



urban mobility solutions
Urban, Electric Mobility Initiative

actsheet

Traffic Management



**Wuppertal
Institut**

UN HABITAT
FOR A BETTER URBAN FUTURE



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Urban Electric Mobility Initiative (UEMI) was initiated by UN-Habitat and the SOLUTIONS project and launched at the UN Climate Summit in September 2014 in New York.

UEMI aims to help phasing out conventionally fueled vehicles and increase the share of electric vehicles (2-,3- and 4-wheelers) in the total volume of individual motorized transport in cities to at least 30% by 2030. The UEMI is an active partnership that aims to track international action in the area of electric mobility and initiates local actions. The UEMI delivers tools and guidelines, generates synergies between e-mobility programmes and supports local implementation actions in Africa, Asia, Europe and Latin America.

SOLUTIONS aims to support the exchange on innovative and green urban mobility solutions between cities from Europe, Africa, Asia and Latin America. The network builds on the SOLUTIONS project and brings together a wealth of experience and technical knowledge from international organisations, consultants, cities, and experts involved in transport issues and solutions.

The overall objective is to make a substantial contribution to the uptake of innovative and green urban mobility solutions across the world by facilitating dialogue and exchange, promoting successful policy, providing guidance and tailored advice to city officials, fostering future cooperation on research, development and innovation.

SOLUTIONS_UEMI supports urban mobility implementation actions that contribute to the Paris Agreement and the New Urban Agenda.

Sustainable energy and mobility can make positive contributions to a number of policy objectives, nationally and locally. In particular in cities there is a great potential to create synergies between for example safety, air quality, productivity, access and climate change mitigation. A UEMI resource centre will provide opportunities for direct collaboration on projects focusing on sustainable urban mobility and the role e-mobility can play in it. The UEMI will pool expertise, facilitate exchange and initiate implementation oriented actions.

UN-Habitat, the Wuppertal Institute & Climate Action Implementation Facility jointly host the resource centre for the Urban Electric Mobility Initiative, aiming to bridge the gap between urban energy and transport and boosting sustainable transport and urban e-mobility.

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Solutions

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In brief

Managing traffic in urban areas is a complex issue, involving different agencies and partners. However, if done right it can reduce congestion, emissions, pollution and parking pressure; facilitate freight delivery; and make the best use of available resources and infrastructure. It can also increase the share of sustainable transport modes, safety, and accessibility.

Examples

Traffic management effectively requires different approaches that influence travel behaviour. These include charging motorists to enter a city; restricting the access of vehicles to urban areas based on their emissions; and managing traffic flow, parking and the access of freight vehicles. Improving public transport, information on available travel options, and the accessibility of non-motorised transport can also help.

By using the array of real-time traffic data now available from cameras, sensors and cars, traffic management systems can also help control traffic by, among others, being able to change traffic lights, set speed limits, and give advice to travellers on public transport options. To be effective, traffic management must be flexible and react dynamically to current and expected traffic situations.

The next step in the evolution of traffic management is Traffic Management 2.0 (TM 2.0), where vehicles interact with each other, road infrastructure and traffic management centres and allow different users to share data and exchange information.



In brief

Examples

Results

Using different technologies and information sources gives a better overview of traffic situations, communicates measures and provide alternatives to travellers. Providing better information and communication channels for travellers can directly influence their travel behaviour and choices before and during their trips. Besides reacting to traffic situations (such as accidents) after they have happened, traffic management sees upcoming challenges and responds appropriately to avoid or minimise problems.

Technical & Financial Considerations

Traffic management uses different technologies and approaches, so the set up will be different for each city and based on its existing mobility, information and communication systems. However, as different systems become more integrated, bringing different organisations together, challenges will arise.

It is also an opportunity to create a system that evolves from being static and reactionary to one that is dynamic, and proactively avoids problems before they happen. This will better support policy goals and contribute to a sustainable and integrated transport system. Depending on the size and complexity of the system, the investment and running costs can be considerable but often necessary to achieve policy goals and ensure that the mobility system runs smoothly.

Results

Technical & Financial Considerations



Policy/legislation

Relevant policies and legislative frameworks depend on the type of traffic management and measures a city wants. Providing information and recommendations will be more favourable than measures that travellers feel directly and which have an impact on their travel patterns (such as congestion charges, emissions zones and parking management).

Privacy and security may become an issue as traffic management systems generate information and link data together - as will data ownership, especially when using data from different transport operators and travellers. As traffic management systems use more data sources they must guarantee a minimum level of data quality.

Institutions

Modern traffic management needs data and information from many different institutions, stakeholders and partners. Traffic and transport authorities and administrations are directly concerned in managing traffic but also have to provide data in a correct and timely manner. Public transport operators at the different regional levels provide information on schedules and delays, while police give data on accidents and are relevant for formulating contingency plans. Included also should be road operators, who often have a traffic management centre and provide traffic and road warnings (for example, on the radio).

Transferability

Each city is different, making a direct transfer difficult to impossible. For example, a lot depends on the existing mobility infrastructure, traffic management systems and levels of integration of different stakeholders, policy goals and existing challenges. Many larger cities already have some kind of traffic management system, making it possible to learn from different examples.

Policy/legislation

Institutions

Transferability

Context

Grand Lyon is an area that encompasses the city of Lyon and most of its suburbs. It has 1.3 million inhabitants and is the second-largest metropolitan area in France. It also has the second-largest public transport network, on which there are 900,000 journeys per day. Some 500,000 cars enter the city of Lyon each day and nearly 50 % of the 4 million daily trips take place in cars.

Although road traffic has decreased in the past, Grand Lyon is encouraging residents to use more sustainable modes of transport and increase the efficiency of the existing transport system. For this purpose, Grand Lyon's traffic management centre examined the integration of a traffic prediction tool into its existing traffic control system.

In action

Between 2013 and 2014, Grand Lyon created a tool that makes it possible to predict traffic patterns one hour ahead, and manage traffic in real time for 3,000 km of urban roads. It uses a network of 800 sensors, 255 video cameras and a telecommunication system that collects and distributes data.

Within the urban area, the traffic centre controls 1,600 traffic light intersections, and 50 variable-message signs. This network allows Grand Lyon to schedule traffic lights at intersections, manage "green-waves" (when a series of traffic lights are coordinated to allow a continuous traffic flow in one direction) and prioritise public transport. Furthermore, drivers and travellers are provided real-time information on traffic, events, the weather, parking places, the bicycle network, free bike services, carsharing and car-pooling.

It is very important for the operator to react very quickly and make appropriate decisions. Indicators quickly and unambiguously describe the results of each scenario and send the simulation-tested commands to the field. The predictions can extract many traffic indicators and activate relevant alerts. They also qualify the planned scenarios using predefined indicators and choose the most appropriate for current situations and predetermined constraints (based on the city's transport policy).

It is also possible to replay simulations to get a better understanding of each of the phenomena involved, increase knowledge about the network and come up with new scenarios that may help optimise traffic conditions.

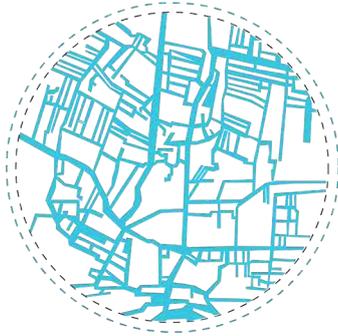
Case Study: Grand Lyon's Traffic Management Tool (France)

Results

Studies show that Grand Lyon's traffic prediction tool is reliable 80% of the time and that it frees up 20% of the area's road capacity. The tool allows the operator to view the impacts of its actions locally and regionally and to tackle congestion it predicts will occur one hour ahead.

This system moves away from reactive management based on real-time situations towards proactive management based on one-hour traffic predictions. Strategically, the goal is to avoid or reduce congestion, and therefore use the road's capacity over time better. Operators can simulate different scenarios according to different strategies and travel policies to assess their relative impact on the network.





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Implementing
Partners

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