part. "I still don't think we have changed the number of children walking," says Rørholt, "and I hope that we will. I hope that when we can show the results – which we try to do on Facebook, as that's where the parents are – we can get more schools to cooperate with us." Cities like Oslo are having to strike a balance between becoming both accessible and liveable, and it seems that crowd-sourcing information from residents is the most logical way forward. Traffic Agent shows that children can even have a hand in how cities are planned – like where the safest place to build a school is – at just the click of a button.

Gathering data on national cycling patterns in the Netherlands - <http://fietstelweek.nl/fiets-telweek-measuring-improving-and-stimulating-of-bike-behaviour>

In September 2015, the first ever Nationale Fiets Telweek (National Bike Counting Week) was organised by the Dutch Cyclists' Union in collaboration with several organisations that focus on mobility. Although the Netherlands is well known for its cycling culture, there was previously little objective and quantified information about cycling patterns. The Fiets Telweek - funded by regional and local governments and the Ministry of Infrastructure and Environment - saw over 50 000 people share information on their cycling habits. This provided data to help Dutch cities design policies and introduce initiatives that will further improve cycling across the country. Context: The share of people choosing bicycles over other forms of transport in Dutch cities is generally quite high. However, in urban areas, bicycle paths are becoming more and more congested, resulting in delays for cyclists. Although cycling is high on the agenda for Dutch cities and municipalities, investments still need to be rationalised, and until now, objective and quantified information needed to make these decisions was unavailable because of a lack of data. Fiets Telweek works in two ways. It conducts a thorough local and national marketing campaign that raises awareness of the Fiets Telweek, and then during the week itself uses a free smartphone application to receive data, which it then processes into useful information through a tool-suite called Bike PRINT (developed during a European Union Interreg project). Technology: 'Bike PRINT' uses GPS, cell- and WiFi-spots and an app to monitor and collect data about a cyclist's location, velocity and accelera-

tion and then processes it to provide anonymised data on the cyclist's origin and destination, route (by matching the data to a map) and speed. The data is then analysed to calculate potential detours, the quality of the network, popular routes, etc.. It is then presented by the Bike PRINT online interface and then handed over to local governments as open data-sets. In 2016, the Dutch Cyclists' Union launched an open-data platform where all the Fiets Telweek data is available. Because of its success, the Fiets Telweek will now be held every year in the Netherlands.

Time frame

Simple and short. Apps are easy to set up and explain how to use. The structure for collecting and processing data may take some time in some local authorities.

Costs

Costs of developing an app for use, or of adapting an app for local use (language and local peculiarities being added to a basic universal model of an app) plus for the creation and implementation of the structure for collecting and processing data.

Also, and perhaps most important, costs for employing people to collect, store, and manage the data and to be able to use it to produce recommendations for improvements to SUMP / mobility management measures.

Open questions

Each city will have its own set of Q's, often not related directly to any other city Q's.

Possible future developments

Understanding the potential of mapping movements of people in and around any urban space

has many future developments and possibilities. How these are further developed is entirely down to the will and desire of individual cities. How much they want to improve local mobility services for citizens, tourists, and businesses will depend on how much future developments will happen.

How and where does it fit into a SUMP

The use of these tools and techniques fit into all stages of the SUMP cycle: the most important ones are:

- vision building
- data collection
- participation in general (e.g. information)
- voting for scenarios
- measure appraisal and selection
- evaluation

A SUMP should be about designing and delivering a range of mobility services that suit all urban space users. Cities cannot afford to develop a SUMP and then sit back, believing that their job is done.

The SUMP guidelines (and in particular Point 2 from the SUMP cycle) developed by the EC are clear about the role of stakeholders in SUMP development:

“A Sustainable Urban Mobility Plan focuses on people and meeting their basic mobility needs. It follows a transparent and participatory approach, which brings citizens and other stakeholders on board from the outset and throughout the plan development and implementation process. Participatory planning is a prerequisite for citizens and stakeholders to take ownership of the Sustainable Urban Mobility Plan and the policies it promotes.

It makes public acceptance and support more likely and thus minimises risks for decision-makers and facilitates the plan implementation.”

Additional Info:

CIVITAS Policy Note: <http://civitas.eu/content/civitas-policy-note-the-use-social-media-involve-citizens-urban-mobility-projects-and-city>

CIVITAS Handbook: http://civitas.eu/sites/default/files/Results%20and%20Publications/Brochure_STAKEHOLDER_CONSULTATION_web.pdf CIVITAS Insight: <http://civitas.eu/content/civitas-insight-16-engaging-citizens-today-build-sustainable-cities-tomorrow>

Author

James McGeever

The Environmental Centre for Administration
and Technology

ECAT - Sustainable Mobility Project Manager

Skype: [: j.mcgeever](https://www.skype.com/people/j.mcgeever) | [Mobile: 00370 653 78522](tel:0037065378522)

E-mail: james@ecat.it

www.sump-network.eu

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