



THE CIVITAS INITIATIVE
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CIVITAS VOICES: INSPIRING STORIES AND EXPERT IDEAS FOR BETTER URBAN MOBILITY

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IMPRINT

About

CIVITAS CAPITAL is a 36-month project of the European Commission's Directorate-General for Mobility and Transport (DG-MOVE) funded as part of the CIVITAS Initiative under the Seventh Framework Programme for Transport. Launched in September 2013, CAPITAL will capitalise systematically on the results of CIVITAS and create an effective "value chain" for urban mobility innovation.

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INTRODUCTION

One of the greatest strengths of the CIVITAS Initiative is that it brings together a diverse community of municipal staff, policy makers at all levels, non-governmental organisations, universities and research institutes and many others, all of whom are working on the transition to more sustainable and innovative transport and mobility in Europe. This enables a great deal of productive discussion, debate and learning on what this shift should look like and how it can be achieved.

Through its support for testing, implementing and evaluating innovative mobility measures in cities across Europe in demonstration projects led by local governments, CIVITAS has also generated a wealth of case studies from participating cities. All of these are featured online on the CIVITAS website, as well as in past collections of case studies which are available to download. CIVITAS also produces guidance and policy advice on a number of transport and mobility topics.

This publication is a product of these two facets of CIVITAS together, presenting ten case studies of measures and projects implemented within the last three years under the latest phase of the Initiative, CIVITAS PLUS II, and accompanied by two to three contributions per case study by members of different CIVITAS groups, such as the Thematic Groups, Advisory Groups, and National and Regional Networks (CIVINETs). The case studies include seven projects that received co-funding via the CIVITAS Activity Fund, two measures from the city-led demonstration projects DYN@MO and 2MOVE2, and one study into the long-term impact of a measure implemented within a previous phase of CIVITAS. The case studies feature contact information so readers can follow up and find out more information, and each case study relates to one of the ten CIVITAS thematic areas.

We invite you to read on and take inspiration from these case studies, consider the advice offered by the experts, and begin to plan measures or projects in your own cities.

WHICH GROUPS HAVE CONTRIBUTED?

The CIVITAS Thematic Groups are open to all and are structured around the ten CIVITAS Themes. Membership of the groups is diverse, with local governments, NGOs, universities, research institutes and private businesses being represented. The Thematic Groups offer the chance for mobility and transport professionals to network with one another and take advantage of the numerous training and exchange opportunities that the groups provide. Within CIVITAS PLUS II, the Thematic Groups were managed jointly by the CIVITAS CAPITAL and CIVITAS WIKI projects.

For more information on the Thematic Groups, visit www.civitas.eu/thematic-groups-all

The CIVITAS Advisory Groups ran in the framework of the CIVITAS CAPITAL project from 2014 until 2016. They consisted of experts on different topics related to mobility from across Europe, who were asked to provide recommendations on priority topics to the European Commission. The Advisory Groups operated on a temporary basis, undertaking specific assignments agreed upon with the European Commission, with members of the CAPITAL consortium providing technical support for their discussions.

The CIVINETs are composed of eleven networks of cities structured on a national, regional, or linguistic basis across Europe. CIVINETs act to disseminate news and opportunities from CIVITAS to their members and also undertake training and promotional activities within their respective countries.

For more information on the CIVINETs, visit www.civitas.eu/civinet

FEASIBILITY STUDY FOR BIKE-SHARING IN SZENTENDRE (HUNGARY)

INTRODUCTION

Szentendre, a commuter town and tourist destination on the edge of Budapest's metropolitan area, has grown markedly due to migration from the capital. Local museums, the historic city centre, and the Danube promenade are among the most popular tourist attractions in Hungary, and half of the city's workforce commutes to Budapest every day. These pressures generate a growing need for better suburban mobility.

The Regional Environmental Center (REC), based in Szentendre, seeks to decrease its carbon footprint through mobility management and the promotion of local cycling solutions. Bike sharing offers an ideal option for point-to-point 'last mile' trips for REC staff and thousands of other commuters, while giving tourists a fun way to tour the city. Bike sharing would serve the local economy and complement the suburban trains operated by the Centre for Budapest Transport (BKK), which also operates and seeks to extend Budapest's successful bike-sharing scheme, Bubi.

IMPLEMENTATION

The measure involved a comprehensive review of local conditions to determine the potential for a bike-sharing scheme in Szentendre. It gauged public attitudes to bike sharing and cycling in the city, then established the system's key parameters (such as market demand, technology, operational models, coverage area and system size). It then analysed financial feasibility under different conditions.

The feasibility study covered:

1. The benefits of intermodality and shared mobility in the suburbs;
2. Szentendre's suitability for hosting a bike-sharing scheme;
3. State-of-the-art technologies;
4. Market demand (300 survey responses, crowdsourced mapping, two community workshops, 17 interviews);
5. Operational, ownership, business and financing models;
6. The costs and benefits of proposed system alternatives;
7. The overall feasibility recommendation.

Based on the analysis, a bike-sharing scheme in Szentendre was found to be feasible. Out of the nine different system alternatives, the optimal solution was determined by the board of cooperating partners (REC, the BKK and Szentendre

City Hall) and urban cycling experts. To guide the planning and implementation process, the study, recommendations and suggested next steps were disseminated to potential investors and key decision makers in Szentendre, Budapest and BKK in Hungarian and English.

CHALLENGES / OPPORTUNITIES

Although the city has good conditions for bike sharing, a number of challenges exist regarding the quality of roads and existing cycling infrastructure. To support the take-up process, the study included supplementary elements such as an in-depth bicycle problem map, a photo gallery with explanations and a concise improvement action plan to guide the city in developing its cycling network.

While the participatory process (forums, survey, crowd-sourced mapping) and involvement of all stakeholders (interviews with 20 organisations and businesses) ensured broad ownership of the project, it also slowed down the decision-making process. The changing political will regarding the involvement of BKK in Budapest's suburban transport was also a challenge. Budapest City Hall did not have a staff member dedicated to cycling issues, and its strict communications policy impeded publicity of the study and limited public perception as a result. These challenges were overcome by personal involvement and discussion with key stakeholders in all stages of the project as well as the proactive use of social media to reach out to local communities.

RESULTS

Bike-sharing in Szentendre was found to be feasible. Market research showed strong popular backing, with 76.1 percent of survey respondents fully supporting or strongly supporting the idea of introducing a bike-sharing scheme. The feasibility study provides a firm basis on which the city can build private interest, vet technology providers in a potential call for proposals and bid for public subsidies. Bike-sharing will likely be implemented after infrastructural problems are addressed.

The measure increased the city's willingness to engage in cycling development. City officials participated in a workshop on sustainable urban mobility plans (SUMP) and held a public meeting that resulted in an assessment of the existing cycling infrastructure (also featured in the feasibility study and incorporated into the 2015 urban development plans of the city).

After the study, the city took steps to improve local cycling facilities by hiring staff for cycling issues and developing implementation plans for connecting bike lanes throughout the city (Road 11 and the Danube promenade to the Skanzen open-air museum). Some of these soft measures were implemented, others are in the pipeline, advancing the city's aim to reduce and eventually ban motorised traffic in the city centre.

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CAN BIKE SHARING BE EASILY INTEGRATED INTO THE DAILY COMMUTE? WHAT EVIDENCE EXISTS?

Benedicte Swennen

Urban Mobility Policy Officer,
European Cyclists' Federation, Belgium

Bike sharing is an excellent way to improve commuter traffic. Benefits include better connected public transport, reduced travel time, improved health and air quality and reduced noise. Added to these is the prospect that public bike sharing systems often reintroduce cycling in cities thanks to the visibility of the systems, and improve the image of cycling. For example, after the launch of Bicing in Barcelona (Spain), the city's bicycle modal split increased by one percent (from 0.75 percent to 1.76 percent in 2007) over a period of two years (from 2005 to 2007).

Users of public bicycles often replace trips formerly made by public transport and walking, but there is also evidence indicating a good shift away from personal motorised transport. A study of 2014 with information from surveys about bicycle share users carried out in a number of large EU cities and capitals showed that private motorisation is reduced by the implementation of a bicycle share scheme. In Barcelona, the users of the system decreased their car use by ten percent, while Velo'v in Lyon (France) reported that users reduced automobile modal share for cars by seven percent in 2007.

Bike sharing usage can vary between different cities, but they generally exhibit a similar daily usage profile, indicating the systems' popularity both for home-work and leisure trips.



Weekday usage peaks between 7 am–9 am and 4 pm–6 pm, clearly showing a working commute pattern, while weekend usage is strongest in the middle of the day.

Key success factors of public bike share schemes are by now well-known. However, the most important ones bear repeating. The size and density of the network should be sufficient to attract a good level of coverage, which stations placed at strategic locations. The system should be simple to use in everything from the registration system and design of bicycles and stations. Safe cycling infrastructure is also critically important, as well as policies such as reducing traffic speeds and raising awareness of cyclists among other road users. Finally, bike sharing should be tied to wider transport policy, and integrated with public transport in terms of the provision of information, physical infrastructure, and opportunities for purchasing access to the system.

Ms Swennen is a member of the Thematic Group for Car-Independent Lifestyles.

WHAT IS IMPORTANT TO KEEP IN MIND WHEN DEVELOPING A BUSINESS CASE FOR BIKE SHARING?

José F. Papí

Senior Partner and Head of Transport Innovation,
S3Transportation LLP, United Kingdom

In the ten years since the launch of Velo'v in Lyon (France), there are more than 850 public bike-sharing systems across the world. There has been rapid deployment and expansion of bike-sharing schemes in recent years in Europe.

While most ongoing research on bike sharing focuses on the evolution of these systems over time, little is known about the demographics, motivations, and behaviour of bike-sharing users. The similarities and differences between annual and short-term bike-share users and regular cyclists are also not well understood. To secure a continued business case for bike sharing over time, it is important to understand these issues.

In addition, increasing the flexibility bike-sharing systems in terms of time and range is a recipe for long-term success. Bike-sharing demand is often unpredictable, asymmetric and fluctuates throughout the day. Other factors, such as topography, weather or events in the city,



Image: S3Transportation LLP

also cause irregular or asymmetric rental demands and flow of bikes.

As the number of available bikes and parking racks at any bike station in the system is limited, satisfying the forthcoming demand with such limited resources is a major and recurrent challenge for Smart Cities. Yet the Bike Sharing of the Future will need to increase its supply during high demand periods (spring and summer, major events), and reduce it – or even transfer it temporarily to a more suitable location – during low-demand seasons (i.e. winter), and this without major infrastructure investments.

Mr Papí was a member of the CIVITAS Advisory Group on Financing Sustainable Transport.



Image: Eltis.org

CIVINET EXPERIENCE

City of Padua

Member, CIVINET Italia

Padua's public bike-sharing system Goodbike Padova consists of 265 bicycles, including 65 electric models, placed at 28 rental stations across the urban area of the city. Bicycles are available for rental through a convenient contactless card system.

Some important features of Goodbike Padova which ensure its financial feasibility include the numerous tariff options, ranging from 5 EUR for a weekly subscription to 25 EUR for a year. The first half hour of use is free, and there is also the option of purchasing a card valid for 24 hours, including four hours of user. This makes Goodbike Padova an attractive option for residents as well as for visitors. Income is also secured through a maximum of 20 square metres advertising space available at rental stations, and a discount is available to students at the city's university, of which there

are around 65,000. Students are an important group to attract to use the system, as many are hesitant to start cycling because of the risk of bicycle theft.

The full cost of the system over ten years is 456,000 EUR, co-financed between an EU-funded project, the Italian Ministry of the Environment, the Municipality of Padua and private sources. It is owned by the city and operated by Bicincittà, an Italian bike-sharing provider. This partnership came about due to Padua and Bicincittà's involvement in the EU-funded Velocittà project.

Some of the achievements are that users are very receptive to the system, particularly because of the range of pricing options available and the good quality of the bicycles. The combined promotion by Padua and Bicincittà has also helped to drive use of the system. However, some obstacles remain, such as inefficiency in redistributing the bicycles to stations, and that the economic crisis has reduced local businesses' appetite for purchasing advertising space at rental stations.

DEVELOPING ELECTRIC MUNICIPAL CAR-SHARING IN KOPRIVNICA (CROATIA)

INTRODUCTION

Koprivnica lies in northern Croatia close to the Hungarian border, and has around 30,000 inhabitants. The city is part of the CIVITAS DYN@MO demonstration project, which began in 2012. At the start of DYN@MO the municipal fleet consisted of 23 small or middle-sized gasoline-powered personal and delivery vehicles. They were used by various municipal departments and companies and the average distance covered daily by each vehicle rarely exceeded 30 km per day. In order to increase their efficiency a car-sharing scheme was planned, with electric vehicles seen as an ideal solution due to the relatively low daily range of the vehicles.

IMPLEMENTATION

Market research was conducted from May until December 2012 to determine the offer of electric vehicles available regionally. This revealed that the availability of charging infrastructure in Croatia was very limited – only two charging facilities were available in two different cities at extreme ends of the country. However, Croatia's national electricity provider HEP d.d. launched an initiative to install public chargers in all 20 Croatian counties. Koprivnica was one of the first to express interest.

The City of Koprivnica and HEP signed an agreement on setting up a network of chargers for electric vehicles in the scope of this initiative. The agreement included the set up of five charging stations on the land owned by the City of Koprivnica, giving it the right to build on it. HEP installed the stations as well as the surrounding infrastructure.

Regarding the choice of the charging stations, the City of Koprivnica gave advice and valuable input to HEP, who were obliged to conduct a public tender by public procurement law. The City of Koprivnica mainly gave specifications on the charging requirements of the electric vehicles they wanted to purchase.

The City of Koprivnica purchased the following vehicles: five full electric vehicles, one plug-in hybrid, and one hybrid. The full electric vehicles have 16 kilowatt-hour battery packs and have to be charged using the ChaDeMO protocol, which is used mainly by Japanese manufacturers.

However, the European Union favours the Combo 2 protocol, so that all of the charging stations in Europe will have the Combo 2 protocol as a standard. HEP has taken into account the needs of the electric vehicles from the City of Koprivnica

and the future requirements of the European Union and launched a tender for the purchase of charging stations that incorporate three charging standards; COMBO 2 standard, fast AC and ChaDeMo.

CHALLENGES / OPPORTUNITIES

Unlike in other European countries where there is a larger supply of and demand for electric vehicles, Croatia does not have the capacity to attract car manufacturers to offer their electric vehicles, due to the expected low volume of sales. There was a possibility of purchasing the vehicles in other European countries, but the lack of servicing network in Croatia would result in high maintenance cost because the vehicles would have to be serviced in nearby European countries, such as Austria or Italy.

Therefore there was a limited number of producers who could offer electric vehicles with the appropriate servicing network in Croatia. It was possible to purchase such a vehicle, but because the availability of such vehicles on the market is not high, the price of the vehicles could not be lower due to the lack of competition. Since there are no car-sharing companies operating in Croatia that can offer complete solutions to the end user, the City of Koprivnica had to undertake additional efforts in finding a company that was capable of developing such a programme tailored to the city's specific needs. A number of software companies were contacted that provided necessary data that were used to develop the main design of the car-sharing scheme.

The car-sharing scheme has proven to be more complicated than expected. The main reasons for that have been the technical requirements of the system that arose from the fact that the car-sharing scheme would have three sharing locations.

RESULTS

Despite the difficulties encountered in setting up the car-sharing scheme, there have been a number of positive results both in terms of the environment and the efficiency of the municipal government.

There has been an estimated reduction of 27 percent of CO₂ emissions from the municipal fleet, as roughly the same ratio of the number of vehicles has been replaced with environmentally-friendly alternatives. This has also raised awareness among Koprivnica residents about the importance of environment protection through sustainable transport.

The introduction of these vehicles has also reduced the operating costs for the municipal fleet by allowing it to be used more efficiently through the car-sharing system. As Koprivnica has created the first municipal electric car-sharing system in Croatia, it is a good reference for other Croatian cities as well as small cities across Europe.

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WHY IS ELECTRIC CAR SHARING A GOOD INVESTMENT FOR CITIES FROM AN ENVIRONMENTAL AND FINANCIAL POINT OF VIEW?

Kristine Hess-Akens

Project Coordinator,
City of Aachen, Germany

Municipal electric car sharing is not only a means to reduce costs and improve efficiency – think of the transparency of car usage, fewer vehicle miles travelled and decreased space consumption – but first and foremost it is a viable way to reduce business trip related greenhouse gas emissions. Municipal fleets are especially suited for conversion to using electricity. The average range of municipal vehicles and the tasks they need to perform can be easily covered by electric vehicles.

It is especially encouraging to see our DYN@MO partner the City of Koprivnica pioneering in this task in Croatia. Facing several infrastructural challenges like availability of charging infrastructure and of vehicles on the Croatian market, Koprivnica has nonetheless succeeded in introducing and implementing the first municipal electric car-sharing scheme in Croatia. Koprivnica is thereby not only setting a good example to promote sustainable mobility



to its citizens, but also to other cities in Croatia and thus raising awareness of the topic in a broader context.

Ultimately it has to be emphasised that introducing a municipal electric car-sharing scheme should ideally happen in the broader framework of measures promoting sustainable mobility objectives, like improving the public transport system and making walking and cycling more attractive.

Ms Hess-Akens is a member of the Thematic Group on Clean Fuels and Vehicles. Aachen and Koprivnica are two of the cities involved in the CIVITAS DYN@MO demonstration project.

WHAT ARE SOME OF THE MOST IMPORTANT CONSIDERATIONS TO KEEP IN MIND WHEN SETTING UP CARSHARING FOR A MUNICIPALITY?

Michael Glotz-Richter

Sustainable Mobility Senior Project Manager,
Free Hanseatic City of Bremen, Germany

The City of Bremen is a forerunner of integrating car sharing into urban and transport development. Car sharing is generally operated by market-based. Today, Bremen has more than 12,000 people using car sharing, of which more than 4,000 gave up a private car. Bremen aims at 20,000 users by 2020, replacing around 6,000 private cars.

There are some recommendations based on the experience of Bremen. Any car-sharing business model requires an understanding of the customers' needs. The best is a mix of corporate and private users as they tend to use car sharing at different times.

Visibility and accessibility of car-sharing stations are key points. Users want to have the stations nearby and the

distance to the nearest station strongly influences whether people will use it. Most users in Bremen walk or cycle to car-sharing stations. Free-floating car sharing, where cars are not bound to rental stations, is not ideal for small cities, or even for cities with less than a million inhabitants like Bremen. Station-based car sharing has stronger impacts on reducing car ownership as it is more reliable and usually offers more a greater variety of vehicles.

When looking at the demand of private customers, the temptation to use only electric cars should be avoided. While this might align with the goals of a car-sharing company and a public administration, users may be dissuaded by limited performance and higher costs for use. Following practical experience of cities where car sharing operates without public subsidies can provide inspiration for a good model. Finally, the ['Blue Angel' environmental certification scheme](#) also has indicators for car sharing that lay out clear requirements for the service, tariff structure and vehicles.

Mr Glotz-Richter was a member of the CIVITAS Advisory Group on Energy and Climate Efficiency.



Image: uveX / Pixabay

CIVINET EXPERIENCE

DTV Consultants,

Secretariat, CIVINET Netherlands and Flanders

Electromobility is a particularly important topic for the members of our CIVINET, as many members have well-developed policies in this area. The network's chair, the region of North Brabant in the Netherlands, is active in encouraging research and development for better electric vehicles and aims to see emission-free bus transport in the region by 2025. This has attracted industry in clean vehicles to set up shop in the region.

Moreover, individual cities in the network are also making strides, generally in providing charging infrastructure. Antwerp (Belgium) and Eindhoven (the Netherlands) are working on expanding charging points for electric cars, scooters and bicycles, both in parking facilities and in streets. Helmond in the Netherlands is offering free-to-use charging infrastructure for electric bicycles, while Heerhugowaard is combining intelligent systems and public involvement in the topic, by giving access to public charging stations with a contactless card system and asking residents to suggest new locations for infrastructure.

Of course, the Netherlands and Flanders have advantages that allow more progress on transitioning to electric mobility than in other parts of Europe. However, pooling ideas and experiences of how to realise this transition is extremely valuable, regardless of the scale of ambition that individual cities can manage. Through this, as well as European funding programmes on low and zero-emission vehicles and infrastructure, we can create this necessary shift.



Image: Eltis.org

EVALUATING THE LONG-TERM IMPACT OF PUBLIC TRANSPORT MEASURES IN DONOSTIA-SAN SEBASTIAN (SPAIN)

INTRODUCTION

Donostia-San Sebastian is the third-largest city in the Basque Country (Spain), sitting at the centre of a metropolitan area with 435,000 inhabitants. Urban buses in the city are operated by bus company DBUS on 27 lines and nine night routes.

Donostia-San Sebastian previously took part in the CIVITAS ARCHIMEDES demonstration project, which saw the development of a number of measures designed to increase the service quality of the city's bus service. This includes the development of high-quality bus corridors, as well as other measures such as bus services serving business districts.

When these measures were implemented, evaluation was carried out to examine the impact of the measures over the period of CIVITAS ARCHIMEDES. However, DBUS wanted to examine the impact of the measures over the longer term, and applied to cooperate with CIVITAS through a Long-Term Evaluation (LTE) of the measures in spring 2016.

IMPLEMENTATION

The implementation of the measures under ARCHIMEDES aimed to increase the number of trips taken by bus by five percent. In fact, this rose by 9.6 percent by 2011, an increase of 2.55 million journeys. This contributed to significant reductions of emissions of CO₂ and particulate matter.

The 2011 evaluation of the implementation of high quality bus corridors on two bus lines was carried out through a number of categories including economy, environment, society, and transport. For the LTE, the bus system was examined using these categories again to ensure consistency. It was also important to account for the development of the system since 2011, such as the installation of integrated ticketing across the whole region.

In terms of environmental impact, the traffic model system used during the 2011 evaluation was no longer in use by the city in 2016. Therefore, the evaluation team had to consider an alternative method. They chose to carry out a survey of 1500 passengers, asking them about their perception of improvements carried out by DBUS and the change in their mobility behaviour. This was equivalent to 12 percent of the lines' ridership. By using this information, aspects such as emission reduction could be estimated.

The social evaluation of the bus system related to the feeling of security that travellers had while using the buses.

This improved markedly during ARCHIMEDES when surveillance cameras were installed on buses. This was again measured through a passenger survey.

Finally, the transport aspect related to the punctuality of buses and average journey times. The number of public transport users, number of cars entering the city, and quality of service were also studied.

CHALLENGES / OPPORTUNITIES

The most important advantage of the LTE is that it has confirmed the efficiency of most of the measures carried out during the CIVITAS-ARCHIMEDES project, between 2008 and 2012, related to the deployment of the public transport high quality corridors, bus services to business districts, traveler information system and fleet management & communication system.

RESULTS

The LTE showed that the excellent results achieved by 2011 within CIVITAS ARCHIMEDES have continued. Although passenger numbers on buses within Donostia-San Sebastian fell between 2012 and 2013 and have not reached 2011 levels, the number of passengers on urban and suburban buses across the metropolitan area has continued to rise. The number of passengers is much higher compared to the projected situation without any improvements. Passenger satisfaction has also climbed to very high levels, exceeding that in 2011.

Additionally, the new system of estimating the environmental impact resulted in an annual saving of 689.4 tons of CO₂, as journeys from private cars and motorcycles are shifted to buses. However, it should be noted that this only measures the emissions reduction from two bus lines rather than across the whole network, which would require a more detailed study.

By carrying out the LTE, DBUS has been able to update its evaluation methods and been able to test some new practices for assessing the impact of transportation methods – this is particularly the case with using passenger surveys to record estimate environment impact and passenger satisfaction.

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WHAT ARE THE MAIN BENEFITS OF CONTINUING TO PERFORM EVALUATION ACTIVITIES ON IMPLEMENTED MEASURES?

Dr Maria Morfoulaki

Transport Special Operational Scientist A,
Hellenic Institute of Transport, Greece

Many sustainable mobility measures, policies or technologies have been adapted from many cities. Their effects are assessed using specific evaluation tools or methodologies. The duration of the evaluation stages, can last from a few months to many years.

Over the last few years the evaluation methodology has also introduced the life-cycle analysis process known as 'Life-Cycle Assessment' to ensure a continual performance evaluation. According to this procedure, the potential environmental, traffic, social or economic impacts of the implemented measures are calculated, taking into account the four stages of the life cycle (creation, operation, maintenance, and disposal) highlighting also the problems that may occur during all these stages.

This methodology takes into consideration the over time changes that sustainable mobility measures will generate over time, such as the development of a new mobility culture,

which affects not only the traffic and the environment but also the behavior of the people, the economy and the social living. For this reason the new city profile is imprinted, and the new traffic, energy and environmental data over a specific period are calculated. The performance of the measures is re-calculated through a longitudinal evaluation process, ensuring the diachronically accuracy of its results which can be considered as the main benefit of this continuing procedure.

Dr Morfoulaki is a member of the CIVITAS Thematic Group on Collective Passenger Transport.



AS WELL AS USING NATIONAL OR EU-WIDE STATISTICS, HOW CAN EVALUATION HELP CITIES MAKE THE CASE FOR SUSTAINABLE URBAN MOBILITY INVESTMENTS?

Dr Henrik Gudmundsson

Chief Advisory, CONCITO, Denmark

‘But does it work here?’ This is a most reasonable question often asked to success stories and best practices reported from elsewhere. Nothing beats local evidence collected in context. Evaluation – the assessment of results or processes done ex post – is exactly that. And it can certainly make a difference.

A prime example is the evaluation undertaken in Stockholm (Sweden) in 2006 after seven months of a full-scale trial of the congestion charging system. Data to evaluate results over a broad scale of impacts were collected from the first day of the trial, analysed by independent experts and communicated on various platforms. These evaluations were clearly contributing to the positive outcome of the subsequent referendum and the political decision to make the scheme permanent.

But well-performed evaluations are also the best basis for potential transfer and generalisation of knowledge to other sites, as they help policy makers to decide if something is worthwhile piloting or adopting locally.

Evaluation comes in a variety of forms and can have various aims. It can for example look into results in terms of goal-fulfillment, or cost-efficiency. It can also address aspects of the implementation process such as timely delivery or legitimacy. Another important issue can be possible unintended outcomes for groups of travellers, residents or businesses. The city of Copenhagen (Denmark) conducts biannual survey on how well the goals of the cycling policy is met combining data from traffic counts and accident statistics with a survey of cyclists’ perception of safety.

A key prerequisite for any trustworthy evaluation is a good study design. Useful elements include involving stakeholder groups to determine evaluation aims, collection of relevant data prior to introduction of change, use of treatment versus control areas or groups if possible, and use of independent experts to interpret results.

Evaluation is no panacea for implementing the right solutions, however, since even the best evaluations can produce uncertain or conflicting results, and even the best informed decision makers may not feel convinced by results. Nevertheless good evaluations are the life blood of evidence-based policy making and a core part of sustainable urban mobility planning.

Dr Gudmundsson was a member of the CIVITAS Advisory Group on Data and Statistics.



CIVINET EXPERIENCE

City of Gdańsk

National Network Manager, CIVINET Polska

The City of Gdańsk was a demonstration city in the CIVITAS MIMOSA project from 2008 -2013. One of the measures implemented in the city within the project was a marketing exercise on the city's tram network. Currently, Gdańsk has 10 tram routes covering 52.6 kilometres and travelled by 127 vehicles.

The measure started with an online survey on the quality of tram services, and was carried out in 2010. 2000 residents responded to 40 questions to indicate the problems of tram transport in Gdańsk, measure passenger satisfaction and work out proper promotional activities. The responses to the survey resulted in the development of different promotional activities including public events, workshops, competitions and social media activity.

This measure was evaluated throughout its duration from August 2010 until November 2012. The evaluation proved that the measure introduced a significant qualitative change in the approach to the application and testing of innovative promotional activities. Public transport providers and the city administration realised that constant communication with public and awareness-raising activities are required to keep

attracting users to sustainable mobility modes. It also helped to build acknowledgement of social media an effective marketing tool.

In sum, Gdańsk's experience with this measure and its evaluation has been that strong marketing and communication support is necessary to convince motorists to consider modes other than private cars. It also supports the objective of developing an attractive image for public transport, which has been demonstrated through a continuous increase of acceptance for public transport and a particular preference for travelling by tram.



IDENTIFYING PRIORITIES FOR A SMART PEDESTRIAN NETWORK IN PORTO (PORTUGAL)

INTRODUCTION

Walkability is now regarded as one of the key qualities of a sustainable city. However, the pedestrian paths in Porto, the second-largest city in Portugal, are poorly connected and make it difficult to get around the city on foot. This limits the amount of pedestrian activity that can take place, particularly in the historic city centre, as well as Porto's efforts to become more sustainable and liveable.

The Centre for Territory, Environment and Construction at the University of Minho applied an innovative approach using a Geographic Information System (GIS) to develop a model for the analysis and improvement of pedestrian paths in the city. It was based on actual pedestrian movements in Porto.

IMPLEMENTATION

The project began in January 2015. The model was applied to the historic centre of Porto and used GIS software and space syntax to simulate the urban pedestrian network. The total area used in the simulation amounted to 12 percent of the city surface. Due to the variety of densities, land uses, and functions, the area provided considerable diversity of conditions for pedestrians and a number of multifunctional spaces.

The analysis was developed with four criteria and nine sub-criteria that covered the following topics: urban function, built environment, accessibility and urban environment. Criteria selection was supported in an extensive literature review that were weighted according with a survey, where a group of stakeholders evaluated the importance of such criterion in a scale ranging from 0 (minimal weight) to 1 (maximum weight). This was important as every city has its own context which is informed by aspects such as the local culture, geography and weather.

The final score of each street analysed by the study equaled the sum of the scores obtained in the four criteria. A higher score indicated that a street was more important for the local pedestrian network, and therefore should be a higher priority for investment and improvement. It captured what pedestrians most value in urban environments for walking.

As well as looking at the areas with the most pedestrian movements, the study did an analysis of the connectivity of Porto's pedestrian network, looking into how easy it is to carry out journeys on foot across the city. The study also brought to light important information about the different motivations people have for walking.

CHALLENGES / OPPORTUNITIES

This project must detect the pedestrian behavior and recognize pedestrian demand in urban space. This action is hard to detect because people always did not present in space and had limitation time and person. Finally, It will be particular important to support the weighting process in a larger and representative sample. A combined system involving not only a group of stakeholders, but also by collecting the residents' opinion through a survey can be useful to strength the robustness of the model.

RESULTS

The main result of the study was that it confirmed that connectivity for pedestrians in Porto is poor, and identified priorities for improvements. These are useful for policy and decision makers when they come to decide where to allocate resources for maintenance and improvement. Over the long term, such a study can be a key component of developing a proper pedestrian network that makes getting around on foot feasible. The study also won a CIVITAS Award.

The University of Minho is now working with the City of Porto to repeat the study across a wider area of the city. The work carried out through the study can be easily replicated in other contexts and has the potential to improve policies for more sustainable and walkable cities in Europe.

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HOW CAN THIS MODEL SUPPORT DECISION MAKING FOR PEDESTRIAN MEASURES?

Dr. Ir. J.W.G.M. van der Pas

Senior Consultant, DTV Consultants

The model developed to identify priorities for a Smart Pedestrian Network seems to be highly innovative compared to what we have seen so far. Research of pedestrian traffic flows has only been given limited attention during the last decades. When it comes to modelling the focus has principally been on relatively small geographically-defined areas (in and around buildings and new infrastructures, evacuation flows, etc).

Recently, (policy) interest in walking as a transport mode has been growing. Walking is increasingly considered a

crucial mode when it comes to developing sustainable urban mobility policies. The model developed at the University of Minho is an innovative next step in making better policy decisions for this most underestimated mode of transportation. The fact that it delivers an integrated approach to simulate and assess pedestrian network measures on a network level and that it delivers direct policy input makes it a valuable tool for decision makers around Europe. The results for Porto seem promising. The challenge now lies in expanding and improving the model and perhaps making it accessible for policy makers throughout the EU and the rest of the world.

Dr Van der Pas is moderator of the CIVITAS Thematic Group on Demand Management Strategies.



Image: Eltis.org

CIVINET EXPERIENCE

City of Ljubljana and ODRAZ

Joint Secretariat,
CIVINET Slovenia - Croatia - South East Europe

While energy-efficient and clean vehicles such as cars and buses are of critical importance in developing more sustainable mobility, increasing the modal share of walking and cycling is equally important in achieving this goal. However, the creation and maintenance of safe and accessible infrastructure is one of the main ways to overcome aspects that discourage people from cycling or walking. From that point of view, finding ways to measure pedestrian traffic so that a pedestrian network can be built or upgraded, as this study in Porto has done, is a process that is of great importance.

Another challenge that arises in stimulating pedestrian and cycling traffic, particularly in city centres, is the issue of sharing space and avoiding inconvenience and accidents for

these two user groups. The two largest member cities of our CIVINET, Ljubljana in Slovenia and Zagreb in Croatia, are working intensively on this topic, as both aim to increase pedestrian and cyclist numbers in their cities.

Ljubljana is working with local research institutes to develop methods to put into practice the different priority they place on different groups of traffic – pedestrians are highest priority, followed by cyclists and finally drivers and public transport users. This has led to studies investigating the conditions under which conflicts between cyclists and pedestrians occur. A notable drawback in Ljubljana however is that data gathering on traffic is not carried out on a consistent basis. Zagreb is engaged in a dialogue with the Croatian Cyclists' Union about how to develop Zagreb into a true cycling city. The actions of these two CIVINET members indicate other important aspects of managing demand for walking and cycling – mainstreaming awareness of the vulnerability of these groups among municipal staff, and engaging cycling communities to ensure that their views and expertise are taken into account.



Image: Civitas.eu



IMPROVING TRANSPORT CONNECTIONS BETWEEN URBAN AND RURAL AREAS IN LEOBEN (AUSTRIA)

INTRODUCTION

Leoben is a city of 25,000 inhabitants lying almost in the centre of Austria. The current mobility options in the rural surroundings need to be improved, and municipality wants to help residents stay in the region without needing to migrate to other Austrian cities, such as Graz, Linz, Salzburg, and Vienna. This requires the development of sustainable mobility alternatives.

To do this, an implementation strategy for these mobility options targeted to rural residents of Leoben's surrounding district is needed. Research of the needs of this group is required to understand what options to offer to them.

IMPLEMENTATION

A survey was carried out targeted at passengers passing through Leoben's main bus and railway stations. The survey questioned respondents about their needs and wishes, as well as the barriers and problems they experience with public transport connections. The survey was carried out on Tuesday, Wednesday and Thursday between six am and noon over three weeks in October 2014. The survey attracted responses from 444 individuals.

Through the survey, three main aspects were identified:

1. Stronger focus on cycling facilities: Due to the responses to the survey, it was recommended that there be a stronger focus given to bicycle parking and the implementation of a bike-sharing system. This includes the potential to rent e-bikes to cover longer distances. A concept paper has been developed to better define this aspect (available in German only).
2. Park and ride: The need for of park and ride facilities at transport stations was a common response to the survey.
3. Improvement of timing device for public transport: Survey responses noted that the ability to connect between different bus lines was difficult due to the different timing of services.

Leoben also sought input from the nearby City of Graz, as well as the Styrian Association of Public Transport, on the topic of sustainable mobility in urban and rural areas. These organisations are also developing strategies on the topic.

CHALLENGES / OPPORTUNITIES

The opportunity to work with the City of Graz was of particular importance, as Graz is currently implementing a strategy on sustainable urban and rural mobility. Leoben was invited to be part of this strategy. Furthermore, the provision of in-depth information to Leoben's public transport provider by the Styrian Association of Public Transport was very valuable. They also offered further support in the future to develop improved public transport timing and the provision of real-time information.

This collaboration wouldn't have happened without undertaking this project and has given the City of Leoben with a huge advantage compared to other cities in implementing sustainable urban mobility measures.

RESULTS

The three identified main aspects will be integrated into Leoben's updated SUMP which looks towards the development of urban mobility in the city until 2025. Each of the most important aspects identified by the survey have been further developed. Since the concept paper on bike sharing in Leoben was developed, a new park and ride area at the train station was inaugurated on 11 November 2015, providing 334 parking places for cars, as well as 150 for bicycles. This 4.7 million EUR project helps to improve intermodal connections for drivers and cyclists. Finally, the poor coordination between different bus provoked the idea of providing real-time information on screens in shops and public buildings, improving awareness of bus connections among residents and visitors in the city centre.

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WHAT ARE THE MAIN CHALLENGES TO MAKING TRANSPORT CONNECTIONS RELIABLE BETWEEN LARGE AND SMALL CITIES?

Adam Harrison

Senior Policy Advisor, Transport for West Midlands (TfWM), United Kingdom

The West Midlands Combined Authority (WMCA) was established in June 2016, and consists of seven local authorities as full constituent members and several other local authorities covered by Local Enterprise Partnerships as non-constituent members. Therefore it covers the second-largest city in the UK, Birmingham, as well as other significant cities such as Coventry, Solihull, and Wolverhampton. It also covers several smaller towns and rural districts, and has a total population of over 2.8 million.

TfWM is responsible for formulating transport strategy and policy and project delivery, incorporating strategic highways, freight, rail, bus, tram and rapid transit network. This is informed by a strategic transport plan approved soon after the creation of the WMCA called '[Movement for Growth](#)'. The strategy consists of long-term improvements to the transport system to develop an integrated service that

delivery economic growth and urban regeneration, as well tackle environmental impacts and social exclusion.

A particular challenge that the strategy aims to deal with is the great variety of journey types – national, inter-urban, and local – that occur in this very varied region. Our aim is that each of these journeys can be carried out comfortably and without disruption, supporting local quality of life. The strategy prioritises urban development near transport locations or where they can be easily provided, reducing the possibility of building homes which are difficult to serve with public transport, as can be the case in diverse regions. Finally, securing funding has always been a major challenge, due to the highly centralised nature of UK Transport Infrastructure funding. This will be overcome in part through the devolution agreement between WMCA and the UK government.

Mr Harrison is a member of the CIVITAS Thematic Group on Integrated Planning.



Image: Eltis.org

HOW IMPORTANT IS INTEGRATED TRANSPORT FOR SMALLER CITIES WHO WANT TO MAINTAIN THEIR POPULATIONS AND BOOST LOCAL ECONOMIES?

Maarten De Schepper

Head of Transportation, City of Hasselt (Belgium)

Hasselt, with 76,000 inhabitants, is the capital of the Belgian province of Limburg with 800,000 inhabitants. As such it is the site for many government services, company headquarters, high schools, and shops, and also foresees increasing residential development. In the coming years the city expects to grow by 1000 inhabitants per year.

Given these challenges Hasselt is trying to strike the right balance between accessibility of the urban area and liveability for residents. Hasselt's Sustainable Urban Mobility Plan (SUMP) has six strategic goals to change the mobility landscape in the city, where 70 percent of home to work journeys are carried out by car. The SUMP aims for a more accessible and green city, with improved safety and quality of life. We want to prioritise attention firstly to pedestrians, secondly to cyclists, then to the public transport and at last to car drivers. This is essential to help us to deal with the coming challenges

We discourage cars in the centre of the city to provide a safe environment for pedestrians and cyclists. Every year we enlarge our pedestrian zone and make cycling streets in our historical centre. To park your car near the city centre will be made more expensive than at the border, where free public transport to the city centre will be available. Alternatively, a free bicycle can be used.

Together with an integrated network of cycling paths, cycling highways, high quality public transport with trams and buses,

dynamic traffic management system and many smaller actions Hasselt will try to influence the commuters to make a sustainable mobility choice.

Mr De Schepper was a member of the CIVITAS Advisory Group for Sustainable Urban Mobility in Small and Medium-sized Cities



Image: Stad Hasselt

CIVINET EXPERIENCE

City of Torres Vedras

Co-President, CIVINET España y Portugal

The municipality of Torres Vedras has an area of about 407 km² and is located in the north of the metropolitan area of Lisbon. Because of this proximity to the capital, the city has grown rapidly, with almost 80,000 inhabitants in 2011. Torres Vedras is characterised by a high density of shops, services, health facilities, education and public administration, which generate a large daily flow of people. Torres Vedras also attracts around 20,000 commuters from the surrounding area every day, causing a mobility management and parking problem. For these commuters the car is the dominant mode of transport, causing problems in traffic management and long-term parking.

Given the problems identified in the city, an integrated system of parking management has been implemented with the installation of a network of parking meters, parking surveillance in public roads, a plan to reserve parking places

for residents and traders, and the development of a public bike-sharing system and parking for private bikes. 10 parking areas have been defined and have exclusive parking places for residents, freight distribution parking spaces and spaces for disabled drivers. The Municipality of Torres Vedras has sought to empower the territory with an integrated transport solution, located at the intersection of main roads, with a urban and interurban scope for public transport, freight distribution areas, taxis, and up to 1,000 free parking spaces.

The municipality to develop a strategy for the promotion of a new culture of mobility, which promotes the use of soft modes of travel and public transport, understanding problems and offering more sustainable mobility options. The city is committed to participating in networks to share knowledge and experience between cities such as the CIVINET España y Portugal, whose Portuguese Presidency is held by Torres Vedras. The city is also currently member of the CIVITAS Initiative's Political Action Committee.

INCREASING CHILDREN'S AWARENESS OF SUSTAINABLE TRANSPORT CHOICES IN STUTTGART (GERMANY)

INTRODUCTION

Stuttgart is the capital of the German state of Baden-Württemberg. It has approximately 600,000 inhabitants and is the centre of the metropolitan region with a population of 2.7 million. Due to high volumes of vehicle traffic entering the city every day, Stuttgart faces severe air pollution problems. To combat this, the city is encouraging residents to use public transport, to walk or cycle, or to use car sharing.

Even small children can make a real difference just by walking to school. Walking and cycling short distances can help to prevent emissions of CO₂ and particulate matter, as well as bring an end to the daily car chaos at the school gates.

IMPLEMENTATION

The project, entitled: 'I am a climate hero! Walking makes a difference!' was carried out in Stuttgart from the start of October to the end of November 2015, at four primary schools and in 15 classes in total.

A total of 332 primary school children at the following schools took part:

- 71 children in Grade 2 at Hohewartschule in Feuerbach;
- 71 children in Grade 3 at Reisachschule in Weilimdorf;
- 96 children in Grade 3 at Wolfbuschschule in Weilimdorf;
- 94 children in Grades 2 and 3 at Lerchenrainschule in the city centre.

Students learned about issues around climate change and the environmental impact of different means of transport in three double lessons. A parents' evening was also held to discuss the issues of global warming and its consequences, Stuttgart's political goals on this topic, and the everyday changes in behaviour required to meet these goals.

Walking to school is an important focal point of the project to reduce traffic levels in the area around schools, make walking to school a real and safe option for all children, and reduce CO₂ emissions. As such, the children were active climate heroes and collected 'climate walking points' for their environmentally-friendly journeys to school over a period of two weeks.

CHALLENGES / OPPORTUNITIES

An attempt was made to integrate the project with the Traffic Snake game, which is operating across Europe, but there were too many barriers from the political and organisational point of view.

In this kind of work, it would make sense to conduct evaluation after one year to assess the impact. However, as children can be divided into separate classes after the conclusion of the school year, carrying out long-term evaluation effectively involves a great amount of effort.

Providing training to teachers via their peers who have already been involved in the campaign would be a good way of increasing the numbers taking part, as it reduces the impression of having extra work imposed from above. However, the institution responsible for teacher training lies within the Ministry of Education at the federal state level, and therefore outside the direct influence of the city administration.

RESULTS

The project was shared with participants of a CIVITAS study tour in Venice (Italy) in March 2016. As a result of that meeting, a new project proposal was developed with the municipalities of Venice, Nice (France) and Nova Gorica (Slovenia).

Based on the final report and evaluation of the project, an application will be made to the city council for a permanent budget for continuation and expansion in more local schools.

Speaking to children who were involved in the pilot, Mayor Fritz Kuhn said, "It's fantastic to see how you have engaged in this project. And because you learnt a lot and did a lot for climate protection, you have the right to say: I'm a climate hero!"

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WHAT METHODS AND ARGUMENTS WORK BEST WHEN ADDRESSING YOUNG ADULTS ON SUSTAINABLE MOBILITY?

Anette Enemark

Head of Mobility, MOVIA, Denmark

People aged 17 - 25 can be a difficult target group for public transport operators and mobility managers. However, they are generally more positive about public transport, and once they understand how to use public transport they are likely to continue to do so independently, even if they begin to drive. However, innovative techniques to attract this user group are necessary. MOVIA made a special effort to do so with three regional express bus lines in the Greater Copenhagen area, which connected residential and commercial areas as well as educational institutions.

The marketing approach combined a number of materials and media. Posters were produced that could be tailored for different audiences, making the bus lines relevant for students at individual schools. Social media content was designed to generate discussion among students about the opportunities that these public transport options offered, and students were offered an 'online commuter check', giving them information about travel time, price, environmental and health impact by mode. This was an

opportunity to inform students about the alternatives offered by the three bus lines.

Although this approach was time consuming and relied on the goodwill of relevant people at educational institutions, the response to the campaign was positive. A promotional package is now being produced to help schools inform students about their transport alternatives, including a mixture of online content and in-person training materials. Surveys carried out among the students showed that based on the commuter check, two out of ten students using car transport were considering switching to public transport. Students appreciated the additional information about how much time and money are spent on different modes of transport.

Ms Enemark is a member of the CIVITAS Thematic Group on Mobility Management.



Image: Landeshauptstadt Stuttgart

CIVINET EXPERIENCE

Transport Travel & Research

Secretariat, CIVINET UK & Ireland

Mobility management continues to be a priority in the UK and Ireland. Much of the work is undertaken via travel plans, relating to both public and private sector organisations. It is interesting to see how Stuttgart has stimulated school children's awareness about climate change and interest in walking. Sustainable school travel is widely promoted across the UK and Ireland, often via travel plans. A well-used scheme is Transport for London's Active, Responsible, Safe (STARS), which supports and accredits schools to create, maintain and monitor travel plans. For example, CIVINET UKI member Haringey Council has 60 schools with active travel plans, most having achieved STARS accreditation. Travel plan activities include scooter and pedestrian training, walking competitions and after school cycle clubs.

Many local authorities secure residential and workplace travel plans through the planning process. This requires developers to fund sustainable transport measures.

Workplace mobility management often supports improving access to employment. A good example concerns CIVINET member Bournemouth Borough Council. It is a key player in the Business Travel Network for Bournemouth, Poole and Dorset. Members receive support on producing and delivering travel plans, network meetings, and an awards scheme. During its first year the network recruited 30 members with around 25,000 employees.

In the UK and Ireland, mobility management focuses on active travel. The Scottish government funded the Smarter Choices Smarter Places programme includes behaviour change initiatives to encourage active travel - like guided bike rides and walks, 'Goody Bags' to reward people for travelling sustainably, and active travel hubs offering events, facilities, educational sessions and campaigns. These initiatives are delivered by local authorities, with an emphasis on community engagement.

CIVINET UKI supports members on mobility management by showcasing and exchanging best practice - both from the UK and Ireland and elsewhere in Europe. This is mainly done via our events and newsletters.

ENGAGING YOUNG ADULTS IN TRAVEL BEHAVIOUR AND TRANSPORT IMPROVEMENTS IN LISBON (PORTUGAL)

INTRODUCTION

The Portuguese capital of Lisbon aims to improve quality of life and reduce traffic congestion and emissions of greenhouse gases through the development of a new mobility culture among younger residents. This means that their perceptions of public transport need to be addressed, including the use of promotional materials, tools, and activities. All these measures should be designed to encourage a switch to using public transport more often.

Lisbon's transport authority, Transportes de Lisboa, ran a campaign entitled 'Let Us Move You' targeted at students in a number of university campuses which are served by public transport stops. Common features of the campaigns included workshops focusing on sustainable mobility and its economic benefits, study visits on specific engineering topics, a competition among students to suggest innovative mobility projects, and student surveys and follow up on their mobility behaviour.

IMPLEMENTATION

Activities began in January 2015. During this phase, the principal work was developing the content of the campaigns, including the multimedia resources to be used and the content of the travel survey for students. Administrative aspects such as the rules and identification of the jury for the competition on innovative transport projects were also carried out at this time. All of this was submitted to the Board of Directors of Transportes de Lisboa for their approval. Once this was achieved, contact with the universities was made.

During February, Transportes de Lisboa worked with the universities to set up arrangements for the workshops, dealing with logistical issues such as catering and venues and supplying advertising materials. During this time, the online survey was also developed. The workshops were also advertised through the universities, social networks, and in the media.

The workshops took place during March at a number of different university campuses. During the workshops students heard about the transport options that were open to them and had the opportunity to talk about the barriers they experience when using public transport. They were also encouraged to fill out the survey at this time, and received over 270 responses. Submissions to the competition to find innovative ideas for future mobility improvements were also taken in March.

In April and May the survey responses were assessed, and innovative project ideas were evaluated by the jury selected in January. An award ceremony was also organised in May, presenting a prize to the winner of the competition, who suggested the development of electric bike sharing with good connections to public transport.

CHALLENGES / OPPORTUNITIES

Some aspects which could have gone better was the timing of the project. Students had mid-term exams during the project period and this reduced the potential impact of the workshops. Furthermore, it would have been better to have a marketing expert on the project team with insight on communicating to young adults. The limited budget to offer public transport tickets and for merchandising was also a drawback.

Among the benefits of the project was that a range of stakeholders were involved, including the universities, the Board of Directors of Transportes de Lisboa, local NGOs, international transport experts, and NGOs. The events and competition were also disseminated well to students and there was a good opportunity to advertise the campaign on-site in the universities.

RESULTS

The project won the 3rd Youth for Public Transport International Youth Award at the 2015 World Congress International Association of Public Transport in Milan (Italy). It was congratulated for having successfully engaged students in thinking about the importance of public transport, both for them as individuals and for society as a whole. It also captured important information and ideas for improvements to Lisbon's public transport system.

As such, involving young people in transport decisions and addressing the barriers that they face is a good way of continuously increasing use of the public transport system and improving future results.

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WHY IS IT SO IMPORTANT TO INVOLVE PEOPLE AGED 16 - 25 IN PLANNING AND DESIGNING URBAN TRANSPORT?

Alessandra Gorini

Executive Director, Youth For Public Transport (Y4PT) Foundation, Belgium

Youth For Public Transport works collectively worldwide as the voice of young people in the transport-related mobility sector and acts as a bridge between young people and each stakeholder. Y4PT is also a youth mentor for sustainable transport.

Nowadays young people are a major category of transport user (public transport in particular) and they will inherit the outcome of today's mobility decisions. Their development as adults in the future will be also so much influenced by the experiences and opportunities (or lack of them) that they are going to have during their early ages.

Their perception of reality is completely different from other demographics; for instance they are adept at using brand

new technologies and their social, emotional, and intellectual approach is quite unique as well.

Many try to avoid their role in the decision-making process as they are afraid of not having matured enough in terms of experience and skills, but guiding them through processes and turning their ideas and point of views into reality can permit the creation of "islands of development": their participation in planning the urban realm and the transport sector will lead to the transformation and growth of our communities, our societies, our nations, and humankind in general.

They will bring a fresh perspective to a sector that in many ways seems to be out of date and stuck in time, while other community members and youth-led start-ups are effectively taking the lead, bypassing the mainstream transport world, locked in endless and sometimes never-ending discussions which sometimes are leading nowhere in terms of effective changes.

Y4PT is represented in the CIVITAS Thematic Group for Public Involvement by Mr Sebastian Pernet.



Image: Trasportes de Lisboa

CIVINET EXPERIENCE

City of Hradec Králové

Member, CIVINET Czech and Slovak Republics

As in most Czech cities, Hradec Králové has only just begun learning how to involve different relevant stakeholders, partners and the public in the process of transport policy making. The need to strengthen the participation process in this field has become particularly important as developing sustainable urban mobility plans has become more common.

An analysis of mobility needs of students and other groups of inhabitants does not take place regularly in our city and such data cannot be taken into account during decision-making processes. Hradec Králové went through a QUEST audit in 2013, which identified a clear need to change existing practice. In spite of these challenges, Hradec Králové regularly collects data used for estimation of the European Common Indicators (ECI), including indicator A.3 "Mobility and local transport of passengers".

The project by Transportes de Lisboa should ideally be a part of a series of surveys of residents' transport behaviour, possibly of specifically chosen groups of inhabitants, as it is in this case. The active involvement of young people is important, as is strengthening the relationship between how

people move and quality of life in the city. The project's activities like competitions, workshops and others, under the patronage of the transport department and transport experts, can be attractive for students.

It is important however to find support for the realisation of the awarded projects contributed through the competition. An important factor for a successful and larger involvement of students to the project is a combination of the timetable of the project with the organisation of university life and needs. The most important benefit of the project is the involvement of young people in discussions on urban mobility, such as how mobility influences and contributes to urban quality of life. It would also be beneficial to organise such projects also for primary and secondary schools.

Such a project can have an additional positive effect by forming the initiation or completion of the development of urban transport policies and decision making in the field of transport Surveys organized under the project should be a part of a wider and more comprehensive survey of mobility among city inhabitants. The membership of Hradec Králové in the CIVINET Czech and Slovak Republics brings access to important information, news, data sources, offers and contacts from the field of sustainable urban mobility, what tools for support of sustainable transport modes exist, and the activities, experiences, and initiatives of cities in this field.



Image: Civitas.eu

CREATING SLOW ZONES AROUND SCHOOLS IN NIKŠIĆ (MONTENEGRO)

INTRODUCTION

Nikšić is the second-largest city in Montenegro with more than 70,000 inhabitants. Public transport consists of the suburban bus system and the taxi service. Public transport including school buses in the city is not organised by the local authority. Although Montenegro's traffic legislation mandates a 30 km/h speed limit near schools, it has been very poorly respected. Also, traffic signs are non-existent at certain locations and lacking in others.

The measure aimed to increase road safety in primary school areas, reducing the number of car journeys and increasing the number of journeys on foot and by bicycle to primary schools. The objective was to create safe school surroundings and increase the road safety satisfaction among children, their parents and all road users.

IMPLEMENTATION

The measure was implemented in seven steps, which reached hundreds of schoolchildren, teachers, parents and car drivers. It began with a set of preparatory activities where stakeholders were introduced to the planned activities. The project team established a mobility manager for each school, responsible for promoting sustainable mobility in their school and cooperating with other schools on the topic.

A workshop on traffic safety near schools in Koprivnica (Croatia) was organised. Representatives from Nikšić received information about SUMP and visited schools implementing road safety projects. A follow-up workshop was held in Nikšić to improve future plans for traffic safety in school zones at the local level. Participants in the workshop included representatives of the municipality, local schools, and police.

The municipality, in cooperation with the police, introduced road markings and installed traffic signs in school zones. This involved installing signs warning drivers to slow down to below 30km/h in these areas and establishing them as 'safe districts'. A survey was conducted among children from five primary schools (443 children in total), parents (196) and drivers (153) in the first phase of the project. The survey asked respondents about their perceptions of road safety.

Drivers were informed about the rules and signs in school surroundings and promotional material was given out. Speed measurements were also conducted by the police, which aimed to familiarise them with the requirements of Montenegro law and the issue of speed reduction near schools. A prize was awarded to the school which engaged most enthusiastically with the project and showed the greatest interest in sustainable mobility.

CHALLENGES / OPPORTUNITIES

Meetings and cooperation between Nikšić and Koprivnica were of great value, especially for Nikšić as a recent member of CIVITAS. In addition, cooperation between the project team, police officers and school mobility managers was a valuable driver for the project.

However, the lack of proper communication among departments at local government level caused delays in the implementation phase and time wasted on administration. Parents were not sufficiently involved or motivated, as unclear answers given and low number of questionnaires returned.

RESULTS

The conclusions of the evaluation were:

- The organisations involved considered that the establishment of the "safe school zones" contributed to make primary schools more obvious and safer.
- Schoolchildren were very positive about the school zones.
- 38 percent of the responding parents thought that road safety increased, 27 percent thought that road safety did not increase, and 25 percent were not sure.
- 82 percent of the responding drivers thought that road safety increased, but 50 percent still thought that children are not safe and 32 percent were not sure.

The established solutions will continue to exist as part of the municipal planning for traffic safety. Low-speed zones will continue to exist to increase safety for all road users, especially school children.

A clear problem has been current economic problems and the limitations of municipal budgets, which constrain future plans in this area. Additional budget will be required to

extend the activities in school surroundings. School zones would then be uniform and obvious and be an example for other educational institutions in the city.

Future action should focus on educating children, parents and drivers about improving conditions for pedestrians and cyclists, such as by improving infrastructure and roadside equipment, or by traffic calming and eliminating conflicts between motorised and non-motorised transport.

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WHAT ARE THE BEST ARGUMENTS THAT CAN BE USED TO CONVINCE POLITICIANS TO DEVOTE RESOURCES TO IMPROVING ROAD SAFETY?

Jeannot Mersch

President, European Federation of Road
Traffic Victims (FEVR), Luxembourg

Experts agree that nearly all known effective measures for reducing the dangers on our roads and in our streets have a more or less positive cost-benefit ratio. This can range from four to 10 or even more, it's a win-win situation. Putting a monetary value on the loss of life and the infliction of serious injury may seem like a strange way of arguing for better road safety, but especially during economic crisis when other topics as unemployment or general safety are higher on the agenda, this could be a convincing argument to politicians to prioritise and finance road safety measures a bit better.

The European Transport Safety Council, puts a monetary value of 1.97 million EUR on preventing the loss of one human life in 2015. They also calculated that the total value of reductions in road deaths for the EU28 in 2015 compared to 2010 is estimated approximately 10.4 billion EUR.

For example introducing 30km/h zones in urban areas with high shares of vulnerable road users, such as pedestrians



Image: FEVR

and cyclists and especially children, elderly and people with reduced mobility, can bring good results with only a few low-cost infrastructure and signalisation measures. This should be accompanied with the right information and awareness-raising and some enforcement, if needed. And as the acceptance of such measures is generally high among drivers, this can have great results for the safety of vulnerable road users and so saving a great deal of money and suffering.

Mr Mersch is a member of the CIVITAS Thematic Group on Safety and Security.

ASIDE FROM INFORMATION CAMPAIGNS AND SIGNAGE, WHAT ARE SOME OTHER EFFECTIVE WAYS TO ENCOURAGE ROAD SAFETY AROUND VULNERABLE GROUPS SUCH AS SMALL CHILDREN?

Graziella Jost

Programme / Projects Director,
European Transport Safety Council, Belgium

Providing safe mobility in particular for vulnerable road users, including children, presents a major challenge but one which has been taken up strongly by some mayors. Each town is different, but they face similar challenges and are trying to find common solutions. Cities cannot address all these challenges by themselves. They need the right planning, traffic management and fiscal powers from central and regional government, traffic law that is clearly enacted by central government and enforced with conviction by the police and the courts, and the vehicle manufacturers and operators to design injury reduction into the vehicles themselves and into operating practices. But for all that,

the challenges to act locally on the road system, and to put priority for traffic safety at least on a par with access, mobility and the environment. These challenges lie within cities themselves.

Nikšić presents a good example of road safety work where all stakeholders are involved and exchange good practices. The city of Nikšić has rightly decided to combat the number one killer on the road: speed. 30km/h is the right speed limit around schools, residential areas and where there are more cyclists and pedestrians. Infrastructure measures, such as speed bumps and chicanes, can support drivers in complying with a 30km/h speed limit. Enforcement of speed limits is key to reduce the number of children killed and seriously injured. The police should also enforce the correct use of child seats in cars. Enforcement is cost-effective as the saving of lives more than offsets the cost of enforcement. Cities are also encouraged to provide good public transport to lower the exposure to risk, as well as provide safe routes for the journeys on foot or by bicycle.

Ms Jost was a member of the CIVITAS Advisory Group on Road Safety



Image: Sywin Aptacy / Pixabay

CIVINET EXPERIENCE

City of Székesfehérvár

Member, Magyar CIVINET

Road safety in primary school areas is an issue in most European cities, and especially in Central and Eastern Europe. Problems are predominantly caused by motorised traffic, both through traffic of the affected road sections and destination traffic of the schools themselves.

The project implemented by Nikšić targeted primarily through traffic which endangers schoolchildren arriving to and leaving schools by inattentive driving, not always respecting the right of way of pedestrians and high driving speed. To solve these problems, the 30 km/h limit with signs and road markings, supported by communication is a good start, but the success also depends on continuous communication and systematic enforcement. Székesfehérvár has also implemented similar measures, such as crossing islands and on-demand traffic lights. However we face the same problem as Nikšić, namely the lack of funding to deploy these measures to all school

areas, which could provide a broader visibility to the measure.

On the other hand, driving children to school by car also causes a vicious cycle: the more parents drive to school, the lower the perceived safety level, which again leads to more parents choosing the car as the safest alternative. To break this cycle, a number of pilot measures are planned in Székesfehérvár, including school mobility plans based on surveys similar to those conducted in Nikšić; educating children and parents on traffic safety and rules; different ways of improving pedestrian safety and indicating access for travellers on foot; infrastructure for cycling; better public transport connections and information; mobility management measures looking at mode choice by students; and for those who drive, dedicated drop-off points to avoid parking chaos.

An advanced solution could be the redesigning of sections in front of schools to traffic-free, attractive public spaces, giving also space to group activities of school classes.



Image: whoefle / Pixabay

MEASURING AIR POLLUTION THROUGH SENSORS ON PUBLIC TRANSPORT VEHICLES IN MÁLAGA (SPAIN)

INTRODUCTION

Malaga is capital of the Costa del Sol, a metropolitan area of 1.2 million people, as well as one of the most famous tourism destinations worldwide. The city has seen strong demographic increase in the last 50 years, doubling its population between 1960 and 1980. Since the approval of its Sustainable Urban Mobility Plan, several actions have been developed such as pedestrian and traffic calming areas, dynamic parking information, and priority lanes for public transport and bicycles. However, these initiatives need to be integrated in a broader strategy, aiming at reducing private vehicle use and improving public and alternative transport.

The measure consisted in installing mobile sensors for air quality measurement on the top of five buses of the public transport fleet. The sensors will provide reliable data on the evolution of air quality in several areas of the city, which are not covered by the four fixed stations currently existing in Malaga.

IMPLEMENTATION

The measure was implemented in seven stages. An implementation plan was first developed, where a description of the measure was elaborated, as well as the definition of the objectives and the schedule of the activities related. The definition of pollutions and environmental indicators followed. A study to select the different types of pollutants was carried out and a set of environmental indicators were then developed to evaluate the air quality condition and to establish optimal air quality targets to be reached. According to the current regulations on air quality at European and national levels, the pollutants to be measured by the mobile sensors will be carbon monoxide (CO), nitrogen oxides, and ozone.

The next stage was the definition of technical requirements. An analysis of the hardware infrastructure requirements (types of sensors, protections and installation conditions within vehicles), the installation and boarding requirements and the hardware connections technical requirements was elaborated. Monitoring stations were then set up, including the installation of the mobile sensors and hardware/software interfaces were developed in order to start up the system and the communications from the stations to the MOVIMA mobility management system.

The final step in the design process consisted of quantifying the reliability of the measurements made by the equipment through the implementation and test of the systems. This allowed the measure to begin operation with the registration

and analysis of the quantitative measurements of air pollution. In parallel a qualitative evaluation is being carried out, with comparisons made with the results obtained by the existing fixed stations.

CHALLENGES / OPPORTUNITIES

In the preparation phase a particular technological barrier was that mobile air quality monitoring was a new concept in the Spanish context. For this reason during implementation the design of the sensors had to be considered very carefully. Aspects considered included the design of the casing to protect the device and make it watertight as well as the design of the power supply for the sensors located on top of buses. The installation of the devices on top of buses also required a lot of investigation, as they needed to be located in areas avoiding vibration which would interfere with the sensors, while also being able to withstand normal operational conditions.

In the operational phase, there were some electronic problems that affected the data sensors, and occasionally the wireless communication was disrupted due to the distance between the buses and the data concentrator where the buses are parked. Additionally, the ozone sensors became less reliable quite quickly, even though sensors for CO and NO₂ continued to function well.

RESULTS

Despite some challenges, the system provides air quality information and allows Malaga to see which areas and at what times of day air quality is worst. This will help the city to make more informed traffic management decisions over the long term. The sensors are robust enough and sufficiently reliable to measure levels of CO and NO₂ on a consistent basis. The setup of the sensors and data concentrator also provided enough information for the purpose of the project, and no significant issues arose.

Subject to a final evaluation in late 2016, further work could include converting the system to enable real-time traffic decisions based on air quality measurements, installing more sensors on a larger variety of vehicles, and the creation of a web interface for residents with clear information about air quality in the city.

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HOW DO TECHNICAL INTERVENTIONS LIKE ITS MAKE A DIFFERENCE TO EVERYDAY LIFE IN CITIES?

Fred Dotter

Policy and Behaviour Change Project Manager,
Mobiel21, Belgium

Increasing urbanisation, climate change, and demographic and societal developments are some of the trends that have put pressure on transport networks in recent years. Breakthroughs in transport telematics can tackle many of these problems, and help to improve the quality, availability, timeliness and multi-modality of transport and other public services. This is not only vital for making European public transport systems even better, but also for enhancing the quality of life of urban travellers.

Systems that monitor and manage traffic and congestion can facilitate access control and route planning, directing traffic to desired routes and locations. At the same time, they can influence traffic demand. As road infrastructure is used more efficiently, negative impacts of traffic are reduced and public transport becomes more reliable and of better quality, saving passengers time. Furthermore, road safety is an important topic in this field, as dangerous locations and situations that can cause accidents can be identified and improved.

Saving time and money is not the only result however. As in this measure from Málaga, ITS can also support an improved environment by monitoring air quality. Moreover, efficient



transport that enables people to live their lives without obstacles can make a great contribution to a happy city with healthy citizens, because it contributes to vibrant public spaces where people can meet and the local economy can thrive. This idea of quality of life includes the level of happiness experienced by citizens, their sense of community and connectedness to other people, their physical health and their mental well-being. As the host of the 2016 CIVITAS Summer Course on urban mobility and quality of life in June, it is therefore no surprise that Málaga is betting on transport telematics to achieve its mobility goals.

Mr Dotter is a member of the CIVITAS Thematic Group on Transport Telematics.

CIVINET EXPERIENCE

City of Santander

Co-President, CIVINET España y Portugal

As the case from Málaga shows, ITS can be deployed in various domains not limited to traffic management or real-time information for public transport. The City of Santander has implemented a series of measures regarding ITS and parking within its Smart City Strategy, for example real-time simulation of traffic conditions and a fare management solution.

Almost 400 parking sensors (based on ferromagnetic technology), buried under the asphalt have been installed at the main parking areas of the city centre, in order to detect parking sites availability in these zones. A guidance system to free parking lots was developed, which takes information retrieved by the parking sensors. Ten panels located at main intersections have been installed to guide drivers towards the available free parking lots.

The MobiWallet project addresses Interoperable Fare Management solutions - an essential component in the continued growth and acceptance of the use of smart transport and the smart city. It does so through four key impact areas: encouraging modal shift and facilitating ease of use of multiple transport options with a focus on handicapped or disabled users, improving efficiency and reducing energy consumption, enhanced and sustainable mobility for all users and improving cross border transportation capabilities.

The Lord Mayor of Santander was the founder and president of the Spanish Smart Cities Association, and is also a member of the CIVITAS Political Advisory Committee. Within CIVINET España y Portugal (of which Málaga is also a member) Santander is the co-president and chaired network meetings in Santander and Alcobendas in 2013 and 2014 respectively. At both these events the member cities adopted two policy agreements, one relating to smart cities and the other to ITS, setting out CIVINET members' ambitions to develop such policies in their own cities.



Image: DavaLB / Pixabay

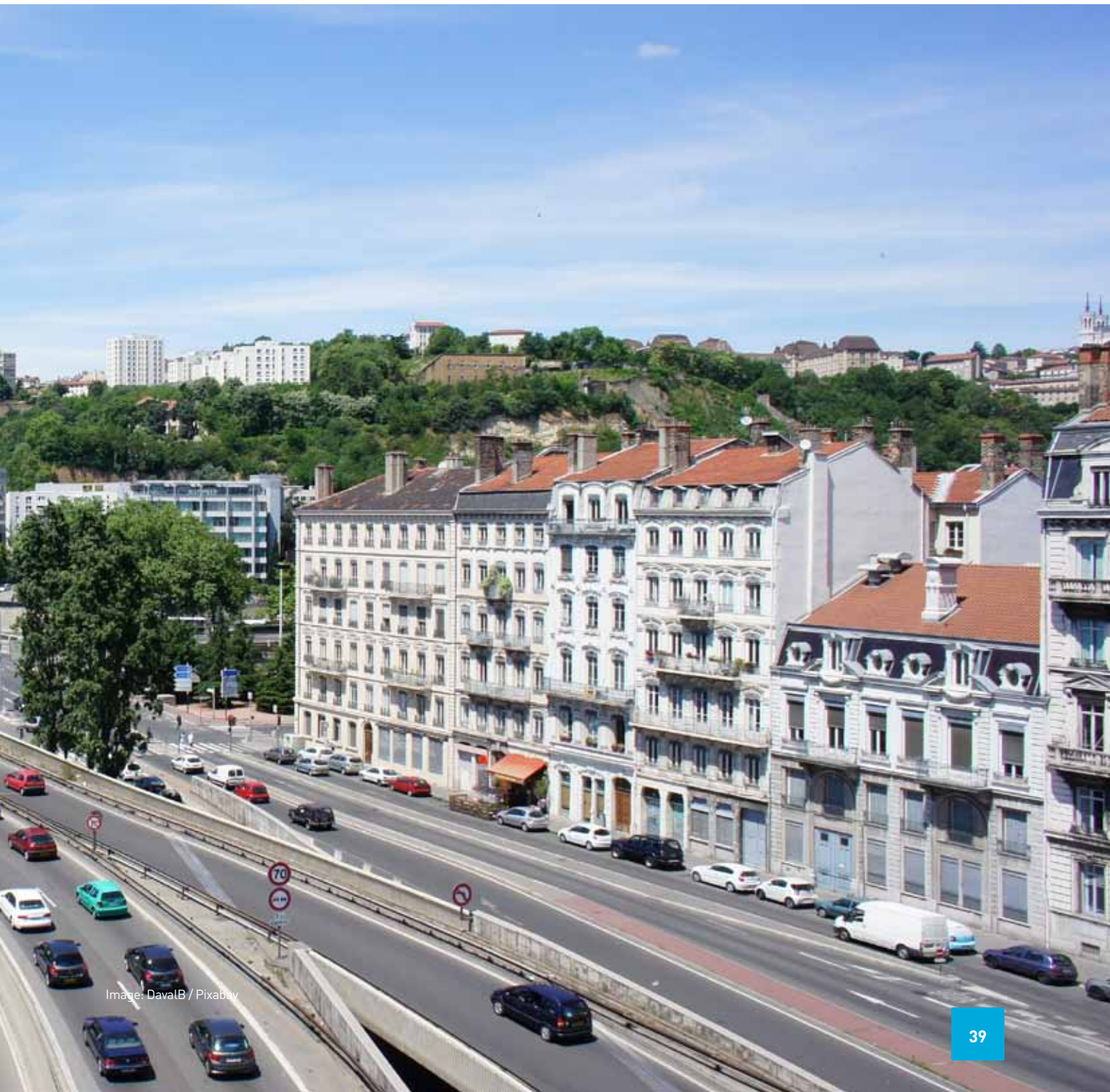


Image: DavaLB / Pixabay

BUDAPEST (HUNGARY) LEARNS ABOUT FREIGHT CONSOLIDATION FROM BRISTOL (UNITED KINGDOM)

INTRODUCTION

The Centre for Budapest Transport (BKK) is the integrated urban mobility managing authority for the Hungarian capital of Budapest, and is responsible for the city's first SUMP-based transport development strategy (the BMT Balázs Mór plan). BKK is also responsible for organising public transport, bike sharing, authorising taxis and giving access permits for freight vehicles entering Budapest.

In 2014 BKK planned to develop a new urban freight distribution scheme as part of an improved urban freight logistics strategy for Budapest, planned to enter into force in 2015. This supports environment friendly vehicles, and foresaw sustainable consolidation and distribution solutions.

BKK wanted to collect more information in advance of developing this new scheme. Two transportation engineers working on Budapest's new urban freight distribution scheme travelled to Bristol to learn more about their freight consolidation centre and see it operating in practice.

IMPLEMENTATION

The Bristol and Bath Freight Consolidation Centre was developed within the CIVITAS VIVALDI project from 2002 – 2006 and served retailers in Bristol's core area. It was the first project of its kind in the UK, and was subsequently expanded within the CIVITAS RENAISSANCE project to cover the nearby City of Bath and the area of North East Somerset. The freight consolidation centre uses two 9 tonne electric vehicles to make its deliveries.

Before the study tour, BKK and Bristol City Council were in contact to agree on the plan for the study tour. As well as this, BKK sent a description of the way that freight was organised in Budapest and on the new Freight Transport Strategy for Bristol to look at and comment upon. This received positive BKK received positive feedback on the Freight Transport Strategy for Budapest, which also includes entry restrictions for personal cars in highly protected green areas. The enforcement system, as mentioned in the comments too, need further improvement to make it more efficient, and also the information provided for foreign drivers should be improved.

During the study tour, visitors from BKK received presentations on the contemporary state of transport in Bristol and further developments for urban logistics in the future.

In brief, the Bristol and Bath Freight Consolidation Centre works with local businesses in the region to consolidate their deliveries in a distribution centre to the north of Bristol. Deliveries for multiple businesses are then carried out together, aiming to achieve a higher load density, with fewer delivery vehicles on the roads and lower emissions. The consolidation centre is operated by DHL.

CHALLENGES / OPPORTUNITIES

BKK gained a lot of useful insights on the running of freight consolidation in Bristol. Of particular relevance was the information on how the Freight Consolidation Centre was set up initially and how electric vehicles are incorporated into its operations. Another useful information was that some shops accept deliveries outside their opening hours, providing entrance opportunity for loaders without any issues or problems. The general plan did not change after the visit, but we received confirmation about the build and basic needs of a freight consolidation centre for non-perishable goods.

Both Bristol and BANES Councils have continued to work together with DHL to encourage use by shopping centres, retailers and businesses to maximise opportunities and benefits of the scheme. Targeted marketing information has been produced and a variety of retailer and business forums and events have been attended to help promote the Consolidation Scheme,

Going forward efforts are being made to expand the operation to service more non-retail businesses and institutions, alongside further marketing efforts to bring more retailers and businesses within Bath and Bristol centres on board.

With increasing pressures on local authority budgets, whilst both Councils value the significant environmental benefits the scheme delivers, a challenge is to reduce the level of financial support needed for the Centre to operate.

RESULTS

At the end of 2014 the urban freight distribution scheme for Budapest was introduced, including a city-logistics pilot system development plan, operating with energy-efficient electric vehicles, to lower external impacts, emissions, and energy consumption. The area covered by the scheme includes a couple streets in the city center with many shops and also there is plan to cover the historical Castle district. In 2015 the discussion and negotiation was continued with the local municipality to make the legal environment more supportive for electric vehicles and to place more charging stations in the city center.

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IS FREIGHT CONSOLIDATION INHERENTLY SUSTAINABLE? WHAT ARE SOME FACTORS THAT INCREASE ENVIRONMENTAL PERFORMANCE?

Dr Emel Aktas

Senior Lecturer, Cranfield School of Management,
Cranfield University, United Kingdom

Increasing urbanisation affects lives in cities, in particular in food distribution. The amount of food transported into cities is increasing and consumer preferences when buying food are changing towards more convenient and logistically more challenging directions. For example, more and more consumers living in cities prefer to shop online and have their order delivered to their residence on the day and at the time of their choice.

The European food retail industry grew by two percent to \$1,745 billion in 2014 with an expected increase of 12 percent by 2020. The environment is very competitive with strong price pressure, new services (online ordering, home delivery, click and collect) and there is an increasing need for efficient distribution processes.

The current grocery distribution business model in the UK is competitive, without any collaborative logistics strategies among retailers. Each retailer has a fleet of trucks and uses its own warehouses to satisfy customers' online grocery orders. Multiple visits to the same neighbourhood increase transportation costs while negatively affecting society through congestion, fatalities, noise, and carbon emissions.

Retailers can reduce transportation costs by adapting shared or collaborative logistics techniques where collaborating parties can achieve economies of scale and better utilisation of their fleet. Through analysis it is possible to show cost savings and reduction in environmental impact in terms of CO₂ emissions, noise and pollution from collaboration and consolidation of freight; however, for collaboration to be sustainable, consumers should receive the same or better delivery service whereas retailers should observe significant decreases in their operational costs.

Dr Aktas is a member of the CIVITAS Thematic Group on Urban Freight Logistics. Her colleagues at Cranfield School of Management, Dr Michael Bourlakis and Dr Dimitris Zissis, also gave input to this contribution.

WHAT ARE THE MOST IMPORTANT CONSIDERATIONS IN DEVELOPING FREIGHT CONSOLIDATION? WHAT CONDITIONS NEED TO BE IN PLACE?

Dr Susana Val

Associate Research Professor,
Zaragoza Logistics Centre (Spain)

A freight consolidation center can be understood as a place where freight is re-distributed to be delivered into the city center. This operation is accompanied of course by a reduction in the number of vehicles and a better cargo load by vehicle. However, there are many different freight consolidation centers; for instance logistics centers can also be freight consolidation areas, as well as pack stations (with a reduced volume used for parcel deliveries in the neighboring areas) and also public distribution depots among others.

The final decision of implementing a particular freight consolidation center depends on many factors: One main factor is the geographical location and the identification of congestion in a particular urban area. The final choice

between an urban consolidation centre or a pack station could be the level of congestion of the whole urban area in the first case, and a determined area within the city center in the second. Environmental impact is a crucial consideration to be taken into account to deploy a freight consolidation center; this helps to reduce number of kilometres travelled by increasing the vehicles' factor load and to reduce pollution by using smaller and environmentally friendly vehicles where appropriate.

Another important issue is the flexibility of operations that freight consolidations offer and the possibility of creating supply chain schemes of horizontal collaboration between companies; in this case there is a neutral trustee operating as a third party and some preliminary agreements in terms of confidentiality and privacy of data are required. Finally, the cost of implementation must be balanced against the total impact in the urban area. Lastly, but no less importantly, a collaborative business model must be created with the public administration.

Dr Val was a member of the CIVITAS Advisory Group for Urban Freight Logistics.



Image: Civitas.eu

CIVINET EXPERIENCE

City of Graz

Member, CIVINET Deutscher Sprachraum

Graz has made more sustainable freight a priority. The city has developed its own environmentally delivery service which allows shoppers to relax in the historic city and not have to worry about bringing their car and finding parking. This service is called 'bring-mE' and offers shoppers the option of having their purchases delivered to their homes by electric bicycle either on the same or the following day.

The advantages of such a service are clear, as it reduces individual car use and promotes a more sustainable and

vivid city centre. It was first developed as a pilot through the EU-funded SMARTSET project, which focussed on how European cities could develop more energy-efficient urban freight transport.

Graz is currently involved in a new Horizon 2020 research project entitled NOVELOG, which will see the service extended to include new kinds of customers such as hotels. This will also see the establishment of an extensive logistics framework in the city centre with optimised supply chains, freight hubs, and further opportunities for distributing and collection of goods. All this will further reduce the need for shoppers to bring their cars into the city centre and steer Graz towards a future with intelligent urban logistics.

MORE CIVITAS CASE STUDIES, GUIDANCE, AND WAYS TO GET INVOLVED

You can find case studies of CIVITAS measures implemented since 2002 online at the CIVITAS website. Case studies give the context in which a measure was implemented, the process of implementation, and the outcomes and results. Links to related measures in the same category or demonstration project are also included. See more at: www.civitas.eu/mobility-solutions-page

For policy and guidance documents as well as collections of implemented CIVITAS measures, visit the website's Key Publications page where you can download publications in PDF format: www.civitas.eu/content/key-publications

You can join any of the Thematic Groups for free to begin receiving information on the latest measures that relate to your group's topic, get involved in learning opportunities such as webinars or training events, and collaborate through peer reviews or policy analysis. See the full list of Thematic Groups here: www.civitas.eu/thematic-groups-all

The CIVITAS National and Regional Networks encourage participation from local governments as well as many other kinds of organisations. CIVINETs produce newsletters in their own languages, organise events, and provide a point of contact in a number of EU languages to CIVITAS. Membership of most of the CIVINETs is currently free of charge. See more information about the CIVINETs here: www.civitas.eu/civinet

CIVITAS organises an annual conference, the CIVITAS Forum in a different city every year, and also supports other training and information opportunities, such as webinars, study tours, and workshops. See all the upcoming events at: www.civitas.eu/page-all-events

We hope that you have been inspired by what you have read in this publication, and we look forward to meeting you in another CIVITAS context soon.



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