MOBILITY MANAGEMENT IN EUROPEAN PROJECTS. LESSONS LEARNED FOR ROMANIA

Oana LUCA
Technical University of Civil Engineering Bucharest, 124 Lacul Tei, Bucharest, Romania
oana@utcb.ro

Mihai ŞERCĂIANU
Technical University of Civil Engineering Bucharest, 124 Lacul Tei, Bucharest, Romania
mihai.sercaianu@utcb.ro

Abstract
The purpose of this research is to study three initiatives of promoting mobility management (DELTA, EPOMM, SEE-MMS), in the context of European Union policies, and to present solutions that could be used in the practice of urban mobility management in Romania.
Keywords: mobility management, sustainable development

1. INTRODUCTION

The increase of urbanisation, of the density of population and its mobility leads to new economic, environmental and health-related issues for towns and their inhabitants, as a result of the excessive use of vehicles, by producing congestion and pollution. The opportunity offered to the citizens of the new member states of the European Union to benefit of personal cars, as well as the acceleration of this trend as a consequence of foreign investment in these countries should be compensated by offering alternative measures, such as mobility management. Promoting such measures is highly important in these countries, especially if we consider that their citizens do not have satisfactory alternatives to the use of motor vehicles, such as public transportation or a cycling infrastructure.

Mobility management can be described as a mechanism to manage the transport demand, which aims at providing solutions to the transport needs of people and goods. It can be applied as a strategic management tool or as a measure for solving location-specific problems. The aim is to reduce the demand for car use by increasing attractiveness of other means of transport and by practicing them.

Mobility management is an innovative approach to managing and providing transport services to clients, including older adults, people with disabilities and people with low incomes. Mobility management

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focuses on meeting individual customer needs through a wide choice of means of transport and service providers. It also focuses on the coordination of these services and the providers, in order to achieve an efficient delivery service of a public transport system for the political decision makers and the taxpayers who pay the service costs.

Effective implementation of mobility management to reduce congestion and to improve life quality of the people in these towns by reducing pollutant emissions are public policies established in a few European regions.

The purpose of this research is to study 3 initiatives of promoting mobility management (DELTA, EPOMM, SEE-MMS), in the context of European Union policies, and to present solutions that could be used in the practice of urban mobility management in Romania. They approach the issues and needs associated to passenger transport systems from different perspectives, but with the same final goal - taking measures to reduce or eliminate the causes of the existing problems.

In the context of the numerous research projects conducted in the past, a wide variety of research and development activities had been undertaken, which resulted in the development of some systems, methodologies and techniques for the intelligent management of the transportation demand, the passenger traffic control and information. Furthermore, initiatives were taken worldwide in an attempt to analyse mobility management and to propose sustainable solutions to the existing issues.

The analysed programmes and projects are considered to be the most representative in the European Union, aiming to make important contributions to the European transport services.

The projects whose object is mobility management are represented by the use of measures such as information or coordination of current services (“soft measures”) for the purpose of increasing the effectiveness of measures (“hard measures”) concerning traffic planning and organising.

2. DELTA PROJECT

DELTA "Concerted coordination for the promotion of efficient multimodal interfaces" is a research project funded by the 7th Framework Programme of the European Union. The project addresses the problems and needs associated with passenger transport systems facing with high and steep seasonal demand. These are causing congestion, pollution, energy wastes etc.

The focus of the project is on regional transport systems and the end result will be a Decision Support Instrument (DSI) to help the local transport or other agencies to apply techniques and strategies that

minimize the unnecessary passenger trips, create efficient multimodal interfaces and synergies between the local transport means and maximize the use of their resources.

Key solutions to the growing transport congestion, environmental pollution, increased travel times, low quality services for the travelers-visitors in regions suffering from an intense seasonality of transport demand could be "intelligent" mobility systems and Intelligent Transport Systems (ITS) able to improve the effectiveness and efficiency of the local transport system.

One of the most important outcomes of the DELTA project is the Decision Support Instrument (DSI) aiming to assist local transport and other agencies of regions with seasonal varying transport demand profiles in the selection of the most appropriate combination of mobility schemes, in the form of a roadmap, in order to manage this demand in a sustainable way.

DELTA is also providing results of a wide inventory and the in-depth analysis of previous and ongoing European R&D projects and other international initiatives addressing the theme of transportation demand management. This fact actually verifies the gap in the existing knowledge of handling seasonal traffic peaks in the concerned regions. Local authorities need this knowledge and the associated tools that will help them to better handle their strong variation in the transport demand.

The analysis of DELTA project generated 79 EU previous and ongoing projects and international initiatives related to transportation demand management. The projects have been classified into three groups according to their relevance to the DELTA project: minor, medium and high. From the entire list of projects, sixteen of them have medium and high relevance to DELTA and those were selected for the in-depth analysis.

The group "Minor relevance" includes projects/platforms/ initiatives dealing with the mobility management methods and schemes in highly populated areas. These projects offered good solutions– bicycle rental and parking, park and ride facilities, carpool and car-share systems, innovative bus systems, etc., but they are city oriented (traffic problems in European metropolis) and are not dealing with seasonal variations of transport demand or with multimodality connection between cities and rural areas.

Projects and initiatives in the "Medium relevance" group are the ones presenting some interesting mobility management methods/schemes or databases of mobility strategies with ideas and concepts that can be partly used for solving the problem with seasonal variations of transport demand.

The group "High relevance" includes projects, which are partly dealing with the problem of seasonal variations of transport demand and multimodality connection between cities and tourist areas.

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2.1. Case studies – national and local initiatives

2.1.1. Minor-relevance projects

Werfenweng is a car free holiday resort in Austria, located on the southern slopes of the Tennen Mountains which follows the concept of a car-free holiday resort. In order to ensure full mobility for the visitors, the local people provide horse coaches, private chauffeurs, night taxis and a Werfenweng shuttle service. In summer, a fleet of electric vehicles can be rented. Part of the electricity of the resort is provided by solar power stations.

On the other hand an Austrian Federal Railways company is offering price reductions for

event tickets when the travel is done by train (e.g. for the concerts, fairs etc.). Additionally to the normal schedule, shuttle-trains for visitors are installed.

During the winter months the Austrian Federal Railways company is offering holiday packages for skiing tourists to reduce the seasonal individual traffic peak. Tourists buy the train ticket and receive a voucher for the transfer from the station to the hotel and return and for the skiing pass. This allows a holiday without inconveniences travelling by car during bad weather or waiting in the jams

2.1.2. Medium and high relevance projects

Alps Mobility

The underlying idea for the pilot project Alps Mobility – an ecologically sustainable development of tourism in the Alps – involves developing practicable, environmentally friendly travel solutions in the Alps and mobility options at the holiday destinations, developed in cooperation with partner regions from which many travellers come to visit the Alps.

The primary goals of the pilot project are:

- the creation of a transnational partnership to promote an environmentally friendly mode of travel into and out of the model region (model region is tourist resorts and nearby cities);
- the implementation of measures for environmentally friendly transportation solutions within the model regions and model communities;
- the interconnection of these regions and communities and the development of an exemplary solution for the tourism region

The established data base links vacation ideas and excursion destinations with information on how a guest can ecologically reach these destinations by bus or train. Via the Internet, guests can be informed before leaving home or from their holiday location regarding which of their desired destinations are available and what business hours are kept. Thereby prospective guests always receive information about how they can travel between their lodgings and their chosen destination in an environmentally friendly way.

One central innovation is the system's "intermodal routing" via the Internet. The term means that all modes of transportation and routes, even the walking routes, are linked to one another. So the guest receives route suggestions, which integrate hikes, bus rides, as well as e.g. boat rides or cable car connections. The possibility of intermodal routing has not been available in other transport information systems in this format before

The established data base has the advantages of being available worldwide via the Internet and of offering direct access to information for those interested in an environmentally friendly holiday or who just want to learn something about the region. Because it combines information about public transport services with information about the region's attractions, lodgings and vacation destinations. There is an increase in the data base's value and significance as well as in the probability of finding regional information.

In Lombardy – Italy, the Alps Mobility Project has facilitated the integration of tourism offerings by creating an "Alps Mobility Card", valid for 8 days. It offers the free use of all public transport and a wide range of public facilities at reduced prices, such as thermal baths, lift installations, cultural events, museums, athletic facilities, etc. The project has optimized public transit facilities and expanded their services, primarily by extending them into the summer months and thereby helping to create interregional connections, particularly into Switzerland.

3. EUROPEAN PLATFORM ON MOBILITY MANAGEMENT *(EPOMM)*

EPOMM was developed developed as a strong, co-operative and balanced network of all actors involved in Mobility Management in Europe, which provides a wellknown network and reference point for all interested actors. It represents access to a central and extensive data bank on mobility management (MM) issues, and direct transfer of state-of-the-art know-how. It has provided support in the formation and deepening of a national network on MM (called National Focal Point (NFP)).

The main aims of EPOMM are:

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- To promote and further develop Mobility Management in Europe.
- To support the active exchange of information and learning on Mobility Management between European countries.
- The main tools to achieve these aims are:
- The website www.epomm.org containing the most updated and most in depth information on MM available.
- E-update: A monthly e-newsletter providing specific information on a mobility management topic.
- European Conference on Mobility Management (ECOMM) – The renowned yearly conference, which takes place every year in a city in an EPOMM member state.
- National Focal Points: The national mobility management networks of each EPOMM member country. They support the interchange between the European level and the national, regional and local level.
- Workshops: Organised by EPOMM to support build-up and transfer of know-how.
- EU-relations: Regular meetings with representatives of the EU to support the spread of MM.
- project networking with all European projects involved in MM. This helps to keep up to date with all project results and helps preserve access to information after projects have been completed.

Mobility Management measures do not always require large financial investments and may have a high benefit-cost ratio (campaigns and promotions for walking, cycling and public transport, cyclotax, limit car access, less parking spots, public transport information, mobility map, personalised travel assistance to help to reduce car use; employer might pay public transport tickets; car-sharing services; safe route to school).

Indicative examples of successful implementations of different mobility management

measures as best practices, which are presented at EPOMM's website (www.epomm.org) are the following:

- In Sabimos (The Netherlands) PT travel information system introduces a new dynamic travel information system which uses satellite navigation and wireless communications to transmit information in real time to travellers and transport companies. It is the objective of Sabimos to

set up a demonstration project to show that satellite navigation and wireless communication can be used to generate up-to-date travel information for bus and train passengers. Traffic control systems can also be included to greatly improve the flow and reliability of bus services substantially.

- The Dresden (Germany), the municipality implemented MM activities in 1996. There were big problems with rush hour traffic to workplaces. The transport infrastructure was not compatible with the highly increased motorisation and car use after the structural change process in 1989/90. In Germany, there are no law regulations to practise MM, so it is an optional activity of traffic source entities to take responsibility for the traffic they generate. With individual measures, such as job-tickets, coordination of timetables with shift patterns, relocations of bus stops, cycle parking with corresponding infrastructure, Intranet-based car-pooling schemes and even the establishment of a mobility team at Infineon/Qimonda, it has been possible to gain remarkable benefits.
- The Bike City in Vienna (Austria) is a housing estate, which targets the special needs of cyclists. Specific features are e.g. extra-large elevators, a bike-service-centre, as well as secured bicycle parking spaces. But also limited parking spaces for private cars are characteristic for the Bike-City.
- The local municipal housing society GESIBA built a new housing estate near the city centre in Vienna, which targets the needs of cyclists. Due to the special design of the building, the flats and the surrounding area as well as a complementary bike service it is expected, that the bike will be used more often than customary in Vienna. For everyone needing a car from time to time a car sharing system is available. In addition, the nearby bus and underground stations offer public transport as an alternative mode to the private car.
- Cyclotax: Using a bicycle taxi to transport passengers between subway and work in Rotterdam (The Netherlands).
- The Italian tourist area Genova Valley gave birth to the idea of a sustainable mobility plan for the whole area around its National Park introducing a number initiatives promoting sustainable mobility.

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4. SEE MMS PROJECT (SOUTHEAST EUROPE MOBILITY MANAGEMENT SCHEME)

The main objective of the project is to support multi-modality and the promotion of alternative transport in the SEE territory. The project aims to create a development strategy that guarantees continued economic growth and meets the demands on transport while at the same time mitigating the negative impacts of traffic on the accessibility, on the environment and on specific social groups.. The project will contribute to achieving a balance between economic growth and the process of increasing mobility while taking environmental aspects into account as well as the needs of inhabitants and Tourists in the SEE area. By promoting SEE cooperation in order to increase the use of Mobility Management (MM) in SEE cities, the project partnership will encourage regional and local authorities to view transnational cooperation as means of enhancing their development through learning from their experiences.

SEE MMS is producing multi-modal concepts and action plans for effective MM measures in the SEE cities which are ready for implementation, generating knowledge and resulting in:

- creation of a greater understanding of MM issues- overcoming the problem of coordinating administrative competencies- demonstrating the impact of MM in the SEE areas - improvement of the access to SEE cities- mitigation of traffic-related impacts on the environment- facilitation of transport intermodality in passenger and freight traffic- development of innovative methods to overcome bottlenecks in the transportation network- creation of a positive awareness of sustainable transportation methods- promotion of the acceptance of public transport in port cities - improvement in the quality of life and the economic situation in urban areas- guaranteed mobility to all social groups- implementation of pilot actions to improve the mobility situation in SEE cities - dissemination of know-how by training, manuals, brochures, websites, conference presentations, etc.

5. LESSONS LEARNED FROM STUDYING EUROPEAN PROJECTS - POSSIBILITIES OF APPLICATION IN ROMANIA

Romania already has major transportation problems due to the high rate of car ownership. Approximately 1.5 million motor vehicles have been registered so far in Bucharest, which means a ratio of one vehicle for every 1.3 inhabitants. Furthermore, there are thousands of cars registered outside Bucharest, whose owners live in the capital city.

Following the analysis of the three projects listed above, several guidelines have been highlighted and they can be followed to successfully implement a competitive Mobility Management System in Romania.

In order to move toward a sound development of the transport systems, the transport company's stakeholders (operators, decision makers, users, etc.) need an assessment of the best practices, common guidelines for implementation of smart mobility schemes and emerging ideas to adapt the transport system to the new passenger requirements. For prioritisation of projects requiring funding, a complex analysis is necessary to create a list of projects and initiatives in the order of their relevance. Local authorities need such insight to better manage the strong variation of the transport demand. This can be achieved by concluding partnerships between research institutes and universities, and the local authorities. A successful method with positive results is to encourage collaboration between counties and regions, as well as public-private partnerships.

Mobility management measures do not always require great financial investments and may have a high cost-benefit ratio (campaigns and promotions for walking, cycling and public transportation, restricted access of cars, fewer parking spaces, information about public transportation, mobility map, personalised travel assistance to help reduce car use, payment of public transportation tickets by the employer, car-sharing services, transport routes to educational facilities etc.).

For example, the European projects highlighted several effective methods of reducing traffic congestion in major urban areas, methods that can be adapted to the specificity of Romanian cities.

- Elaborate a sustainable transport master plan / strategy

For a long lasting and high qualitative city development there should elaborated and implemented a sustainable transport strategy. This strategy should include quantifiable aims and measures and should cover all areas of transport (user needs, budget, awareness raising, infrastructure, evaluation etc.). Many settlements do have transport master plans, but most times the car is the mode focused on. If the city wants to solve its traffic problems, attractive solutions for public transport, bicycle and walking have to be offered. The strategy should be a working paper and the measures agreed on should really be implemented. The sustainable transport strategy should be updated regularly.

- *Car sharing* is a model of car rental where people rent cars for short periods of time, often by the hour. They are attractive to customers who make only occasional use of a vehicle, as well as others who would like occasional access to a vehicle of a different type than they use day-to-day. The organization renting the cars may be a commercial business or the users may be organized as a democratically controlled company, public agency, cooperative, *ad hoc* grouping. Cars are available 24 hours/day, 7 days in a week and can be reserved by phone or internet.

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Today there are more than one thousand cities in the world where people can car-share. Innovation of this system is related to the fact that the clients can use a car whenever they want, without being necessary to own one.

- *Car pooling* means the sharing of car journeys so that more than one person travels in a car. Carpooling is for sure a win-win methods due to the fact that reduces the costs involved in car travel by sharing journey expenses such as fuel, tolls, and car rental between the people traveling. Carpooling is also seen as a more environmentally friendly and sustainable way to travel as sharing journeys reduces carbon emissions, traffic on the roads, and the need for parking spaces. Authorities often encourage carpooling, especially during high pollution periods and after fuel rises. Carpooling where the driving is shared can also decrease driving stress as each driver gets a break from being at the wheel. In an effort to reduce traffic and encourage carpooling some countries have introduced high-occupancy vehicle (HOV) lanes in which only vehicles with two or more passengers are allowed to drive. In some countries it is also common to find parking spaces that are reserved especially for carpoolers. Many companies and local authorities have introduced carpooling schemes, often as part of wider transport programs.

- *Travel plan* (historically referred to as a *green travel plan)* is a package of actions designed by a workplace, school or other organization to encourage safe, healthy and sustainable travel options. By reducing car travel, Travel Plans can improve health and wellbeing, free up car parking space, and make a positive contribution to the community and the environment.

  The introduction of *a high quality public transport service* with green vehicles helps the city to become more sustainable. Furthermore it might attract more public transport user.

- *Call a Bus* - introducing a fully flexible demand-responsive door to door minibus service. These call-a-bus schemes can be booked normally via call centers. The scheme is seen as complement to traditional public transport service and is especially suitable for rural areas, where no regular public transport service is feasible.

- *Information about alternative routes off the main / common travel routes.* In order to reallocate traffic, there should be provided information about alternative travel routes to the travellers. These alternative travel routes should be alternatives to the busy primary trunk roads and motorways linking major destinations.

- *Online, mobile and on-street real time information about traffic conditions.* In order to reallocate traffic to other routes/streets in case of an accident or high traffic volumes, real-time information about travel times and alternative routes and the traffic conditions could be provided to travellers. This information can be given through online services or mobile devices or through on street Variable Messages Signs.
- *Display / announcement of comparative travel times (individual transport versus public transport).* By displaying comparative travel times of individual transport vs. collective transport, people can be motivated to use public transport. Also additional messages, which promote the attractiveness and increased use of public transport may be displayed (e.g. more comfort, use your time efficiently etc).
- *Create zones to which motorized traffic is allowed but requested to pay when entering*

  Introducing road pricing on highly frequent roads (e.g. historical centers) to favour the use of public transport services and also protect nature through reduced emissions. Prices can be adapted according to the local needs or vehicles (e.g. required space, emission class, amount of persons transported etc).
- *Parking management system*

  Parking management systems could help limiting circulation times for vehicles searching for a parking space in the city. These systems direct drivers straight to free parking spaces. This is done by displaying available car parks in the area (with signage to them) and the displaying the available free amount of parking spaces.
- *Cooperation of various administrative departments* Transport is an interdisciplinary issue. It has to do with mobility, but also environment, health, school, economy, etc. Therefore, support the cooperation of the city's transport department with other departments, like the health department, tourism department, economy department etc. Implement a department-horizontal working group to create new ideas, to set focuses, to be innovative.
- *Funding scheme for green fleets* . Setting up a funding scheme for green fleets would foster the usage of alternatively propelled / green vehicles within the city. This scheme can be available for dedicated fleets. There could be introduced this scheme for example for public transport or commercial fleets (like taxis, delivery services or the vehicle fleet of companies in the city). By greening the fleets lower emissions and less pollution can be achieved.

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- *Parallel routes to motorized transport with public transport possibilities to critical points / congested street sections*

  The aim of this measure is to provide a sustainable and reasonable alternative to inhabitants. Therefore fast and parallel alternatives by public transport should be provided. This can also include the possibility to shift individual transport to the public one even for short sections to avoid congested streets.

- *One-way streets*

  Introducing a one-way street system in towns could ease traffic flow or make the town less attractive for people wanting to use their individual car. However there should be established two way traffic for cycles or shortcuts for pedestrians to foster sustainable transport means in the area.

6. CONCLUSIONS

Based on the above analysis, we can draw some final conclusions:

1. Sustainable mobility is a precondition for achieving better quality of life and greater social cohesion. People should have easy access to basic facilities to enjoy their work and their leisure activities, in a comfortable, safe and healthy environment, thus contributing to minimising pollution and congestion.
2. Mobility management has great potential for stimulating innovation, and we refer both to the services offered to end users and to the technology used to built them.
3. Mobility must be based on an integrated approach by which a well-balanced package of (short- and long-term) measures is implemented, rather than a single initiative, that is unlikely to be effective. Sustainable Transport Plans can provide a solid and appropriate framework for such integration.
4. Minor impact measures may reduce traffic in a sufficiently efficient manner to deserve special attention with an important role in the transport strategy for the near future. Moreover, these measures are likely to enhance the effectiveness of major impact measures, which are of complementary importance.
5. Citizens should be part of the process leading to a transportation strategy. This is fundamental for ensuring public acceptability of the proposed measures. Inhabitants must cooperate in

order to not only find solutions to urban mobility issues, but also to define a long-term vision for more sustainable transport.

6. Financial barriers (characterised by limited resources for transport development) and planning/ operating barriers should be considered when designing and implementing a mobility management system.

Romania should focus on arousing public interest in this key area for transport development.

Also, in order to develop research and interest in this sector, it is recommended to define and establish common national and international standards that could help foster compatibility of solutions in the transportation system.

Finally, it is important to ensure dissemination of best practices in addition to encouraging knowledge sharing by means of the current platforms and initiatives.

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