UMAM Architecture

EIT Urban Mobility - Mobility for more liveable urban spaces

EIT Urban Mobility

Barcelona | 31 December 2020

eiturbanmobility.eu

Funded by the European Union

1. UMAM Dimensions

1.1. Policy and Innovation

The objective of this dimension is to analyse how city authorities manage urban mobility and their policy making process. This is done by analysing public policies, actions and protocols that are developed to think about the mobility of the future, today. The importance of this indicator is to be the first approximation of the strategies of cities, as a regulatory body and manager of urban mobility.

The analysis model is divided into three dimensions: mobility of people, mobility of goods and innovation.

Mobility plan

Mobility plan and policy making is analysed in the dimensions of network city integration, public transport service, reduced mobility, touristic plan and resilience and sustainability in terms of policy development and implementation. Each of the five dimensions is analysed using a scale of 1 to 5[1] depending on its level of implementation in public policies defined according to:

- Analysis of problems and opportunities concluded: working structures set up, planning framework defined, analysis of mobility city environment- 1
- Vision, objectives and targets agreed: build and assess scenarios, vision and strategy developed with stakeholders, indicators and targets are set- 2
- Policy adopted: measures/actions/projects are bundled and run through stakeholders, agree actions and governance for implementation agreed, develop implementation plan and finance - 3
- Measure implementation evaluated: actions and projects start implementation, outcomes are monitored, change management implemented, communication strategy deployed, plan reviewed - 4
- Process has iterated and it counts at least with 2 policy cycles - 5

Cities with values between 1 and 2 will be those with greatest room for improvement, while those with 4 or 5 already have a more consolidated position. This is due to the

[1] A letter N is shown where data was not submitted or is not available.

progressive character of the policy making process based on the stages of the Sustainable Urban Mobility Plans.

Freight mobility plan

Freight mobility plan dimension is analysed based on the sub-dimensions of last-mile policies, delivery timings, virtual loading bays, digital management and resilience, and sustainability. Each of the five dimensions is analysed using a scale of 1 to 5 levels depending on its level of implementation in the public policies as defined above.

Innovation

The last dimension of the analysis is innovation. This is key to understand how the capacity and willingness of each administration is to seek and implement new mobility proposals in the city. The analysis is done by considering its innovation objectives, as well as the practice through the example of pilots already carried out. The ratio between total euros and number of pilots is also calculated, to understand an average value per pilot and the importance of each pilot project.

1.2. Transport Supply

This dimension analyses the infrastructure provision within the city and how well it supports a transition towards sustainable mobility. It analyses the availability of different modes within the city and how some infrastructure has been introduced. It is important in that it assesses the current situation and enables more detailed analysis with respect to criteria in other dimensions (e.g. modal split within transport demand). It further helps determine what kind of policies might be most beneficial in terms of infrastructure investment, improving accessibility and what the focus for provision of transport should be when considering availability of sustainable options for individuals.

Each one of the transport modes can be assessed both separately and as part of the total provision in the city. Each mode is scored separately using threshold values and allocating a score from 1 to 5 for each threshold. Additionally, UMAM assessed car ownership, number of charging stations, service reliability, and the number of consolidation centres (to show availability of last mile infrastructure).

1.3. Transport Demand

The transport demand section explores how the city is performing in terms of number of trips conducted by different modes of transport and the annual congestion levels which represent the additional travel time drivers experience compared to a free flow traffic situation with no congestion. Transport demand indicators provide an overview on how well the transport system of a city is performing, which can lead to insights regarding the improvement of traffic conditions and the modes of transport that are better suited to support sustainable mobility.

Within the modal split category, the aim for cities should be to achieve higher modal share for sustainable modes (i.e. active modes, public transport, sharing mobility) as opposed to private vehicles. The thresholds of scores for the different modes (1-5 based on the index) show whether the score for each mode is positive or whether there should be additional work and targeted intervention for this in particular. The criteria measured within Transport Demand is modal split and traffic flow and efficiency.

1.4. Data

The goal of this dimension is to analyse how city authorities divulge urban mobility data. The importance of this indicator lies on how best to benefit from the huge data flowing in our cities and determine recommendations to strengthen urban mobility. UMAM focuses on certain data types: travel behaviour, real time disruption, air quality, socioeconomic data, active travel, motorised traffic, public transport and road and street congestion. Each of these types is then assessed according to the actions taken in regard to their collection and availability: data collected, public authorities management, data availability to third parties, open data and data availability for application development. Each of one of these actions correspond to a point in a 1 to 5 overall score for each type of data.

1.5. Environmental Aspects

The goal of this section is to consider the environmental impacts of urban mobility systems on a local level. Currently, the transport sector emits 27 % of the European GHG emission[2]. But, decreasing local emissions does not only contribute to the current main

[2] https://www.eea.europa.eu/data-and-maps/indicators/transport-emissions-of-greenhouse-gases/transport-emissions-of-greenhouse-gases-12

political targets of the European Union (e.g. Green Deal) to reduce the global emissions but also to the quality of life of citizens.

The indicator considers four sub indicators: the presence of low emission zones, data on the European Air Quality Index, Green House Gas Emissions, and noise. The data cities input for these sub indicators are matches to a threshold and scored from 1 to 5.

1.6. Social Aspects

The objective of this dimension is to analyse how well urban mobility systems meet the needs of end-users from a social perspective. This is done by taking into account how people live and interact with mobility systems and infrastructure in their city, including socioeconomic and physical considerations.

The importance of this indicator is to be the first approximation of how closely aligned a city's mobility system is to the needs and desires of its users from a social perspective.

The analysis model is divided into four dimensions for assessment according to its objective in order to provide a holistic understanding of how well the system is meeting social needs: pricing of public transport, accessibility, traffic calming and traffic safety. The data is allocated to thresholds, which are link to a score from 1 to 5.

2. Roadmaps

After data is submitted, the UMAM score is generated. A brief literature review is completed to capture basic information of the city. With the information provided through the UMAM tool and the literature review, a roadmap is produced for each city. The roadmap follows a Avoid/Reduce, Shift/Maintain, and Improve approach.

The approach, known as A-S-I (from Avoid/ Reduce, Shift/Maintain, Improve), seeks to

- achieve significant GHG and air pollutants emission reductions,
- reduced energy consumption,
- less congestion,
- while increasing the levels of physical activity through walking and cycling as a daily mode of transport,

- more efficient use of public space,
- better accessibility, with the final objective to create more liveable cities.

Avoid/Reduce: Activities that are considered for this column are aimed to improve the efficiency of the transport system through integrated land-use planning and transport demand management, to reduce the need to travel and the trip length. There is a negative correlation between the activity and the objective, for instance: reduce car dependency in transport supply or demand to improve the city scoring.

Shift/Maintain Activities are aimed to improve trip efficiency, while encouraging modal shift from the most energy consuming urban transport mode (i.e. individual motorised transport) towards more environmentally friendly modes. There is a positive correlation between the action and the indicator, for example: Maintain and continue gathering Environmental data to keep the city score high.

Improve Activities focus on vehicle and fuel efficiency as well as on the optimisation and innovation of transport infrastructure and network. There is a beneficial correlation between the action and the scoring, for instance: improve stakeholder engagement practices for the city to achieve a higher score.

Additionally, each action is professionally assessed in terms of timeline and complexity. As regards timeline, the options are short, medium or long term, which can roughly be interpreted as 0-1, 1-3 and +3 years. Complexity is assessed at a high level according to the resources needed to implement such measures.