

# **DEvelopment of sustainable MObility management in European Cities**

**The Handbook on Best Practices**

## Table of content

Preface .....	3
DEMO-EC project .....	3
Partners and regions .....	4
1. Behaviour change .....	6
1.1. Germany: CITY CYCLING in Leipzig .....	8
1.2. Spain: The Bicycle Master Plan in Zaragoza .....	12
1.3. Slovenia: Traffic Snake Game .....	16
1.4. Poland: Cycling May in Milanówek .....	19
1.5. Italy: MoveUs Project .....	22
2. Governance and participation .....	27
2.1. Germany: City Traffic Ideas - citizen competition for mobility planning .....	29
2.2. Spain: The School Roads Project for Active Mobility .....	33
2.3. Slovenia: Involvement of stakeholders in establishing a new traffic regime .....	36
2.4. Poland: Cycling around the Warsaw's suburban Garden Tri-city .....	39
2.5. Italy: Participation process concerning introduction of tramway in Val Bisagno area	42
3. E-mobility .....	46
3.1. Germany: Leipzig – City of Intelligent Mobility .....	48
3.2. Spain: MOVEA plan .....	52
3.3. Slovenia: Kavalir – the gentle helper .....	55
3.4. Poland: Electric Milanówek .....	58
3.5. Italy: Ele.C.Tra. project .....	61
4. Car reduction, walking and cycling .....	64
4.1. Germany: Car-less city centre concept for Leipzig .....	66
4.2. Spain: BIZI Zaragoza – As easy as riding a bicycle .....	69
4.3. Slovenia: Innovative cycling path in the Municipality of Ljutomer .....	72
4.4. Poland: Bicycle-sharing based on a mobile application .....	75
4.5. Italy: The bike-sharing service powered by solar energy .....	77
5. Public transport .....	81
5.1. Germany: Public Transport Plan of the city of Leipzig .....	83
5.2. Spain: LAZO card .....	88
5.3. Slovenia: Integration of passenger transport .....	90
5.4. Poland: Launching free buses during the reconstruction of the railway .....	93
5.5. Italy: Electric Local Public Transport in Liguria Region .....	96

## Preface

The population of cities increases in Europe, which is a big challenge for the organization of transport in urban areas. For environmental friendly transport and to reduce CO<sub>2</sub>-consumption the alternatives for normal cars have to be introduced. A crucial aspect is to foster the combination of different environmental transport modes like public transport, cycling and also new arise mobility solutions. One way to combine these modes is a mobility management approach. The challenge here is that in city administrations a lack of instruments and unclear responsibilities exist. For successful implementation of mobility management also different actors and user groups has to involve like companies and inhabitants as end users.

DEMO-EC fosters low-carbon transport in cities through integration of mobility management by combining the fields of mobility behaviour change, governance, e-mobility, car reduction, walking, cycling and public transport.

## DEMO-EC project

The main goal of the project DEMO-EC is to integrate mobility management in city development/planning by analyzing, exchange and dissemination of good practice to improve the effectiveness of policies in the field of low-carbon in transport. The envisaged impact of the project is to positive influence policies to envisage low-carbon alternatives for transport mobility by supporting cleaner transport modes and systems, and by promoting alternative mobility behavior. To reach these aims the partners of DEMO-EC collect Best-practices from local, regional, national and European level in the fields of Behavior change, Governance/participation, E-Mobility, Car reduction (walking, cycling) and Public transport. The partners, consist of cities and regional development agencies from 5 different countries, exchange their experiences and results of the best practice analysis to improve policy programmes by developing 6 regional action plans. The experienced and best-practices gained in the project also helps cities to improve their instruments and realize mobility management in their cities and regions.

## Partners and regions

### LEAD PARTNER – Aufbauwerk Region Leipzig GmbH

Aufbauwerk Region Leipzig GmbH is a public-owned European Project Agency whose shareholders are the City of Leipzig and its surrounding districts. The company reinforces urban and regional development through European and national funding programmes.

Aufbauwerk puts a special emphasis on the cooperation with cross-border areas in Poland and the Czech Republic and aims to intensify this transnational exchange. In addition, Aufbauwerk offers expertise in the coordination and financial management of projects to its shareholders and gives advice on EU relevant topics.

The organisation's team brings together extensive knowledge in social, political, economical and natural sciences and engineering – allowing supporting the projects of its partners in numerous domains. Aufbauwerk is involved in many local and European networks, ensuring the state-of-the-art expertise of its staff. The intensive cooperation with other organisations from the Leipzig urban area active in European affairs contributes to the promotion of the European idea.

### PROJECT PARTNER – City of Leipzig

Leipzig is the most populous city in the federal state of Saxony, Germany. With a population of 596.000 inhabitants. Leipzig is one of the fastest growing cities in Germany. Continuing population growth and the associated increase in jobs and new commuter traffic pose challenges for urban and transport planning. These changes are most apparent in the center and in the areas close to the center, where the city is the most dense. We need new perspectives and solutions for attractive living spaces and flexible forms of mobility. For this we develop the urban space concept extended inner city.

### PROJECT PARTNER – FAMCP Federation of Municipalities, Regions and Provinces of Aragón

FAMCP defends the interest of local administrations and their autonomy in Aragon. It represents 731 municipalities and promote the development of rural areas.

The Federation of Municipalities, Counties and Provinces of Aragón collaborates closely with regional department units responsible for regional development (education, environment, local administration, EU affaires...) as well as with other local, regional, national and international institutions dedicated to promoting the local and regional interests.

FAMCP has participated in EU programmes for more than 15 years, always in projects and

initiatives related to the activities and necessities of the Aragonese municipalities and regions. Our wide action field, linked to the competences not only of the municipalities but also with the Regional government has allowed us to develop interesting projects in Innovation, Health, CO2 reduction, Social Affairs, EU Communication, Environment and Economical Growth.

#### PROJECT PARTNER – Development agency Sinergija

Development agency Sinergija operates in predominantly rural area with a population of around 37,000 people and has registered around 900 economic subjects. Agriculture remains the dominant economic branch and the amount of entrepreneurial activity is below the Slovenian average.

Sinergija works as a business development institution supporting municipalities, other partners and the general public. It is responsible for the development of entrepreneurship, economic and spiritual development. The essence of Sinergija's work is: to achieve synergistic effects, increasing user demands, increase self-efficiency, to meet the common interests of partnership development, environmental and of individual members of the coalition expectations.

#### PROJECT PARTNER – Municipality of Milanówek

Milanówek is a small town (ca. 16.000 inhabitants), part of a large Warsaw agglomeration (a total of 2.6 million inhabitants), inspired by the garden cities movement by Ebenezer Howard. The construction of the Warsaw-Vienna Railway line and the Electric Commuter Railway had a significant influence on the development of the town. Thanks to convenient communication and excellent climatic conditions, Milanówek used to be a summer resort popular among Warsaw residents. The unique atmosphere of the city is created by several hundred villas and holiday homes created at the turn of the 19th and 20th centuries. Together with Brwinów and Podkowa Leśna, Milanówek creates the Warsaw's suburban Garden Tri-City.

#### PROJECT PARTNER – Municipality of Genova

Genova is the largest city in the Liguria Region and is characterised by a narrow coastal zone with hills and steep mountains in the backcountry. Genova is the third largest city in Northern Italy in number of inhabitants, with 585.000 inhabitants in 240 km<sup>2</sup> of city extension. When considering the whole metropolitan area, number of citizens reaches 850.000.

# 1. Behaviour change<sup>1</sup>

Local authorities can use a wide range of techniques to influence people towards more sustainable travel behaviour, such as walking, cycling, public transport and car sharing. The influence on behaviour is possible with use of soft and hard measures.

Soft actions rely on a direct impact on a person - their effect is a change in beliefs, habits and attitudes, often difficult to observe and measure immediately after the end of the activity. They mainly concern information, education, promotion, management, participation, local, regional and international cooperation, know-how, support local initiatives, etc.

Hard actions affect the behaviour change indirectly, using a tangible product being their effect - for example, infrastructure investments, rolling stock, launching new transport systems, but also legal changes, introducing fees, etc.

In order to achieve the best results, soft activities should be combined with hard ones that will consolidate the benefits achieved. An example of such a combination is, for example, a complex approach to changing traffic organization - traffic calming, including hard measures - infrastructure (i.e. pedestrianisation) and legal (stronger speed regulation and enforcement) are likely to be more effective, and potentially meet less opposition, if they are complemented by an intensive participation and information process, supporting smarter choices programme that gives people wider and better travel options (soft measures).

Additionally, emerging research has established that significant changes in travel behaviour are often associated with life transitions. Life transitions involve a change in personal circumstances often marked by observable life events such as joining the labour force, moving home, having children or retiring.

Changing individual behaviour is challenging, but not impossible. In order to change behaviour, three elements need to be in place. People need to have:

1. **Motivation:** People must have a reason to change.
2. **Ability:** They must have the skills, confidence and knowledge required to change.
3. **Opportunity:** They must have the resources, relationships and environmental conditions needed to change.

---

<sup>1</sup> Sources:

- <https://www.transportforqualityoflife.com/u/files/MakingSmarterChoicesWorksummary.pdf>
- [http://www.epomm.eu/newsletter/v2/eupdate.php?nl=0317\\_2&lan=en](http://www.epomm.eu/newsletter/v2/eupdate.php?nl=0317_2&lan=en)
- <https://travelbehaviour.com/outputs-lttb/>

In order to make travel behaviour more sustainable, many of our demand management strategies are based on punishment and enforcement. According to several research/studies the use of the rewarding-system has shown better results than punishments to achieve a behavioural change. Rewards that create a positive attitude to a certain behaviour and celebrate each small step in the behaviour change process will raise the chance of achieving a more permanent behaviour change.

There are many obstacles to behaviour change – e.g. people have widely varying needs that change over time along with their thresholds and attitudes, so what works for one group at a certain time won't work for a different group in a different setting or at a later time. Still, there is a great variety of possibilities – and it is proven that incentives help a lot in combination with disincentives and enforcement measures, and make them more effective and easier to implement.

## 1.1. Germany: CITY CYCLING in Leipzig

### Summary description

„STADTRADELN“ („CITY CYCLING“) is a campaign, or actually, a challenge (see below) developed by the Climate Alliance – the largest European city network dedicated to combat climate change worldwide. Among its 1,700 members are cities, municipalities and districts from 26 European countries.

With the “CITY CYCLING” challenge, municipal governments are provided with an easy-to-implement PR tool to reach out to the community, on the one hand, and to become more actively involved in sustainable mobility initiatives, themselves, on the other hand.

In the challenge, which is aptly entitled “Ready, Set, Cycle”, teams of local politicians, school classes, clubs, interest groups, businesses and citizens compete against each other, and yet together, they try to raise awareness of the significance of “going green”, and taking up cycling for a better climate and life quality in a city.

The challenge is held once a year on 21 consecutive days, where signed-up participants try to use the bike for as many kilometres as possible: on their way to work, and in their time off, for example. The overall goal of the CITY CYCLING initiative is to ultimately cut CO<sub>2</sub> emissions.

Last year, the city of Leipzig took part for the tenth time in a row, with increasing registration figures year by year (however, as we will explain, later, it was not all so easy in the beginning).

By now, the challenge’s success benefits from the people’s motivation to “score good”. And, it is fun, too. Not only does it raise awareness about how we can all help to protect our climate and make our city a place you want to live. Taking actively part in the challenge reminds you how easy it is to do something for your health, too. So, many cycling challengers actually stick to “the new habit” after the 21-day-competition is over, or least, partly, and/or, at least think twice the next time their choice is between a car or a bike.

### Main description

#### **The problem**

We’re actually all aware of global climate change. One possible way to counteract is to cut our negative CO<sub>2</sub> balance. How do we do that? There are different measures conceivable, like getting more and more people to use their bike whenever possible. In this context, the Climate Alliance’s campaign CITY CYCLING, of which Leipzig is member, threw the ball into our court, providing us with an attractive and worthwhile concept to raise the citizens’ “green awareness”. Of course, the CITY CYCLING challenge counts on a certain “willingness” to do something, to make a change, to personally contribute to climate protection, and to get on that bike. Luckily, we had this group of people, here in Leipzig, embodied by the local green political activist group ÖKOLÖWE. They were in



the forefront and actually did all the hard work in the beginning. They provided the manpower you need to carry out such a public campaign, they provided good solutions for reaching out to the citizens and had all the required know-how.

As we know, it is always a good thing to have the political leaders on-board, too. First, for their visible support as such, and secondly, for them to set future framework conditions (like bicycle infrastructures, for example) right, so that a permanent change in people's behaviour is even possible.

What better way could there be for those deciding about the Leipzig's cycle traffic than to team up in the cycling challenge, and, while pedalling through city, see all the improvements that can and should be made, first hand.

### **How the CITY CYCLING challenge is organized**

The CITY CYCLING rewards the most cycling-active municipal parliament, municipality and their most active cycling teams. Local parliament teams challenge citizen teams. As mentioned above, the 21-day-contest is open to school classes, local companies, interest groups and associations, businesses, organisations and/or "ordinary" individual citizens.

During the competition, all enrolled teams register their cycled kilometres in a so-called Online Cycling Calendar. Scores achieved by municipalities and teams are published on the CITY CYCLING website ([climatealliance.org](http://climatealliance.org)) enabling individual measuring among different municipalities throughout the country, and adding yet another competitive edge to it. With the exception of the "best of the best", the so-called CYCLING CITY STARS, individual personal scores are not published.

### **Leipzig's 2018 score**

In 2018, Leipzig was engaged for the tenth time in this German-wide City Cycling edition. Its registration base was quite impressive comprising 8.607 active participants in 425 teams, including 17 local parliament/city council members. Leipzig's total score for this three-week-period read 1,646,280 km translating into a CO<sub>2</sub> saving balance of 233.772 kg (the calculation basis being 142 g CO<sub>2</sub> per person and km). The total distance cycled equals the 41-times the equator length! With this result, Leipzig came in second out of more than 800 participating German cities and towns. And, as you may guess already, that is not good enough for us: We want to finish at the top this year!

### **How it works**

In the ideal scenario, which we are actually seeing unfolding, the benefit of the CITY CYCLING campaign is not only having a good time and awarding winners, of course. It is also to encourage local politicians to experience the local cycle path network first hand, and to ultimately implement necessary improvements that make cycling easier and more attractive. This campaign reaches out to city and municipality inhabitants trying to encourage as many of them as possible to switch to cycling – even if

it was just for 21 days – which, by the way, turned out to be just enough time to change one’s mobility behavioural pattern. Not only those took part who mainly use their bike anyway, but also those who could never imagine to cycle to work, or similar.

Additionally, it makes sense to further complement the CYCLING CITY campaign with specific topic-related measures to raise awareness of sustainable mobility benefits, in general. So, for example, you can organize a “Bicycle Action Day”, including bike tours, excursions, information booths and panel discussions etc. In addition, you can carry out something like a traffic safety information campaign, where you can also sensitize people for the cycling topic (killing two birds with one stone, so to say).

As we mentioned earlier, the CITY CYCLING challenge sees increasing registration figures year by year. However, the main credit for this success goes to the green political association ÖKOLÖWE and its members. They did all the hard work in the beginning, when that challenge was NOT known, and our mayor (like he proudly does now) did not take part, yet.

### Transfer potential

As all of us, and our future generations, are and will be affected by negative climate impacts, all of us should contribute to our planet’s protection. As we, the city partners of the Interreg Europe program, want to learn from, and help and encourage each other, we’d like to mention some difficulties along the way of our “Good Practice”, and give some recommendations.

We consider this European and nation-wide CITY CYCLING campaign a simple, and feasible measure to achieve great results, so, definitely worth recommending!

It is a smart and targeted activity seeking short and long-term results to cut and avoid CO2 emissions through changing individual mobility behaviour.

Thanks to its regular character (an annual event), it becomes increasingly known and popular. Yes, it initially took some convincing work by its main initiators, such as the aforementioned ÖKOLÖWE. But now, even our mayor and many city administration departments would not want to miss it for the world and do save the date every year.

We would like to emphasize that it really does not take that much to change mobility behavioural patterns. What we do recommend is a well thought-through, and, in particular, well-organized, plan for the event, and some good PR campaigning (including catchy logo etc.). In the ideal case, such logo can be used for future spin-offs, other initiatives etc. – pursuing the same or similar goals.

To boost motivation, we do recommend prizes. We are all (only) humans, after all.

We once heard that “if you want to make an event remarkable and leaving a lasting impression, give it a good kick-off and a spectacular closing”... So, why not opening it with a BIKE NIGHT (like we do in Leipzig, for example).

And, for the days between the opening and closing - whatever creative form you can come up with - you can organize accompanying events for the CITY CYCLING challenge, such as topic-related programs, or informative events about traffic safety, for example. And, remember: Good PR is what it is: good PR. So, go for a catchy poster or leaflet, for example for an informative event on traffic safety, that catches attention to the actual "CITY CYCLING" challenge. We wish you: Good luck for your project, and "Happy Cycling."

#### Key characteristics

Bicycle

Campaign

Challenge/competition

CO2-avoidance/reduction

#### References and links

<https://www.oekoloewe.de/stadtradeln.html>

<https://www.stadtradeln.de/index.php?&&id=3913>

<https://www.leipzig.de/umwelt-und-verkehr/unterwegs-in-leipzig/fahrrad/stadtradeln/>

#### Contact information:

- Name:	Ökolöwe
- Organisation:	Ökolöwe – Umweltbund Leipzig e.V.
- E-mail	stadtradeln@oekoloewe.de

Figure 1. "STADTRADELN" poster.



## 1.2. Spain: The Bicycle Master Plan in Zaragoza

### Summary description

The Bicycle Master Plan must be understood as a part of a comprehensive sustainable mobility policy, which will take into account all modes of transport and an adequate distribution of the road space. The Plan covers the period 2010-2025.

The purpose of this policy is to promote solutions to mobility problems and it is aimed at maintaining and, where possible, increasing the participation of collective public transport and the non-polluting individual transport.

To introduce the bicycle as a means of transport and to increase its use, it is necessary to develop a set of promotion and awareness measures that, together with the construction of the infrastructure, will integrate the bicycle with the ordinary modes of transport in the city.

### Main description

The Bicycle Master Plan seeks to reinforce the presence of the bicycle as a means of daily and sustainable transport in the city of Zaragoza and its surroundings through the following objectives:

- to encourage more sustainable mobility in the city of Zaragoza;
- to encourage the use of bicycles as a mode of daily transport, as well as a way of doing sports and leisure;
- to facilitate access to public bicycles to the greatest possible number of inhabitants of Zaragoza and regular users of the municipal road network;
- to guarantee the safety of cyclists and pedestrians in the spaces shared by them as well as the safety of cyclists in spaces shared with motor vehicles;
- to educate towards a culture that is respectful and willing to use sustainable means of transport.

In this way, the practice appears to encourage the restriction of the use of motorized private vehicles in the city.

How does the practice reach these objectives and how is it implemented?

To integrate the bicycle into the system of urban transport in a complete way, simultaneous and coherent action must be carried out in the following areas:

- engineering → infrastructure network;
- security;
- legislation → to define and delimit the rights and obligations of all road users;
- participation;
- education → education plays a fundamental role for gradual integration of cycling as an

ordinary mode of transport; the increase in the use of bicycle causes changes in mobility that must be understood and accepted as something positive for all users of the public road, and in this way it will lead to a cultural change in the vision of urban mobility;

- evaluation and monitoring → the actions that are carried out must be later analyzed and evaluated to check the degree of compliance with the established objectives.

With regard to EDUCATION, which plays the most important role in this practice, what are the lines of action?

- Awareness and training campaigns aimed at the entire population with a double objective:
  - o to raise awareness of cyclists to respect road regulations and adopt safety measures;
  - o to improve the acceptance and respect of the rest of the citizens towards the bicycle, so that they consider it as one more mode of transport.

These campaigns can be carried out in two aspects:

- campaigns through brochures and / or media;
- reinforcement campaigns in:
  - o teaching centers: during the courses intended for schoolchildren, special emphasis will be placed on providing the foundations upon which the appropriate habits will be built, as well as on working to develop attitudes to favour safe behavior when traveling as pedestrians or as cyclists,
  - o driving schools: It is about promoting the respect of the new motor vehicle driver towards the bicycle. The campaign would be carried out with the driving school instructors,
  - o Civic Centers, District Boards,
  - o taxi drivers, bus drivers and main companies of buses that operate in the city, workers of the tram company and train company workers, etc.

Development of awareness and training courses for specific groups of current and potential cyclists:

- Bicycle users;
- Teaching centers;
- Universities;
- Civic Centers, District Boards.

Courses intended for current and potential users may include the following content:

- road safety education;
- measures to promote visibility (reflective elements);

- learning and improving the skills of bicycle handling;
- basic mechanics and maintenance of the bicycle;
- promotion of the urban use of the bicycle.

#### Transfer potential

The transfer potential of this practice is high since it deals with an awareness and education policy in which an extensive investment is not necessary. Therefore, such awareness policies concerning sustainability can be interesting for other regions.

This is evidenced by other factors related to the Practice:

- the Spanish city where the bicycle is used the most is Zaragoza where 19% of the population use bicycle compared to 9% the Spanish average;
- 35% of the population (according to the survey of HERALDO) claims to be in favour of the autonomous electric car and 93% of them would be willing to use it immediately;
- nowadays there are 23,544 users, 130 stations and 1.300 bicycles in public program BIZI;
- in this decade 22.5 million trips have been made and the average number of daily uses of this program are 5.468;
- since 2008, the number of users increased dynamically until 2011 when it reached the peak and then remained steady until today;
- in 2008, Zaragoza had only eight stretches of bike lanes that added up to 12 kilometres. The network has continued to grow since then and now extends to 131 kilometres;
- the appearance of private companies offering rental of electric and sustainable transport in the city such as scooters (LIME, TIER and KOKO) and bicycles;
- the 30km/h limit for cars has been set on routes in the city and, whereas in the rest of the roads, bicycles have priority over motor vehicles; in residential areas the maximum speed is 20 km/h.

#### Key characteristics

Behaviour change

E-mobility

Sustainability

Cycling

Education

#### References and links

<https://www.zaragoza.es/ciudad/viapublica/movilidad/bici/plandirector.htm#obje>

<https://www.zaragoza.es/ciudad/viapublica/movilidad/bici/plan.htm>

#### Contact information:

- Name:

CONCEJALÍA DELEGADA DE MOVILIDAD Y  
MEDIO AMBIENTE



- Organisation:	City Council of Zaragoza
- E-mail	cjmedioambienteymovilidad@zaragoza.es

Figure 2. Brochures of The Bicycle Master Plan in Zaragoza.

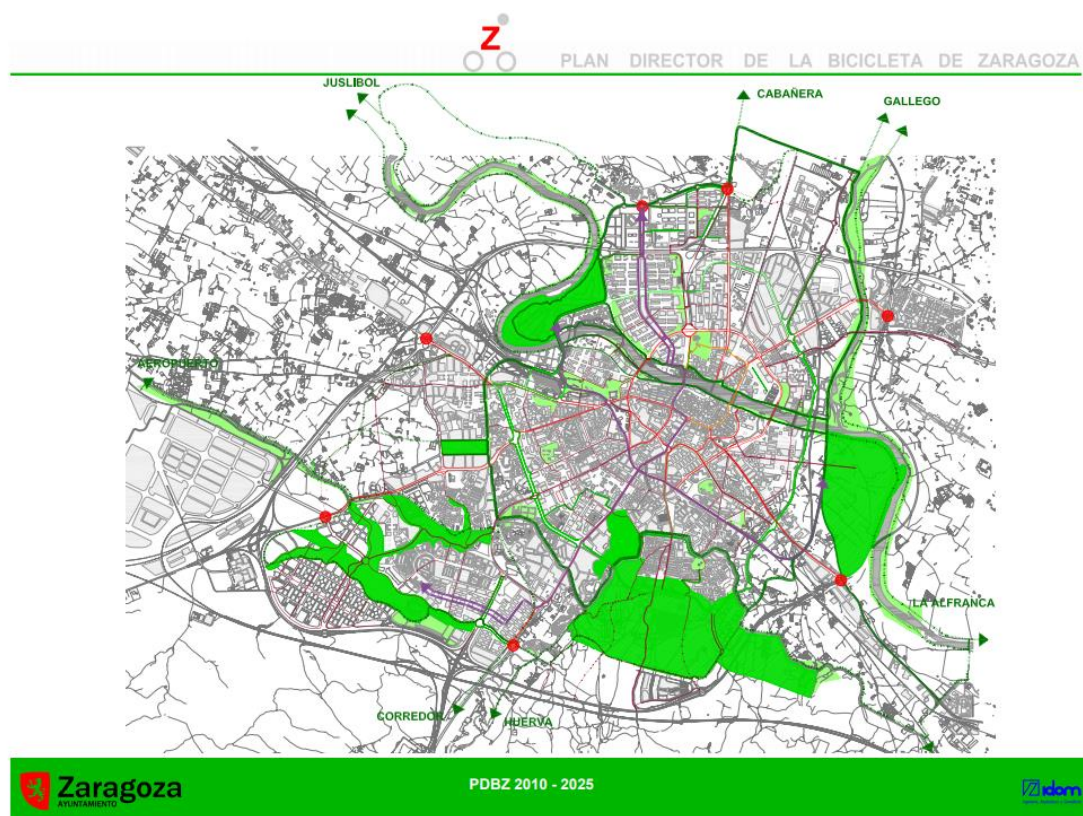
SEMANA  
EUROPEA  
DE LA MOVILIDAD

# RUTA EN BICI:

## COMBINADO EN MOVIMIENTO CICLISTA

**22.SEPT.18**  
11:00 H

Salida:  
Pso. Echegaray y Caballero 18



### 1.3. Slovenia: Traffic Snake Game

#### Summary description

The campaign Traffic snake game (TSG) was first created nearly 15 years ago by Mobiel 21. It started out as a small campaign with only a handful of schools in Flanders, Belgium. However, over the years, and with the support of the European Union's Intelligent Energy Europe programme, the number of cities, schools and children playing the game has increased enormously. A large community has been formed that not only believes in sustainable mobility, but also encourages a shift towards sustainable transport as part of life in general. Also, in Slovenia, the schools have joined to the TSG campaign, by 2019 around 90 schools have implemented TSG. All over Europe, and internationally, parents have traditionally driven their children to school, even when they live within a short cycling or walking distance. Many parents find themselves in a vicious circle: when car traffic increases, road safety concerns increase, which results in stronger feelings of insecurity. This leads to parents driving their children to school by car, which results in more traffic outside schools. The Traffic Snake Game aims to break this vicious circle by encouraging schools, children and parents to walk, cycle, use public transport and share cars when travelling to school. By increasing the number of sustainable trips, the Traffic Snake Game moves efficiently towards a less car dependent lifestyle.

#### Main description

The Traffic Snake Game is a fun campaign to promote walking and cycling to school for children (aged 4-12), their parents and teachers. The campaign is very simple. Once a school has decided to take part, it needs to identify a two-week window in a school term to play the game. During those two weeks, children are provided with a sustainable mobility sticker to place on a banner each and every time they walk, cycle, use public transport or share a car journey to school. An evaluation of the campaign has shown that it can increase the use of sustainable transport modes and reduce CO<sub>2</sub> and other harmful emissions at the school gate. To date, 19 European countries have played the game and have taken advantage of this successful campaign. During the period of 3 project years (2014 – 2017), TSG took place in 19 countries. So far, the impressive amount of 177.587 pupils and 1.192 schools played the game in a total of 507 cities. The EU-wide savings in this period reached 2.458.853 kilometres of car trips and 397 tonnes of CO<sub>2</sub>. The target of the TSG project was to generate a modal shift with the (travel) behaviour of school children, of at least 15% more sustainable trips during the campaign and a retention effect of at least 7% afterwards. The number of sustainable trips went from 63% before the campaign to 78% during the campaign. Three weeks after the end of the campaign the share of sustainable trips slightly dropped to 76%, which is still a significant improvement compared to the baseline share. This means that the modal shift goal has been achieved!

In Slovenia, by the end of 2016, 121 schools from 41 cities played TSG, involving 21.778 pupils. Based on the data from the 121 schools, the majority of trips to and from school before the campaign were sustainable (60%). During the campaign, this increased to 75% and the after-campaign data shows that a decrease to 70% was recorded. However, the retention effect is still a significant



improvement compared to the before data.

The Traffic Snake Game has shown that the campaign, as a class and school activity, is enjoyed by children, who are able to convince their parents to change their behaviour by reducing their car use. The Traffic Snake Game encourages teachers to participate and extra stickers are provided when teachers travel to school in a sustainable way. The results of the Traffic Snake Game are more significant if teachers focus on the topic of 'sustainable mobility' in the classroom at the same time as playing the game. Implementing other actions, such as cycle training or a walking bus, is called the Deluxe version. Every participating school is encouraged to set up the 'Deluxe' version. It's also a good way to meet the requirements of the curriculum (for example, maths, physical education, geography, history, reading and writing). Children can develop a range of road safety skills and learn how to use them (for example detecting the presence of traffic, visual timing judgements, coordinating information from different directions). Further, this also includes motor development, maintaining concentration and developing responsiveness to changing situations. In school traffic we often face a number of challenges: how to make it safer (parents' first concern), convenience and freeing children from the back seat and giving them the opportunity to travel independently. By walking and cycling, children become more aware of their surroundings and develop road safety skills as well as improve their ability to anticipate the behaviour of other road users. Furthermore, walking and cycling contributes to the recommended amount of daily exercise that children need. It also reduces congestion and parking pressure around the school gate. Considering these beneficial effects, school boards, officials and mobility associations took other actions to further raise awareness of mobility issues. These actions can be addressed on many levels: class, school, neighbourhood and city level. One of the main side effects is the engagement of local authorities which can provide financial and policy support.

The lessons learned in Slovenia: the campaign is a big success due to its character. Pupils love it! It is important to focus on good organisation and recruitment of schools, which forms the basis of the implementation; good communication between the school coordinator and the NFP also makes the work easier.

The weaknesses that Slovenian national contact points have faced include: the need for greater engagement of local authorities in providing the financial and policy support and the logistic aspects as the schools need to be constantly pushed to provide their data.

#### Transfer potential

The Traffic Snake Game Network is without doubt a European success story, with 19 different countries from all over the continent that have participated in the campaign so far. In each of these countries, National Focus Points (NFPs) were established that serve as national hubs promoting the game. The Traffic Snake Game Network, with National Focus Points in each country aims to share the experiences of the game with more cities and schools across Europe and beyond. Schools, cities and regions interested in joining the campaign can therefore build upon a robust network with years of

expertise in the successful implementation of the campaign, linking the international wealth of experience with the knowledge about local challenges. The network partners offer customized support and tools in order to actively stimulate a shift in the modal split for pupils. Joining the campaign is easy. Visit the website <https://www.trafficsnakegame.eu/> to see if there is an NFP in your country and contact them to find out more information to join your national campaign. If there is no information about an NFP in your country, please get in touch with Mobiel 21 via [TSG@mobi21.be](mailto:TSG@mobi21.be). The Mobiel 21 likes to keep the campaign alive and up to date and have special membership agreements for all kinds of partners so don't hesitate to contact them to explore future cooperation. Local or regional authorities in countries without an NFP can also contact them if they are interested in becoming campaign pioneers.

#### Key characteristics

Mobility behaviour changes of pupils

School traffic

Traffic snake game (TSG)

Reducing car usage

Network of National contact points for TSG

#### References and links

<https://www.trafficsnakegame.eu/>

#### Contact information:

- Name:	Elke Franchois
- Organisation:	Mobiel 21
- E-mail	<a href="mailto:elke.franchois@mobi21.be">elke.franchois@mobi21.be</a> <a href="mailto:TSG@mobi21.be">TSG@mobi21.be</a>

Figure 3. Traffic Snake Game in Slovenia.



#### 1.4. Poland: Cycling May in Milanówek

##### Summary description

The activity involves development of a mobile app for children which enables GPS tracking of their cycling routes from home to school and their leisure time bicycle rides, and also measuring distance made on bicycles. Children, collecting the total number of kilometres cycled, compete in various ways (classes compete within schools, schools compete with one another, there is competition among age groups etc.). There are prizes for the best classes and pupils (medals, bike lamps, t-shirts) which are handed during the end-of-school-year ceremony. This motivates children as well as adults to use bikes more often.

In the long term, the aggregated (and anonymized) data will be used to develop a map of the most frequently used cycling routes in order to identify priority investments in the city.

##### Main description

The main concept of the activity is to promote cycling as the best way to commute in Milanówek, in particular, among the schoolchildren. Therefore, they are the main stakeholders. The other stakeholders, the adults (parents, teachers) as well as other pupils, can understand better the

advantages of being physically active.

As the data gathered will help identify the routes most frequently used by the pupils, the City of Milanówek shall receive valuable practical information about priority investment required in terms of road safety. Narrow roads of Milanówek are not convenient for cycle paths construction but many issues could be addressed by improving the road safety parameters.

The entire process has been prepared and is being managed voluntarily by local civic groups. It is coordinated by parents' councils in 4 primary schools in Milanówek. The activity involves development of a mobile application for children which enables GPS tracking of their cycle routes from home to school and in the spare time.

The idea of the contest originated in one of the schools where one parent is an IT-specialist and a bike fan. He managed to convince some of his colleagues to cooperate and prepared a simple application for mobile devices that pupils could use and that displayed rankings during the competition.

The biggest problem with such a method of implementing an application is lack of resources and delays in the process. Fortunately, the authors have managed to deliver a functioning application for Android on time. There were some troubles with the Android version on some phones that could not be fixed due to lack of time. The iOS version of the application was not functioning at all during the first edition of Cycling May in 2019. The Android version of the application is publicly available in Google Play store ("Rowerowy Maj").

The plan is to fix all technical issues before the second edition of Cycling May in 2020.

Despite all technical problems the activity was a success. Parents in all 4 schools did their best to promote the activity – posters, leaflets, a fan-page on Facebook attracted up to 300 participants in Milanówek, 10.000 km registered in the app (5.000 km registered by children in the competitions, another 5.000 by parents, teachers, inhabitants). Milanówek's Cultural Centre joined the parents in promoting the event and provided extra prizes for children participating in the competition. Milanówek's Cultural Centre also organized a bike rally in Milanówek.

The main incentive for the pupils has been the possibility to compete with their peers (class vs class, school vs school etc.). Children compete in various ways (classes within schools, schools with one another, there is competition among age groups etc.). While encouraging children to use bikes, we also hope to change their parents' mobility patterns.

The decision making process during the activity was in the hands of the inter-school "council" of parents, which included 1-2 representatives of every school. All decisions were made using on-line means of communication (e.g. e-mail, Messenger, etc.).

Due to the pilot nature of the campaign and the short time that has passed since its completion, we do

not know yet how the data on bicycle traffic will affect the infrastructure and investment in traffic safety in Milanówek.

#### Transfer potential

The activity is, in a way, transferred from other municipalities, as similar activities have been organized in the past in Warsaw and other cities. These required the local government to pay fees to the application developer, which proved to be difficult. Hence, here the mobile application has been developed locally, using the community's own resources.

Transfer to other local governments is fairly easy, as the application can be ordered from various sources if it cannot be developed internally. The application developed in Milanówek is potentially translatable and might be also used.

#### Key characteristics

Promotion of cycling among pupils as a way to commute to school and as a leisure time activity  
Voluntarily developed application and management of the activity  
Increasing awareness among adult stakeholders about cycling as an option for commuting  
Gathering anonymized data about popular cycling routes to inform future investment

#### References and links

<https://www.facebook.com/RowerowyMajwMilanowku/>

#### Contact information:

- Name:	Piotr Bożek
- Organisation:	Local activist
- E-mail	piotr@palita.pl



Figure 4. Logo of Cycling May in Milanówek.



### 1.5. Italy: MoveUs Project

#### Summary description

The MoveUs Project (ICT cloud-based platform and mobility services available, universal and safe for all users – co-financed by 7th Framework Programme) is based on the concept of positive incentives. Focus on the positive incentives rather than on negative ones is a new approach to stimulate changes in human behaviour and to promote new positive actions in everyday situations.

An ICT system supports and motivates people to change behaviour and creates sustainable habits through the use of positive incentives. Virtuous behaviour can be defined, assessed and awarded to create better traffic and transport conditions.

With a mobile application citizens can monitor their own trips and gain “credits or points” to spend at affiliated shops or local transport operators or in other places.

#### Main description

The positive incentives can promote and improve, for example, use of Local Public Transport or bike for daily trips in urban area.

The incentives, provided through an ICT cloud-based platform for "smart" mobility for all users, are created specifically to meet the needs of real users in order to promote changes in daily travel habits.

The mobile application also offers a service called *Multimodal Journey Planner* to plan and monitor one's travel, with a trip energy efficiency calculation. Multimodal Journey planner allows integration with Local Public Transport ticketing facilities while car/bike sharing services are desired features.

There is also another service, available, through the mobile application, called *Traffic Feedbacks*. This service allows users to make comments in real-time, about mobility and traffic to help other users, for example, by reporting an accident or other issues useful to drivers.

Changing travel habits is not easy and therefore traffic managers apply restrictive measures, as limited access zones, access payments and parking payments.

The idea is to offer people "positive incentives" instead "negative incentives" to achieve a strong reduction in carbon emissions and energy consumption and to form an eco-mobility life-style.

With regard to urban traffic and mobility, positive incentives can be complementary to the existing restrictive actions.

#### RESTRICTIONS APPLIED THROUGH:

- Pricing;
- Limited access zones.

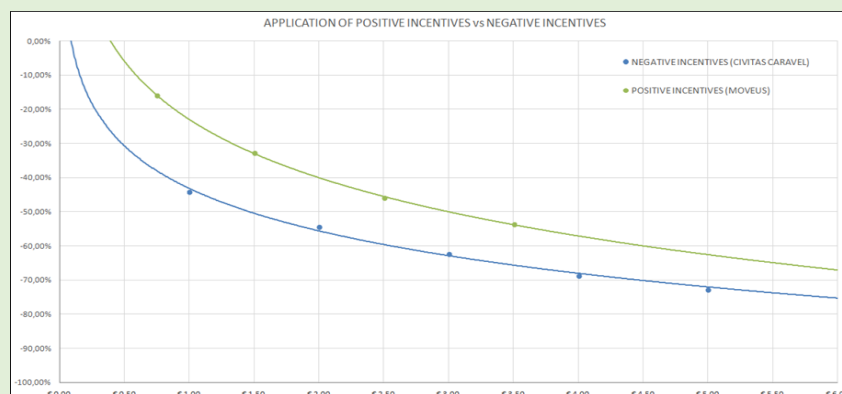
#### REWARDS OBTAINED BY:

- Using alternative transport modes;
- Adopting efficient and sustainable mobility.

During the project, a small group of volunteers tested the mobile prototype application and then answered questions about the usability of and satisfaction with the app services and the incentives system.

This experiment brought interesting results as the diagram below shows, in comparison to the results of another project (Civitas Caravel) about negative incentives.

Positives incentives are more attractive for users and help change mobility habits.



“Positive incentives” can be a new way of changing mobility habits of the citizens if there is:

- clear information available for citizens;
- gradual change of user's behaviour;
- users are familiar with ICT system support;
- different kind of awards;
- a way to detect user's behaviour.

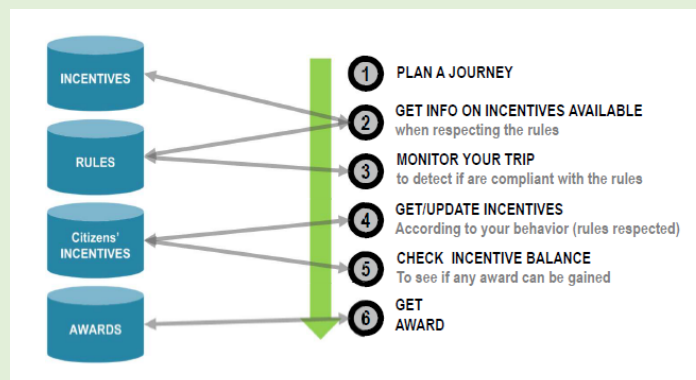
In Move us project there are four fundamental pillars to build a system of incentives for citizens:

- **RULES:** promoting adoption of eco-mobility behaviours and if the rules are respected, authorization is given to earn incentives;
- **INCENTIVES:** discounts on tickets, discount on city services, free access to Limited Traffic Zones, reserved parking interchange areas for private cars, discount insurance, etc.

Incentives may be directly connected to money or not, for instance:

- *MONETARY INCENTIVES: it is real money, to be spent anywhere or only in affiliated shops or museums, theatres, local transport operators, etc.,*
- *INCENTIVES IN KIND: form of goods or services that can be spent at "affiliated partners", they can also be discounts on goods and services,*
- *INCENTIVES IN CREDITS: points earned with adoption of particular behaviours of sustainable mobility,*
- **VERIFICATION** of the behaviour: check if the rule is respected or not, to assign the incentives;
- **DISTRIBUTION OF INCENTIVES** to users: creating the incentives so that they can be used by citizens.





The intellectual property rights to the model and the software have been registered with the Italian SIAE, jointly among Genoa Municipality-Mobility Department, Quaeryon srl and Softeco srl, creators and developers of the software.

### Transfer potential

Incentive measures for sustainable mobility in urban areas can be further explored for home to school/university travels.

In this context, the Municipality of Genoa is carrying out a further initiative with the “PRINCE project” (Premium and incentive for mobility behaviour change) through actions concerning the implementation of incentive policies for modes of transport with low environmental impact for students trips.

Moreover, the project envisages the development of a business model to ensure the sustainability of proposed interventions useful for all kind of incentive systems.

In this objective it is very important to carry out a marketing and communication campaign.

This model could be applied to all situations where a change of habits is desired, not only for mobility but also for other issues, for instance, garbage collection, etc.

### Key characteristics

Positive incentives

ICT system supports

Achievement of eco-sustainable behaviour

Motivation to change

Confidence and information to promote the change

Resources and conditions useful to change

### References and links

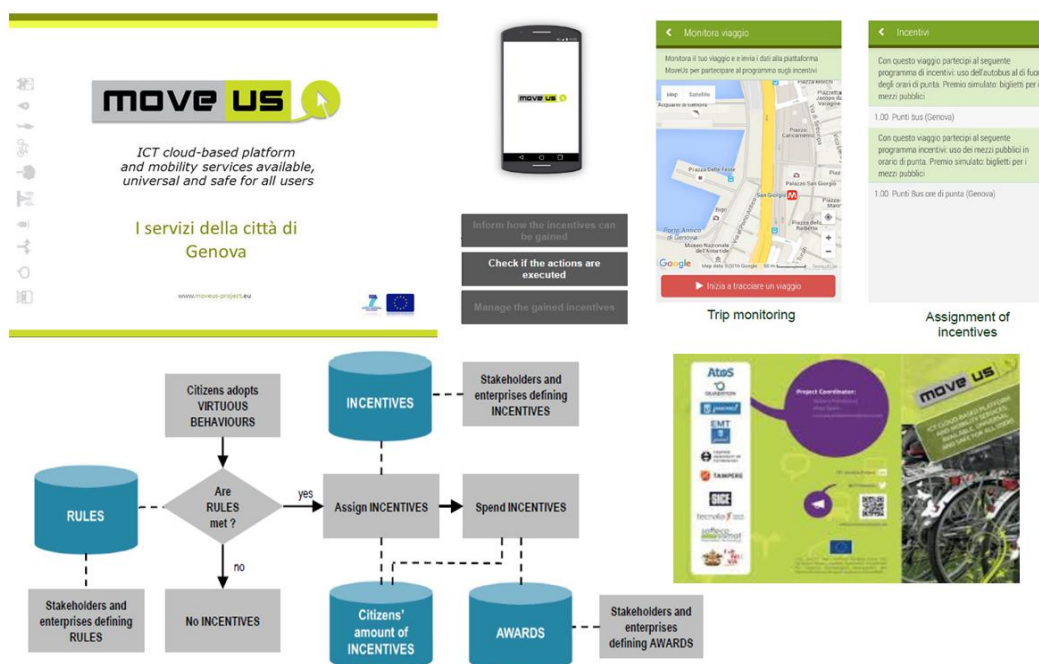
<http://www.moveus-project.eu/>

<https://cordis.europa.eu/project/rcn/109916/factsheet/it>

Contact information:

- Name:	Alessandra Vindigni Antonio Rossa Paola Debandi
- Organisation:	Comune di Genova – Genoa Municipality
- E-mail	avindigni@comune.genova.it arossa@comune.genova.it pdebandi@comune.genova.it

Figure 5. Move Us project campaign.



## 2. Governance and participation

The sustainable governance of transport systems remains a significant challenge for policy makers worldwide, particularly in cities. Urban areas are developing rapidly from a technological viewpoint, and innovative technologies create new possibilities for smart mobility management. The link between the implementation of the smart city concept and the idea of sustainable transport in the context of reducing CO<sub>2</sub> emissions, entails changes in the transport system that will pose a challenge, as they will require in-depth transformation of the transport and energy sectors. DEMO-EC also shows that Governance and participation promoting alternative mobility behaviour can play a crucial role in mitigating transport emissions and meeting reduction goals.

Sustainable urban mobility planning, a strategic planning concept promoted by the European Commission, considers the engagement of citizens and stakeholders throughout the Sustainable Urban Mobility Plan (SUMP) development process as one of the key elements. Involving communities in planning is a fundamental duty of local authorities to improve decision-making and is also a requirement stipulated by EU directives and international conventions. This brochure looks at good practices identified by DEMO-EC partners during their participation in sustainable urban mobility planning, at citizen and stakeholder engagement practices in European cities, as well as the challenges of collaborative planning and how to overcome them. Even though, in some cases certain participation questions have remained unsolved to date, engagement of citizens and stakeholders is a precondition for sustainable urban mobility planning.

There is now momentum building for a new approach to strategic sustainable transport planning across Europe that incorporates public participation as an integral element. Transport planning and transport relevant measures are often the subject of fierce discussions within the urban community. The concept of Sustainable Urban Mobility Planning, which is promoted by the European Commission, establishes the principle that the public should be involved from the very beginning of the transport planning process and not only when the plans are largely completed and only minor amendments can be made. This makes it necessary for public authorities to submit a highly specialized and complex subject area for debate and to get prepared for participation as part of the planning process. The concept is exciting because stakeholder participation practices across Europe vary greatly. This brochure examines the theory and practice of participation in transport planning, mapping the early progress of the Sustainable Urban Mobility Planning process accordingly.

Transport planning frequently affects a great variety of different economic, public and social interest groups either positively or negatively, which often results in complex relationships between the city administration and the groups having a stake in the decisions made.

Public involvement, in contrast, usually refers to engaging citizens in planning and decision-making.

While stakeholders usually represent positions of organised groups with a collective interest, both theoretical and practical distinctions between stakeholders and citizens are blurred since citizens can also be considered a large stakeholder group; and a stakeholder representative is at the same also a citizen.

The Good Practices identified under this objective, provide important insights for the design of smart mobility governance and enhance the relationship between transport policy and research.

## 2.1. Germany: City Traffic Ideas<sup>2</sup> - citizen competition for mobility planning

### Summary description

The aforementioned citizen competition „City Traffic Ideas“ was initiated in the context of the further elaboration of the City Development Plan (STEP) for Traffic and Public Space. It started on 8th February 2012 as a new multi-phase instrument of early-stage citizen participation in public projects.

The Leipzig citizens were invited to submit their ideas and proposals for the city's traffic development by October 31st, 2012. This call was very well responded to, resulting in altogether 618 ideas and 382 contributions subjected to an expert jury's assessment. The jury comprised, among others, three citizens chosen by drawing lots. The jury selected altogether 16 ideas from three different categories, namely „Ideas for the city as a whole“, „Ideas for certain city quarters“ and „Ideas for smaller neighbourhoods“ and awarded them prizes.

In addition, the jury picked specific topics for accompanying workshops to further elaborate on several content-related topics in a subsequent conceptualization phase.

On 25th February 2015, and following intensive discussions in the city council, the final City Development Plan (STEP) for Traffic and Public Space was adopted, and it did include a number of specific ideas from this citizen competition.

### Main description

The competition „City Traffic Ideas“ marked the first step of a civil participation process for the review of the then-in-place urban traffic concept of Leipzig. This format, of inviting the citizens to join a competition and submit their ideas at an early planning stage was something very new for our normal urban planning strategy and procedures. In the past, we would simply convene a round table with political party groups from the city council, the transport company, the police, interest groups, and citizen initiative representatives and members of the city administration.

As a matter of fact, this kind of citizen competition was initiated to acquire the relevant technical knowledge straight from the local experts, that is to say, the Leipzig citizens.

The competition was designed as a call for ideas and proposals, and was accompanied by an external planning and engineering office. Three different competition categories corresponding to the typical three levels of (German) traffic planning formed the competition basis, in this case:

- ideas for the city as a whole;
- ideas for certain city quarters/districts;
- ideas for smaller areas/neighbourhoods.

As it turned out, the small-area categories seemed to fit very well into the active civil participation

<sup>2</sup> Bürgerwettbewerb „Ideen für den Stadtverkehr“

pattern. It is here, after all, that the impact of general traffic planning decisions for the city as a whole becomes most tangible for the citizens' daily life, and in their own neighbourhood. Their "ideas for smaller areas" were solutions to the citizens' very specific traffic and mobility related issues, concerns and own needs.

Phase for ideas (08/03/ through 31/12/2012)

This phase was officially opened with a kick-off event at the Neues Rathaus (townhall) on 8th March 2012. Participation was open to individual citizens and organized initiatives alike.

Within the framework of this phase for ideas, four informative and open discussion events were held at the Leipzig evening school Volkshochschule, providing a platform to discuss several traffic planning questions and topics. These discussion forums were open to all those interested, in general, and those participating in the competition, in particular. Their goal was to gather thoughts and gain inspiration for the very own proposal, for example.

Below, there is a list of topics under discussion:

- traffic planning: opportunities and limits;
- what kind of transport means mix is available in Leipzig?
- can we resolve conflicts between traffic needs and environment goals?
- several topics relating to specific citizens' preferences and proposals.

In addition, the relevant topics were put under further debate in specific discussion rounds organized more locally, such as in meeting points of certain city neighbourhoods ("Stadteilläden") and quarter management centres. Projects already initiated were further developed in specific working groups. With the support of different stakeholders, the citizens independently put together their project proposals which they would ultimately submit as contributions for the competition. In the areas that were supposed to be revitalized through initiatives by citizen bureaus in specific city quarters ("Magistralenmanagement"), discussions and activities to collect ideas were underway, too.

Finally, 382 contributions were submitted containing altogether 618 ideas for the city traffic. All contributions were thoroughly evaluated by a competent jury composed of 11 administration, political, scientific, interest group and citizenship representatives.

The jury evaluated the ideas' content as to whether it was innovative, and would indeed result in mobility and/or public space improvements. Prize winners were nominated for each of the three categories which you will find, below:

"Ideas for the city as a whole":

- pavement enlargements with bike racks near intersections;
- promotional award for cyclist path infrastructure;

- streetArt for bus and tram stops.

“Ideas for certain city districts”:

- car sharing model for the Schleußig quarter;
- strolling and promenading hours (“Flanierstunden”);
- parking belt East (“Parkbogen Ost”).

“Ideas for smaller areas”:

- lockable bike boxes;
- planting the „Bülowlinde“ lime tree;
- collection of ideas for safe walking to schools („Weg macht Schule“);
- pedestrian friendly tram access;
- car-free design of the city's library entrance square;
- car-less Augustusplatz square.

Finally, 5 of the 618 ideas were actually integrated in the further specification of the STEP Traffic and Public Space of the city of Leipzig. These ideas (mentioned below) were further explored and refined in workshop groups:

- future design of the Promenadenring (ring road around the city centre);
- parking in city quarters exemplified on the Schleußig quarter;
- traffic concepts for the Stötteritz/Mölkau quarters;
- enhancement of public space;
- future financing of public transport.

This citizen competition format was overwhelmingly well received among the Leipzig citizens. It was reported about on the city's official website and in a dedicated printed brochure.

Surely, we had to overcome some hurdles, especially in the beginning. It actually took quite some convincing effort to win the various city administration offices' support for this completely new civil participation format. Considerable doubts were revolving about the format itself and its actual success. It turned out that intensive talking helped to dispel these doubts.

### Transfer potential

Truth be told, we were really astonished about the great response from the people of Leipzig to the above mentioned citizen competition. They were enthusiastic and very much interested in shaping the city's future. Ideas were brought up in an open-minded, brave and innovative spirit.

We think that not only our city, but other European cities, too, could benefit from such a citizen participation for the following reasons:

- citizens feel they are heard and listened to;
- citizens feel they really become involved in public affairs;
- citizens know what happens in front of their home, in their street etc. – their input is expert knowledge (“fresh and innovative” ideas);
- valuable combination of administrative technical, legal and political knowledge and practical everyday experience of the real city’s neighbourhoods;
- good example of “living democracy” specifically practiced in a city’s (and their people’s) traffic planning.

We’re pretty sure that other European citizens are ready to contribute to their city’s future - like, in our case, to the traffic planning, too.

However, our citizen competition would not have been possible without funding. We also realized how important it was to organize accompanying information events, discussion forums and working groups. For an in-depth evaluation of all submitted contributions, the city administration’s regular working schedule simply would have been way too overstretched.

We noticed that the “Ideas for smaller areas” category was particularly well-suited for a civil participation exercise, as those residents know what is going on in their neighbourhoods and can produce solutions that actually work. We do recommend this civil participation format to other cities, even if their outset, infrastructure, local conditions etc. are not the same as those of Leipzig.

#### Key characteristics

Open citizenship competition

Traffic planning

Urban planning

Example of practiced democracy

#### References and links

<https://www.leipzig.de/bauen-und-wohnen/stadtentwicklung/stadtentwicklungsplaene-step/step-verkehr-und-oeffentlicher-raum/>

<https://www.leipzig.de/umwelt-und-verkehr/verkehrsplanung/buergerwettbewerb/>



Contact information:

- Name:	City of Leipzig
- Organisation:	Office for Traffic Planning and Road Construction General Planning Department ("Abteilung Analyse und Prognose")
- E-mail	vta-planung@leipzig.de

Figure 6. City Traffic Ideas.



## 2.2. Spain: The School Roads Project for Active Mobility

### Summary description

The School Roads Project aim is to promote the sustainable mobility and the autonomy of the children, developing & preparing student access routes to schools and educational centres.

The School Road Project has as direct beneficiaries the primary and secondary education centres. The schools can register for the activity as well as groups of interested families.

Changing the behaviour of commuters can be challenging but getting young people into the habit of walking and cycling is a good initiative. This is a simple practice to adapt and implement, if parents can be brought on board.

## Main description

EU mobility project developed in collaboration with the Ministry of Environment and the D. G. of Traffic. Its objective is to promote changes in the mobility patterns of schools, increasing active and autonomous travel (on foot or by bicycle). To combat sedentarism, increase autonomy and reduce pollutant emissions from cars. The project contributes to improvements in the urban road, through participatory processes: make a neighbourhood friendlier. Promotes the joint participation of schoolchildren, families, centre staff and neighbourhood to improve the immediate environment and recover public spaces. Primary and secondary schools have their own differentiated objectives and methodologies. In primary school, one of the pillars of the project is the routes/roads, on which pupils travel in groups to schools, accompanied by a father or mother who take turns. In high school, students take a much more active role and are themselves the ones who promote sustainable mobility among their peers. Children are always accompanied to school. Many parents have problems balancing family and work life, and this project ensures that their children arrive safely. Organized among the families through a child support system. (1 or 2 adults, organized by turns). Workshops organized to disseminate the Project / need to change habits.

No financial resources are needed to implement the project. But a coordination from the city, municipality, G. D. of Traffic and Mobility office, Educational centres, schools, families and the collaboration of the neighbourhood are necessary. Coordination is vital for participatory process: to determine routes and design educational activities.

The success is evident from the participation rate – last year, 21 schools of the city of Zaragoza participated.

- Kindergarten and Primary school: 305 children and 258 Families (total 563).
- Number of routes: 102.
- Active routes: those in which journey with accompanying adult is still being monitored by the technical team.
- Autonomous routes: those in which there are no longer accompanying adults (children go alone, although in the same group on the way to school) .
- Educational activity: with exhibitions, activities with bikes.

## Transfer potential

Put together: schools-local entities-social neighbourhoods, families. (Public participation and civil governance).

This collaborative project has benefits not only when it comes to creating a social network "Adult " in the school environment, and with a function of vigilance, but also educates the values of citizen cooperation, aid and solidarity. Schoolchildren feel that they are part of a community and are more aware of their environment. They learn to value, respect and care for their neighbours, public spaces,

through the active participation of children in the development of the "School Road Project", they are encouraged to be aware of the environmental problems that are created in cities in relation to the use of motor vehicles. The car as a means of travelling from house to school isolates them and reduces their possibilities of learning and socialization, creating more hostile and unsafe environment in the city.

#### Key characteristics

Walking

Public participation

Civil participation

Cycling

Students

Active mobility

Environment

#### References and links

<http://www.zaragoza.es/ciudad/caminoescolar/que.htm>

<http://zaragozaciudad.net/caminos Escolares/temas/proyecto-stars.php>

[http://www.zaragoza.es/ciudad/medioambiente/detalle\\_Noticia?id=226431](http://www.zaragoza.es/ciudad/medioambiente/detalle_Noticia?id=226431)

#### Contact information:

- Name:	Agencia de Medio Ambiente y Sostenibilidad
- Organisation:	Zaragoza City Council
- E-mail	unidadambiente@zaragoza.es

Figure 7. The School Roads project advertising campaign.



## 2.3. Slovenia: Involvement of stakeholders in establishing a new traffic regime

### Summary description

The conceptual project "Arrangement of the residential neighbourhood of Juršovka as a friendly transport area" is one of the measures that the Municipality of Ljutomer included in the Sustainable Urban Mobility Plan (SUMP) of 2012, with which the municipality ranked among the 3 best SUMPs in the EU for 2013. It is a pilot project of rearranging the residential area to make it friendlier and more attractive. Good practices from the EU have been tested in it, as the municipality has the ambition to make this pilot a good sample for future arrangements for residential areas in Slovenia and this part of Europe. The method of preparing the documentation for the arrangement of the area included a series of activities aimed at including the population and other stakeholders in the process of project development and key decision making. The whole process took place from May to September 2014.

### Main description

The Municipality of Ljutomer invested a lot of effort in the stakeholder engagement, when establishing a new calmed traffic area.

In May 2014, one of the first activities conducted were interviews with residents invited by the municipality. The basic information was collected on the wishes and needs of the population, which should be included in the preparation of plans.

The first workshop took place in June 2014 on the streets of Ljutomer's area called Juršovka. The concept and draft legislation were presented, followed by collection of people's opinions and ideas. The residents were in principle in favour of the concept but expressed some concerns and signaled problems that should be taken into account in the development of solutions.

Shortly after the workshop, a short questionnaire was sent to every household in Juršovka. The questions were related to the support of the main concept of the proposal and to individual elements of the arrangement. Residents could also give their opinion about certain details that should be taken into consideration specifically in the vicinity of their homes. This survey, too, showed the support of the majority of the residents for the concept of area reorganization.

On the basis of the input, a more detailed proposal for the regulation was created. In August 2014, the second workshop was organised - presentation of the proposal and individual discussions about the solution. Due to a number of concerns of the residents, interviews with municipal services company were also carried out. From the municipality and the mentioned service company assurance was obtained that the maintenance work would be performed on a regular basis.

The practice has been implemented within the SUMP process and has been included in the national project of Ministry of Infrastructure. In the project, 4 people have been actively involved and around 30 people have participated in the event.

What have learned from the activity that it is important to be aware of the reactions of the inhabitants, to be prepared for the worst and best situations. In addition, we found that the proponents of a solution should be well prepared before they face the inhabitants, they should have good arguments and be able to show the benefits of the measure and they should also be honest; they must have a good communication plan, provide feedback after the meetings/workshop/common events.

#### Transfer potential

The practice can be transferred to different Action plans of the strategies or policies. If the region faces /encounters with the same problems, the practice can be easily transferred. Since Ljutomer is small city, the solution is recommended only for cities of similar size. The city can benefit from reduced car speed and lower noise level in the residential areas. The preliminary communication with the residents is essential. It is better to have more meetings than none; make it more relaxing for the inhabitants (offer coffee, bring sweets), let them feel they are important and can provide valuable information for to improve the implementation.



#### Key characteristics

Involvement of the residents

Participatory involvement

Joint planning

Involvement of stakeholders

Public authorities invite residents to joint planning

#### References and links

<http://www.slovenija-co2.si/index.php/dobre-prakse/trajnostna-mobilnost/preureditev-soseske-v-ljutomeru-v-obmocje-umirjenega-prometa>

Biro Skiro d.o.o., Elaborat, ureditev stanovanjske soseske Jurošvka kot območja prijaznega prometa, September 2014.

#### Contact information:

- Name:	Mitja Kolbl
- Organisation:	Municipality of Ljutomer
- E-mail	Mitja.kolbl@ljutomer.si

Figure 8. Residents participating in a workshop on establishing a new calmed traffic area.



## 2.4. Poland: Cycling around the Warsaw's suburban Garden Tri-city

### Summary description

The Milanówek Municipality, together with two neighbouring towns (Brwinów and Podkowa Leśna), encourages residents to take part in the decision-making process concerning the development of the local bicycle traffic and infrastructure.

The campaign involved dialogue with citizens and responding to their needs. As part of the campaign, numerous activities were held to encourage the use of bicycles.

The event was the result of cooperation within the framework of the "The Warsaw Tri-City Gardens Association" project, under which meetings were held with the residents of the 3 municipalities, councillors, experts and stakeholders. During those meetings, coherent design documentation for cycle routes in the 3 municipalities was developed together with the Transport Development Strategy for the area of the Warsaw's suburban Garden Tri-City.

Currently, as part of subsequent projects, the Milanówek Municipality has begun the next step - the construction of the cycle paths. The municipalities provide new infrastructure, but in order to further maintain the interest and ensure the participation of the residents in the transport development of the municipality, promotional activities are carried out.

### Main description

Adequate pedestrian and cycling conditions are essential to guarantee everybody a minimal level of mobility ("basic mobility"). Any planning should be based on an overall problem statement, vision, and general goals. The vision and goals help determine specific objectives. All together they also determine the evaluation criteria that will be used for prioritizing actions, programs, projects, and tasks. An effective planning process involves various stakeholders, including staff from other related agencies, potential users, and other groups that may be affected by the plan. This process can provide long-term benefits and support the plan's implementation by educating officials and community members about pedestrian and cycling issues, establishing communication between the technical staff and the users, addressing potential conflicts, and creating an on-going framework for pedestrian and cycling planning.

The social campaign "Cycling around the Warsaw's suburban Garden Tri-City" is underpinned by the willingness to involve residents, give them a real opportunity to influence, and despite the completion of the project as a result of which the 'Transport Development Strategy for the area of Warsaw's suburban Garden Tri-city' was established, the Municipality of Milanówek is still involved.

The goals and tasks of the campaign included:

- I. Activities:
  - developing the cycling culture and the pro-ecological awareness of the residents of Milanówek

which is favourable to the use of bicycle;

- promotion and popularisation of sport and cycling tourism as well as healthy lifestyle (competitions, rallies, trips);
- promoting the bicycle as the main low-emission means of transport around the city and the surrounding area.

## II. Security:

- dissemination of knowledge about the safety of cycling in road traffic;
- improving the quality of cycling exams.

## III. Information:

- providing well developed promotional materials, well designed from the point of view of graphics and content, for each activity within the framework of the Bicycle Milanówek social campaign;
- disseminating knowledge about the campaign goals among residents, engaging in dialogue with residents and promoting change;
- coordination of activities at the local and supra-local level;
- disseminating knowledge about the project DEMO-EC.

## IV. Infrastructure:

- action to improve the conditions of moving around the city and its surroundings;
- action to reduce and calm the car traffic in the city, to create conditions for the safe movement of cyclists on the road;
- action for the construction and development of a good and safe infrastructure, dependent on the city's financial capabilities and the possibility of obtaining external funds.

The targeted addressing of initiatives has also helped to achieve high degree of participation. The schools were informed about the campaign and invited to participate in the school competition. Children were also included in the competition and motivated to submit ideas.

This practice involves stakeholders from different expert group (experts, public officers) as well as citizens of Milanówek, Brwinów and Podkowa Leśna. Local associations, a cycling tourism section and educational institutions also joined the campaign. The beneficiaries are the inhabitants of city.

The campaign identified the principal needs of all stakeholders with an exploratory survey at a focus group discussion concerning:

- marking bicycles and being visible on the road (reflective T-shirts, caps, lights);
- the rules of safe behaviour on the road;
- covered parking for bikes;
- bicycle infrastructure (new paths, modernization existing paths).



### Transfer potential

This campaign is a practice which increased social awareness and facilitated direct involvement of inhabitants and stakeholders of the 3 Municipalities. Proper management of permanent changes must involve staging tasks, involving participants, raising funds and sustaining the obtained results. It provides important information which, together with other inputs, creates the basis for policy making process.

This practice can be transferred to other regions as a process to share results for the future involvement of citizens and stakeholders in important public projects (e.g. modernization of bicycle infrastructure) and, at the same time, to collect suggestions and useful information about the needs to guide the future actions in the best possible way.

### Key characteristics

Governance

Participation

Cooperation

Bicycles

Infrastructure

Safety

### References and links

[http://www.milanowek.pl/2726,553,roverowy\\_milanowek](http://www.milanowek.pl/2726,553,roverowy_milanowek)

<http://mckmilanowek.pl/roverowy-milanowek/>

<http://str-milanowek.blogspot.com/2017/05/>

### Contact information:

- Name:	Aneta Majak
- Organisation:	Cultural Centre of Milanówek
- E-mail	a.majak@mckmilanowek.pl

Figure 9. Guide book promoting cycling tourism.



## 2.5. Italy: Participation process concerning introduction of tramway in Val Bisagno area

### Summary description

In the Val Bisagno area (one of the main valleys that cross the city connecting the centre to the suburbs), the main problem is the absence of alternatives to road transport, sufficient to guarantee good everyday mobility for inhabitants. The subject of the discussion was the feasibility study concerning the construction of a tram-line.

The Municipality organized the participation process with technical working group and different types of stakeholders who were involved with interviews, public meetings and focus groups.

The participation was linked with a public information campaign (press releases, dissemination of materials, etc). The activities of the focus group were organised to share ideas on different topics. The results were collected in the guidelines that could be used for the implementation of the project.

This good practice can be applied to other regions, as a process, to share the results for the future implementation of complex mobility infrastructure projects.

## Main description

The Municipality organized the participation process in three phases:

- Formation of the Technical Working Group (composed of the Municipality Mobility and Urban Development Departments, Architecture and Engineering Departments of the University, local districts and Local Public Transport company);
- Identification of stakeholder groups and their involvement in interviews, meetings, open meetings, questionnaires, main actors' notes, laboratories and focus groups;
- Elaboration of the shared guidelines.

The participation cycle was linked with a public information campaign (press releases, dissemination of materials, a dedicated e-mail address, phone number and a section on the web site<sup>3</sup>)

The main stakeholders and beneficiaries are the following entities:

- educational institutions;
- neighbourhood merchants, sports associations and environmental associations;
- transport company;
- public service provider;
- trade unions;
- local district committees;
- citizens.

The Municipality identified the main needs of the stakeholders with an exploratory survey and through focus group interviews concerning:

- Need for a more efficient public transport system (all stakeholders);
- Alleviating traffic difficulties and ensure better availability of urban services;
- Preference for the introduction of tram-way;
- Better integration of alternative and integrated systems (car sharing, collective taxi, carpooling) with the urban and suburban local public transport system.

The process involved *thematic laboratories and specific focus groups* analysing the following:

- technological solutions;
- different scenarios;
- assessment of critical issues at the urban level;
- evaluation of methods and timing of implementation.

The activities of the focus groups involved sharing of the ideas collected in the guidelines, to be used for implementation of specific activities of the project. Thematic discussions about the tramway areas

<sup>3</sup> <http://www.urbancenter.comune.genova.it>

were held. In particular, the Municipality collected suggestions, opinions, and information about the needs of the citizens, provided by the participants (citizens or members of the workgroup)

The Municipality of Genoa regulates the participation processes in its Statute (specific rules of Municipality) and in a special regulation<sup>4</sup>. There were no particular incentives, but only a communication campaign.

#### Transfer potential

Organization of participation process can be summed up in five phases:

- 1) identification and creation of the Technical Working Group (composed of Mobility and Urban Development Departments of the Municipality, Architecture and Engineering Departments of the University, local districts and Local Public Transport Company).
- 2) definition of participative process with stakeholder groups.
- 3) involvement of stakeholders in meetings, sessions, questionnaires, notes of the actors, Laboratories and focus groups.
- 4) public assembly open to the public.
- 5) elaboration of work schedules concerning project guidelines publication and public presentation of the shared guidelines to be used for future infrastructure construction projects.

The Municipality collected the suggestions from the stakeholders (needs, constraints, opportunities) to identify common objectives and subsequently develop the guidelines shared and discussed with the public in the final public assembly.

This good practice can be applied to other regions, as a process, to share the results for the future implementation of complex mobility infrastructures.

Using the participation format described above, it is possible to involve citizens and stakeholders to make them part of important public projects (e.g. big infrastructure projects) and at the same time to collect suggestions and useful information about their needs to guide the actions in the best possible way.

#### Key characteristics

Public participation

Civil participation

Joint planning

Involvement of stakeholders

<sup>4</sup> available at the following links:

<http://www.comune.genova.it/content/regolamento-decentramento-e-partecipazione-municipale-n-0>

[http://www.comune.genova.it/sites/default/files/statuto\\_2010.pdf](http://www.comune.genova.it/sites/default/files/statuto_2010.pdf)

Introducing new modes of transport

City transport

Public transport

Tramways

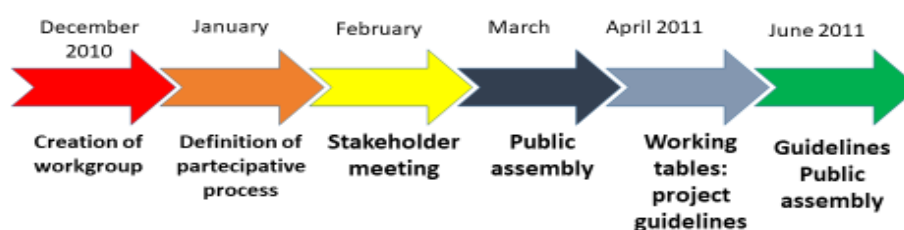
References and links

<http://www.urbancenter.comune.genova.it/group/772>

Contact information:

- Name:	Antonio Rossa Alessandra Vindigni Paola Debandi
- Organisation:	Municipality of Genoa
- E-mail	arossa@comune.genova.it avindigni@comune.genova.it pdebandi@comune.genova.it

Figure 10. Timeline of participation process.



### 3. E-mobility

There are a lot of measures in the transport sector to improve air quality and to reduce air pollution and CO<sub>2</sub> emissions. The incentive to use of sustainable vehicles as electric vehicles has been, in recent years, an important option to contribute to achieving this goal. The climate change, the increase of petroleum price, the reduction of fossil fuels availability in the long term and the important technological innovations in the transport industry sector have given e-mobility a strong push forward.

E-mobility includes vehicles of different types and not just cars, but also two-wheel vehicles (motorcycles and bicycles), quadricycles, vans, etc.

E-mobility is becoming popular and known also through awareness campaigns for zero emission vehicles, special tax incentives, access in limited traffic zones, parking facilities, use of preferential lanes, technological innovations, new electric engines with better performance, new generation batteries, availability of different type of vehicles (hybrids or electric, including electric intermediate technologies).

The conversion from traditional fuels to electric vehicles is not automatic and easy, it needs an active involvement and support for understanding of the meaning and the advantages of these new technologies.

The change begins with overcoming the propensity to purchase and users' behavior.

In this context, public bodies can encourage the development of e-mobility by incentives linked to changing habits.

One should not forget that the dissemination of electric vehicles should be related to the use of renewable energy in electricity generation.

The development of electric mobility will depend not only on the adoption of specific technologies, but also on the ability to organize and manage the activities of different actors: automotive industry, battery manufacturers, mobility services providers, energy suppliers and distributors, policy instruments of institutions.

The user behavior change will be crucial and the demand for low-carbon vehicles will depend on several factors: oil price developments, increase of a network of charging stations, cost of batteries and vehicles, user-friendly nature of new technologies.

For these reasons different actions could be proposed:

1. Promotion of policies in support of electric mobility.

2. Investment in research and development of new technologies, with the aim of:
  - a. reducing costs;
  - b. improving performance in terms of autonomy and capacity;
  - c. reducing the long-term environmental impacts of raw materials used and the manufacturing processes.
3. Growing consumers experience with electric vehicles, creating demonstration programs to test technologies and user behavior.
4. Promotion of development of electric vehicles:
  - a. "green" purchases in public administration and electrical fleets of public vehicles;
  - b. electric car sharing;
  - c. electric bike sharing.
5. Increase user awareness of carbon emissions of traditional vehicles.

The European Union strategy aims to encourage the development of clean and efficient vehicles, focusing on the reduction of polluting emissions, in particular CO<sub>2</sub> emissions, with reference to urban vehicles, with an approach to be developed in the following areas:

- to encourage the development of innovative technologies concerning alternative fuels and alternative propulsion engines (electric vehicles battery, plug-in hybrid vehicles, fuel cell vehicles);
- to improve charging infrastructure;
- to improve generation and distribution of electricity;
- to boost policies and initiatives promoting electric vehicles:
  - annual circulation tax exemption for the first five years,
  - incentives to purchase,
  - in many cities, electric vehicles are allowed access in limited traffic zones,
  - free parking for e-vehicles in parking areas subject to charges for all other types of vehicles and dedicated parking spaces (usually 2 spaces for e-cars) next to charging points.

It is important to understand the mobility needs and the demand for electric vehicles. Young people, in particular, are more inclined to change their mind-set with regard to the car use, they are more positively disposed to new mobility systems such as car sharing. Electric cars, motorcycles and electric bicycles could reinforce this new relationship between citizens and mobility.



### 3.1. Germany: Leipzig – City of Intelligent Mobility<sup>5</sup>

#### Summary description

In February 2017, the city's Department of Economic Affairs and Labour published its "Leipzig – City of Intelligent Mobility" concept, which serves as a binding plan for how the city's traffic can go electrical, in the future.

The concept describes current and future challenges, objectives and opportunities, and stipulates specific measures to achieve the overall goal of (healthy) e-mobility in Leipzig.

For a better illustration, the specific measures to be taken were categorized into four different types:

- (A) Completed and/or currently conducted measures
- (B) Economically feasible measures
- (C) Incentive-providing measures
- (D) Measures with external financing (without any underlying municipal funding)

Apart from the concept's ultimate goal to turn Leipzig into a "city of intelligent mobility", its creators also pursue the goal of making Leipzig an e-mobility pioneering city for Germany.

In order to achieve that, the concept outlines steps and measures about how the different stakeholders such as the city administration, the private (local) economy and its businesses, local scientific entities and citizens can work hand in hand so that Leipzig can set a good example in terms of intelligent mobility solutions.

As the first measure, (maybe the most challenging, yet significant step), the Leipzig city administration is supposed to take the lead and visibly demonstrate their own contribution to a better city life quality through e-mobility. The most obvious and logical first step is for the city administration's fleet to go electrical first - which they do (as will be described, later). Furthermore, the city's communication strategies aim at highlighting the available local technology and innovative power (of business and scientific entities) necessary to achieve the intelligent mobility city.

#### Main description

Against the background of ever-increasing crude oil prices, climate change, and, gladly, a resulting visible change of people's mobility behaviour, we know our future mobility patterns, in particular, in cities, need to change.

Leipzig is one of a growing number of cities to set new goals to "go green", in other words to cap coal-powered electricity, to cut CO<sub>2</sub> emissions, to combat noise pollution etc.

If finally implemented, the Economic and Labour Department's concept "Leipzig – city of intelligent

<sup>5</sup> Leipzig – Stadt der intelligenten Mobilität

mobility” will ultimately:

- Contribute significantly to electrifying vehicle drives;
- Significantly reduce traffic-borne CO<sub>2</sub> emissions;
- Reduce fine particular matters;
- Reduce noise pollution;
- Enhance quality of life in the city.

In addition, the concept envisions the following further objectives:

- Securing and further developing Leipzig as an attractive and fit-for-the-future economic location (which is actually also one of the fundamental bases to implement the very concept);
- Increasing green mobility;
- Contributing to a sustainable traffic development;
- Further fostering Leipzig's image as a modern city worth living in.

### **How does Leipzig plan to become an intelligent mobility city?**

Firstly, and among one of its core aspects, the concept envisions to encourage private businesses to electrify their fleet. As a matter of fact, the city's Office for Business Development (Amt für Wirtschaftsförderung) declared e-mobility measures by local SME businesses as qualifying for funding. That gives our SMEs the opportunity to take that first step of introducing e-mobility actions such as testing EVs in the normal course of business - at minor financial risks for themselves.

Secondly, a two-year-information exchange process took place between stakeholders, political decision makers, administration and local business representatives. Here, the goal was to identify areas for necessary action and to formulate the resulting imperative measures to implement networked e-mobility offers, and to further promote, and even push for, the introduction of intelligent mobility offers in the territory of Leipzig. The following actions (including participation) were taken: interviews with stakeholders, surveys concerning e-mobility topics among Leipzig businesses, founding the Leipzig E-Alliance, getting the city administration on-board and setting up discussion forums with the citizens.

Thirdly, Leipzig public transport providers have been addressing e-mobility for quite some time, now. In fact, Leipzig's tram traffic is electrified for nearly 120 years, now. Still today, more than 80 % of our city's traffic capacity is covered by electrified trams. Apart from this well-established public e-transport network, additional measures were taken to further push for a bigger-scale introduction of e-mobility offers throughout the city (such as initiating a pilot project for a potential unmanned e-bus taking workers from the suburban railway station Messe Leipzig to the industrial park Industriepark Nord, expected to be launched in 2021).

### Examples of individual measures (from each category)

To further illustrate what has been and will be done based on the “Leipzig - a City of Intelligent Mobility” concept, four specific measures, one of each identified category, will be explained below.

The “Corporate Carsharing” activity constitutes one of the “completed and/or currently conducted measures” (A). With this measure, the city administration’s fleet was electrified to contain, as of now, 42 e-cars, 4 electrified public service vehicles (such as water tank vehicles for cemetery green keeping), 4 e-bikes, and two electrically driven cargo bikes. Another example of this category is the e-bus line 89 which is completely served by e-buses. The battery is accommodated in the roof structure. For the bus to be charged, its roof-fastened arm telescopes to dock onto the above-located charging station for 12 minutes. The battery’s range is 25 kilometres. The buses’ batteries are charged during breaks at the route’s final station.

The economically feasible measures category (B) lists a parking space initiative for e-vehicles within the city centre area. In general, the concept particularly pursues the implementation of large-scale e-mobility measures in the very city centre. For this purpose, the city provides dedicated e-vehicle parking spaces equipped with charging stations free of charge as a special incentive for citizens (and visitors) to use EVs. This category of measures further lists the installation of charging infrastructure for electrical vehicles. Over recent years, the setting-up of charging stations has received quite some support from the local research community resulting in the construction of 65 charging stations by the Leipziger Stadtwerke (the city’s electric utilities), and 27 charging stations by the LVB.

The category of incentive providing measures (C) lists e-car-sharing offers, for example. For its fleet, the car sharing provider Teilauto, is required to equip each car sharing station with one EV, at least.

The final category, measures with external funding (no basic municipal funding, (D), includes the E-roller sharing initiative. Actually, this is the most recent measure that’s currently being rolled out, and seeks the future replacement of EVs by E-motorcycles.

### Transfer potential

As we know, electrical mobility, or e-mobility, has been around for quite some time, now. Leipzig is only one of a growing number of cities trying to find intelligent solutions for viable, sustainable, and green mobility offers. The federal government of Germany included e-mobility in its Integrated Energy and Climate Protection Program, in 2007.

We’ve seen that any major changes in mobility patterns, and/or people’s/businesses’ mobility behaviour require the backing of political decision makers, on the federal government and the local state parliament levels alike. In our instance, for example, without such political support, the development of the “Leipzig - City of intelligent Mobility” concept probably would not have been possible in this vast scope.

We believe that financial incentives do help initiating pilot projects and small-scale experiments to find a gateway to the entire e-mobility context.

Moreover, what we recommend to our partner regions is to demonstrate a positive attitude towards the e-mobility topic, as it is a sensitive topic, indeed. We have seen that quite a few people are concerned and perceive this whole “e-mobility project” as some form of “externally imposed happiness” they do not even want to be part of. Here, we advise putting in place positive communication and PR strategies, and implementing citizen participation formats.

As the first step, and we have been doing this in Leipzig, we strongly advocate city administrations to “set a good example” and have their fleet electrified. There are EU funds available for this!

Also, as you need the specific technological and innovative capacity to carry out your e-mobility plans, get in touch with the local business and science entities. Invite them to help you with their technical solutions for converting conventional combustion engines into electrified ones.

#### Key characteristics

E-mobility  
Environment  
Sustainable mobility  
E-vehicle, electrified vehicle  
Fleet

#### References and links

<https://www.energiemetropole-leipzig.de/de/schwerpunkte/elektromobilitaet>

#### Contact information:

- Name:	City of Leipzig
- Organisation:	Department of Economic Affairs and Labour Office for Business Development Bureau for Economic Development and Marketing ("Abteilung Standortentwicklung/Marketing")
- E-mail	wirtschaft@leipzig.de

Figure 11. Leipzig goes electric.



### 3.2. Spain: MOVEA plan

#### Summary description

The Plan to Promote Mobility with Alternative Energy Vehicles (MOVEA) is a measure that is part of the Strategy for the Promotion of Vehicles with Alternative Energies (VEA) in Spain 2014-2020. An aid plan promoted by the Ministry of Economy, Industry and Competitiveness.

Vehicles powered by energy sources alternative to traditional fossil fuels are part of sustainable mobility in global transportation, both in cities and on roads, due to their benefits in terms of energy diversification and reduction of dependence on petroleum products, as well as the reduction of CO2 emissions and other polluting emissions and greenhouse effect, thus helping to improve the air quality of our cities and to reduce noise pollution and also favour the consumption of local energy, especially from renewable sources.

Therefore, the specific objective of MOVEA plan is to encourage the acquisition in Spain of this kind of vehicles.

Thanks to success of this plan, which started in 2016 and continued in 2017 and 2018 named

MOVALT plan, new assistance programs will come into operation next year (MOVEA plan 2019).

### Main description

The MOVEA Plan is trying to renew the car fleet in Spain as more than half of the cars are older than 10 years and this means a double threat: to safety and to the environment. A new car which meets the Euro 6 regulation emits 90% less flues than any car which is 10 years old.

These goals can be reached replacing the existing old cars with:

1. electric vehicles;
2. liquefied petroleum gas (LPG) vehicles;
3. vehicles using compressed natural gas (CNG) and liquefied natural gas (LNG);
4. electric motorcycles;
5. electric motor-assisted pedalling bicycles.

This plan consists in financial support to the purchase of electric, natural and hybrid gas fuelled cars as well as the installation of charging points. The value of this grant varies from 500 € to 18.000 € depending on the type of vehicle and on whether the purchaser is a natural person or a company.

The amount of assistance does not change and includes both electric cars and plug-in hybrids and extended-range hybrids. For these models, with a price excluding VAT of less than 32.000 €, the subsidy is as follows:

1. Fully electric, autonomy greater than 90 km – 500 €.
2. Completely electric, autonomy between 40 and 90 km – 700 €.
3. Fully electric, autonomy between 15 and 40 km – 700 €.

In the case of electric motorcycles, depending on their power and price, the assistance is 1.500 or 2.000 euros. For light electrical motorcycles it is 1.950 euros and for heavy ones 2.350 euros. On the other hand, for the bicycles of pedalling assisted by an electric motor, the help is 200 euros.

Besides, the dealerships that would want to enrol to the project had to offer an additional discount of 1.000 euros and if it is an electric car, they had to provide the buyer with the installation of a charging point.

The beneficiaries may be:

- self-employed;
- legal persons;
- private companies;
- local entities and public companies;
- administration of Autonomous Communities and public entities linked or dependent of them;

- other public entities linked or dependent of the AGE (State General Administration).

To reach all these goals, we have to take into account that the main incentive to achieve public participation and support is the change of people's mindset and making them aware of the current and future negative effects for the environment. Everyday more people accept sustainable development and all the policies that go with it.

The amount of funding/financial resources used is 14.2 million euros.

#### Transfer potential

The success was evident when MOVEA plan took several months to be implemented (on August 3, 2017) but in less than 24 hours the funds allocated for the acquisition of electric motorcycle, cars, vans, buses and trucks were exhausted.

In the month of December, it reached a total volume of registrations of 1.159 units which means an increase of 115% with respect to the same period of the year 2016. In the whole year, the number these vehicles registrations reached 8.645, with an increase of 82% compared to the previous year. The total number of electric cars in Spain is 36.200 and the goal for 2020 is to reach 150.000.

The registration of hybrid and electric cars in Spain closed in 2017 with 64.386 registered units, which was expected to increase by 79.9% in only one year.

As regards private cars, the market share of the total of registrations in 2017 for electric and hybrid was a 5.1%, the highest ever reached, mostly due to the hybrid cars.

The most sold electric car in Spain has been Citroën C-Zero, with almost 600 units. Then follow: Nissan Leaf, BMW i3 y Tesla Model S.

Due to the growth and success of the MOVEA plan, the government is already preparing a new project: MOVALT plan (plan to support alternative mobility).

This new assistance program, featuring again the electric car, provides for an increased budget. The 16 million euros that was allocated for the purchase of alternative vehicles will grow to reach 20 million euros.

If what is intended is to boost efficiency and sustainability solutions, there is no better option than following the footsteps of majority of European countries that support electric car.

#### Key characteristics

E-mobility

Sustainable development

Electric change

Zero emissions



#### References and links

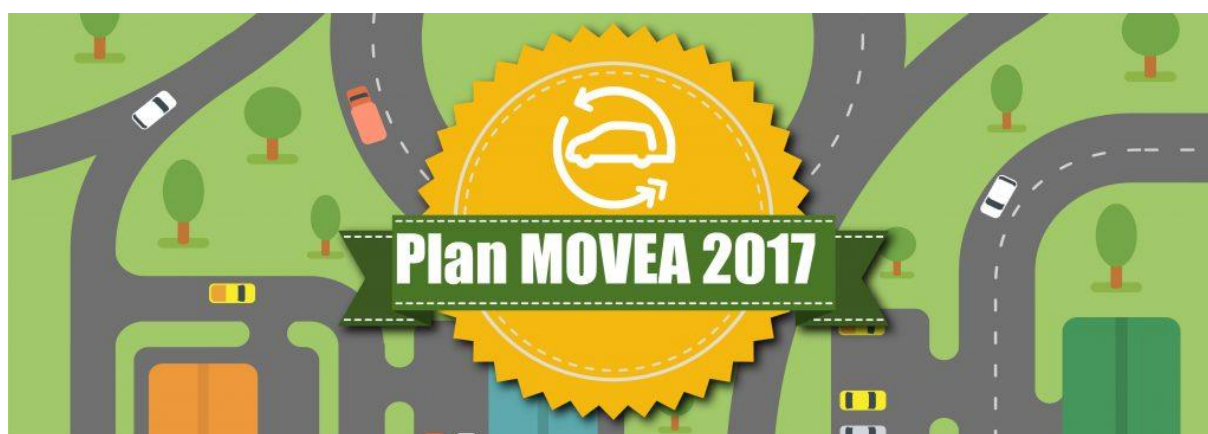
<https://itv.com.es/plan-movea>

<https://www.mincotur.gob.es/industria/es-ES/Servicios/plan-movea/Paginas/ayudas-movea.aspx>

#### Contact information:

- Name:	Ecological Transition Ministry
- Organisation:	Spanish National Government
- E-mail	ciudadano@idaes.es

Figure 12. MOVEA 2017 logo.



### 3.3. Slovenia: Kavalir – the gentle helper

#### Summary description

Ljubljana's electric-powered vehicles referred to as Kavalirs (Gentle Helpers) are a free city centre public transport option friendly both to people and the environment. Kavalirs, mainly intended for the transport of the elderly, mobility-impaired people, and visitors, run around the pedestrianized historical city centre at a speed slow enough to allow you to hail them anywhere on the street. Telephone ordering is also an option.

The Kavalir fleet currently consists of four vehicles, two of them open-sided and two glazed and heated in winter time. Friendly Kavalir drivers will take you anywhere within the city centre pedestrian zone. The vehicles, moving at a speed of up to 25 kilometres per hour, can carry five passengers.

The two open-sided 'summer Kavalirs' run in the warm part of the year, from April to the end of October, whereas the glazed 'winter Kavalir' runs throughout the year, during the summer season along a regular route.

#### Main description

In recent years, the City of Ljubljana has renovated and greened its vehicle fleet.

In 2008, for the first time, it launched Call on demand service named Kavalir. Since 2012, it has been a permanent feature of the Public passenger transport company. In the framework of the European

Mobility Week 2015, the Kavalir 4, closed and winter-time electric vehicle was introduced in the city centre of Ljubljana, intended for pedestrians and cyclists. A new electric vehicle for citizens and visitors provides environmentally friendly transport in the city centre, as it does not produce any noise or exhausts. In 2018, there were 7 such vehicles in the city.

The goal of such a solution was to change the travel habits and increase the share of passengers using public transport, provide faster and more comfortable travel to the destination, to facilitate combining of different modes of transport and to have modern and environmentally friendly public transport system.

Kavalir contributes to energy savings and reduced CO2 emissions in the city. With moderate traffic in the city, it increases safety in pedestrian areas, reduces congestion and reduces pressure on car parks. In doing so, the municipality improves the quality of life in the city. This ensures activity and development of the city centre. The closure of the centre to cars attracts more tourists and visitors.

The Kavalir was also officially approved for the continuous implementation within the SUMP preparation. The shareholders involved in the preparation of the document estimated that the measure was effective and supported its further implementation. The users of Kavalir are primarily people with special needs (e.g. disabled people), because the vehicles are technically adapted to make sure they can access, enter and exit safely. It is also used by elderly people, children and tourists.

Since 2008 the practice has been implemented in EU projects where the EU funding has been provided. Since the revision of SUMP in 2017 the funds have been guaranteed by the municipality (Department of Economic Activities and Transport) and have amounted to 200.000 in the next 5 years.

With the introduction of Kavalir, the Municipality wanted to stop downward trend in the use of public transport. To fight this phenomenon, innovative methods are necessary – among them one that cannot be ignored, a better offer and greater use of other sustainable travel modes, including the use of Kavalir. From the first contact with the Kavalier, its users become devoted customers who have a very close and personal relationship with the drivers. Therefore, the first two Kavaliers were accepted very positively.

According to the Ljubljana Public transport information, 900.000 people were transported between 2008 and 2015. On the busiest Sunday, they usually make 75 km. Call response of Kavalir is 5-20 minutes or more, depending on demand. The speed of the vehicle is an average of 8 km/h and sometimes rises to 15 km/h, which proves it is suitable for pedestrian zones.

The first vehicles, however, had some limitations – the newer versions of vehicles are modified so they resemble more a small bus rather than a golf cart and they are equipped with the roof and a special wheelchair ramp. Also, the route has been more precisely defined.

Free travel on board of Kavalirs is made possible by the LPP, the city's bus company, in collaboration

with the City Municipality of Ljubljana and Ljubljana Tourism, the city's tourist board. The introduction of electric-powered Kavalirs is part of the measures taken to make public transport in Ljubljana more environmentally friendly. Ljubljana is well-known as a city that has made great progress in this particular area. Over the last ten years, it has won two European Mobility Week Awards (awarded by the European Commission), one in 2003 and the other in 2013.

#### Transfer potential

The practice can be transferred to different Action plans of the strategies or policies. If the region faces or encounters with the same problems, the practice can be easily transferred. It is an electrical vehicle; thus, the city can benefit from reducing the noise in the residential areas; make the environment clean. The Kavalir vehicle provides support to the disabled people. The measure is to be implemented in the pedestrian zone as the Kavalir does not reach more than 25 km/h, and therefore it is suitable for such areas.

#### Key characteristics

##### E-mobility vehicles

Call on demand service in calmed traffic zone

Low speed, less noise

Mainly for elderly and disabled people

Modern and environmentally friendly public transport

#### References and links

<http://www.lpp.si/en/informations-passengers/electric-vehicle-kavalir-and-electric-train-urban>

<http://www.lpp.si/en/informations-passengers/urban-train>

#### Contact information:

- Name:	David Polutnik
- Organisation:	City Municipality of Ljubljana, Department of Economic Activities and Transport
- E-mail	ogdp@ljubljana.si

Figure 13. Kavalir in Ljubljana.



### 3.4. Poland: Electric Milanówek

#### Summary description

In most smaller cities and villages such as Milanówek, residents do not have access to e-mobility due to lack of adequate infrastructure as well as high prices of e-vehicles. In order to familiarize the residents with e-mobility, Milanówek introduced an e-scooter rental system. For three months, residents of Milanówek could use 4 e-scooters. The purpose of the activity was to show the ease of using e-scooters and the benefits of such solutions.

The aim was to promote electric vehicles in Milanówek, which in the future would contribute to the reduction of CO<sub>2</sub> emissions in the transport sector through promoting public transport and fostering e-mobility.

#### Main description

Due to the cost a resident would have to incur to buy an electric scooter and the need to provide a charging station on his own premises as well as a complicated procedure for obtaining a connection, electric means of transport constitute a negligible percentage of the vehicles used in small towns, such as Milanówek. It means that residents do not have the opportunity to see how positive the impact of e-mobility can be.

The aim of the project was to familiarize the residents with e-mobility, starting with cheaper

alternatives such as e-scooters. An electric scooter is an interesting alternative to a bike or a car. It allows to travel faster and effortlessly. Travel by scooter is comfortable in an urban setting as it helps avoid traffic jams and makes it possible to get quickly even to the other side of the city. What is more, in Polish legal conditions, it can be ridden by anyone who has turned eighteen – without a driving licence. The electric scooter does not emit harmful substances and – which is important in the case of this type of vehicle - does not make noise. Scooter-sharing is an ecological solution thanks to which residents of large and small cities can move around the city efficiently and without problems with parking. All you need is a smartphone and an application from which the user can book, start and end the rental of the scooter.

The Municipality of Milanówek introduced e-scooters for three months to give the residents an opportunity to try a different, more ecological mode of transport. Parking stations were located in places that allowed easy connection between PKP (regional trains) and WKD (suburban trains) stations, which helped to reduce the car traffic. Low rental costs encouraged residents to try this kind of transport. Due to the lack of infrastructure where we would charge the scooters, the outside company is currently responsible for charging their batteries and for the vehicle maintenance.

An additional advantage of using the scooter rental system was the GPS system and the application that allowed to collect traffic and rental data to plan in the future the construction of infrastructure elements involving the development of e-mobility.

#### Transfer potential

In particular, smaller towns with lack of infrastructure may benefit from this practice. In situations where residents often cannot afford to have their own electric vehicle with a charging point, the city can provide a possibility of using a shared electric means of transport at attractive prices. E-mobility is also an alternative for cities with mountainous terrain. Difficulties in using bicycles can be eliminated by using electric scooters. The low rental price and the appropriate location of the station encourage people to use scooters that are as environmentally friendly as bicycles.

A very high value of the project is the fact that it enabled the residents to see how electric means of transport work, to try them and to get convinced of their positive impact on the environment and transport in the city. People's interest will affect the number of scooters available in the future in the city, but it is also possible that the project will encourage the residents to abandon private cars for the sake of the environment. If they are not given a chance to become familiar with e-mobility, people are reluctant to change their behaviour and the way of thinking. The introduction of electric scooters means that electric vehicles become something ordinary in the city and the lives of residents.

#### Key characteristics

E-mobility

E-scooter

Sharing



# References and links

<http://mckmilanowek.pl/w-milanowku-wypozyczmy-rower-i-skuter/>

## Contact information:

- Name:	Aleksandra Żuraw
- Organisation:	City Hall of Milanówek
- E-mail	miasto@milanowek.pl

Figure 14. E-scooters in Milanówek.





### 3.5. Italy: Ele.C.Tra. project

#### Summary description

Ele.C.tra (Electric City Transport) project, under IEE Programme, encouraged development and application of an innovative new mobility model (economically self-sustainable and replicable in other contexts) to increase sharing and rental of electric scooters to be used in urban areas for citizens and tourists, to provide solutions to citizens' mobility needs. This model was aimed to promote interchange parking, bike paths and public transport use, encouraging citizens to give up private vehicles.

The Genoa Municipality identified and involved different stakeholders in projects related to purchase and rent of light e-vehicles and recharging infrastructure.

Thanks to the agreements with the stakeholders it was possible to offer favourable purchase conditions (i.e. discounts for purchase of electric vehicles) to certain types of customers, and to cooperate with the stakeholders in e-vehicles dissemination initiatives (conferences, road shows, public meetings) to promote knowledge of e-mobility.

#### Main description

Ele.C.tra (Electric City Transport) project, under IEE Programme, encouraged development and application of an innovative new mobility model (economically self-sustainable and replicable in other contexts) to increase short-time sharing and rental of electric scooters for use in urban areas, for citizens and tourists to provide specific solutions to citizens' mobility needs. This model was aimed to promote interchange parking, bike paths and public transports use, encouraging citizens to give up private ownership of cars and scooters, to reduce urban congestion due to private cars traffic that produces air pollution in most European regions and to promote sharing scooters, which is useful when shortage of parking spaces increases.

Genoa Municipality identified and involved 4 categories of stakeholders through specific agreements (16 agreements with 12 operators):

- light e-vehicles suppliers: vehicle providers;
- infrastructure suppliers: recharging stations providers;
- demand generators: potential users of the services (e.g. schools, companies);
- communication operators: stakeholders interested in dissemination of undertaken measures and the results obtained.

Stakeholders supported the project with specific services and targets (e.g. providing economic favourable conditions to certain types of customers, cooperating in dissemination initiatives etc.).

The **Area Mobility Management** offices promoted the measure among **other neighbouring municipalities** and **big companies** with high potential in terms and employees and fleets.

**Ordinary citizens/users** are the **main target** of the project. They have been involved in surveys about mobility habits and in different kind of events (conferences, road shows, public meetings focused on specific user target and/or local needs).

The main project objective is to create and improve the conditions to encourage sustainable mobility by developing an economically self-sustainable model, replicable in other contexts.

Agreements with the primary stakeholders have been the focal point to involve users as much as possible to encourage the change of mobility habits with:

- incentives to purchase electric vehicles and to improve electric charging stations;
- Limited Traffic Zones free of charge for e-vehicles.

The Municipality involved a lot of stakeholders in the project (during the entire period: June 2013 – December 2014):

- 23 Mobility Managers;
- 127 entities including Stakeholders in different CDG events about electric mobility.

The project disseminated the knowledge of electric scooter to the users, but the market is still not very developed perhaps because of high cost of vehicles.

This activity was one of the first undertaken in recent years to persuade people to scrap their diesel and petrol vehicles in favour of electric vehicles (scooter and bikes).

Some difficulties were encountered in the involvement of citizens:

- general lack of confidence of the people who prefer ownership to the sharing system;
- safety: not possible to use e-scooters in bus lanes or in pedestrian areas.

Other difficulties were connected with having a unique model involving all partners, which was not easy for administrative and technical reasons.

The lessons learned included, in particular, the need to adapt the system of measures for different target users encouraging them to use e-vehicles under the sharing formula to the specific context of the city.

The introduction of incentives to purchase e-vehicles and good cooperation with the operators of this sector, also through public events dedicated to the dissemination of the project, all that helped to bring users closer to the issues of electric mobility.

Thanks to these public events, e-vehicle manufacturers can also introduce users to their new electric scooters and bicycles and let the users know about the incentives to purchase such e-vehicles.

## Transfer potential

This practice can be transferred to other Regions with respect to policies aiming to promote electric vehicles in urban areas. Thus, the cities can achieve great improvement in urban air quality. But to make this happen, it is important to create specific services, to provide favourable economic conditions for a particular kind of customers and to cooperate with other stakeholders in the initiatives promoting the subject of electric vehicles among the users (citizens, big companies, etc.) during conferences, road shows and public meetings.

In addition, light-e-vehicles providers can promote electric scooters and bikes among the potential users and can provide incentives to purchase and use such vehicles.

## Key characteristics

e-mobility

sharing mobility

e-scooter

dissemination

## References and links

<http://www.electraproject.eu/>

## Contact information:

- Name:	Alessandra Vindigni Antonio Rossa Paola Debandi
- Organisation:	Comune di Genova
- E-mail	avindigni@comune.genova.it arossa@comune.genova.it pdebandi@comune.genova.it

Figure 15. E-scooters Ele.C.Tra.



Road show of e-scooter in Porto Antico Area

## 4. Car reduction, walking and cycling

So, what's a city in Europe supposed to look like, in the future? How do we have to design our cities to make them prospering and attractive places worth living in?

Some of the challenges we're facing are a decreasing amount of available space and changing urbanity requirements. Let's face it: without going from individual motorized traffic to public transport, traffic in many big cities would have collapsed long time ago. It is quite obvious: future urban mobility will not be able to do without "multi modality" (i.e. using different transport means for different usages), and specifically, a drastic cutting down on individual motorized traffic.

In this context, the concept of "modal split" is key. We could actually visualize it as a pie chart, the whole pie being the totality of different transport modes (cars, public transport, bikes, walking) of which we want to reduce the "car piece" and increase the "green and sustainable transport mode piece".

Modal split targets should reflect sustainable traffic planning covering a city's climate, air quality and environmental goals. To achieve best possible results it makes sense to declare modal split targets as a political goal and to have political decision makers back their fulfilment. It appears that city council support can be easier achieved if we, the traffic planners, can clearly demonstrate specific traffic strategies and concepts of how to achieve those modal split goals.

Measures can have a direct effect upon motorised individual traffic or on other types of transport.

So, for example, making the use of bicycles (as one transport mode) more attractive through improved and modernized bicycle traffic infrastructure, safe and protected bike parking area located in direct vicinity of public transport stops and stations, can contribute to more people leaving their car at home. So, this will ultimately help to reduce that huge car traffic volume.

A car traffic reduction can, of course, also be accomplished through increasing the public transport share, which is highly recommendable. Among the tools to achieve this are a well-designed, strong, flexible and efficient public transport network, optimized service hours, interval and cycle times, barrier-free access to buses and trams as well as competitive ticket prices, partly through subsidies (such as our "Leipzig Ticket" offering discounted public transport fares for low-income families, students and citizens with impaired mobility).

Also, encouraging more citizens to walk getting from A to B helps to achieve our modal split goals, or, in other words, to enlarge the "green" transport mode piece in the modal split pie. Here, the city uses different tools, such as providing broader and safe-surfaced pedestrian-friendly pavements, advanced traffic-light switching for safe crossings at intersections, and attractive urban space designs where people actually like to be and spent time.

If we want to achieve the goal of mobility for everyone in a city and “make people happy” (or, at least, try to, considering all the other urban space planning, economic, green, and transport aspects), an actually simple tool is to let the citizens participate in the decision-making process for transport infrastructure projects:

How can we successfully do that? Here are some thoughts:

- inviting citizens early on to participate; taking their concerns, needs and ideas serious;
- clarifying expectations of the citizens involved;
- being prepared for and willing to hear open-end results - at least, a minimum of it;
- assuring transparency of the planning process;
- setting up clear rules;
- having an impartial, non-partisan moderator in place throughout the process;
- explaining technical information in a clear and understandable manner.

We are actually also seeing tendencies to involve citizens in traffic planning projects with low probability of resistance, such as with traffic volume reduction projects through 30 limit zones, the construction of bicycle paths or redesigning public spaces. In most of the cases, it is the residents of the respective area affected, different interest groups from society and political stakeholders who are invited to participate in forums and workshops for such kind of traffic infrastructure projects.

#### 4.1. Germany: Car-less city centre concept for Leipzig<sup>6</sup>

##### Summary description

In 1993, the city council adopted the “car-less city centre” concept for Leipzig. Its main goal is a better “quality to stay” and spend time in the centre for tourists and residents through a gradual reduction of transit and local car traffic.

In 2008, the concept was further elaborated to include specific requirements for the city centre traffic space. The two main pedestrian axis, west-east and north-south, were connected to clearly delineate the inner city, and to enable pedestrians to move around freely without having to cross streets with car traffic.

We can define 4 major goals of the car-less city centre concept:

1. Creating a city centre space so attractive and car-less that pedestrian visitors and residents want to spend time there, strolling, walking, “hanging around”, enjoying shops and restaurants;
2. Designing the city centre space where people with restricted mobility feel safe and secure;
3. Allowing goods and products delivery to numerous retail and department stores, restaurants, bars and cultural institutions while seeing to the needs of residents (e.g. noise level reduction = another goal);
4. Providing good-quality bicycle paths.

In line with and to contribute to the above, the city of Leipzig has a “Clean Air Plan” (“Luftreinhalteplan”) in place. Adopted in 2009, the plan has been further specified and reviewed. Just recently, in February 2019, the city council adopted the new Clean Air Plan version, which specifically stipulates 50 measures, such as traffic reduction at air pollution hot spots, closure of some main streets in the city area, promotion of e-mobility and car sharing.

##### Main description

The Leipzig city centre is surrounded by the so-called “Promenadenring”, a heavy traffic ring road. Along this ring road there are numerous installations for motorized traffic and public transport alike (such as traffic lights, u-turns and tram/bus stops). The “car-less city centre concept” was actually adopted to prevent this heavy traffic from spreading into the inner city area.

To implement the concept and to ultimately keep the city-centre car traffic down to a necessary minimum, several measures had to be put in place. These measures actually translate into different requirements and rules that must be fulfilled by the various traffic participants, the different “traffic users” in the city centre.

Car driver rules and requirements:

<sup>6</sup> Verkehrskonzept Autoarme Innenstadt Leipzig



- 20 km/h speed limit and time-restricted stopping (3 minutes max.), or no-stopping zones throughout the inner city area;
- Limited parking and only within designated spaces and with parking ticket;
- No car entrance to specific streets, with the exception for special services (such as deliveries or taxis, and police, ambulances, fire brigade etc.)

#### Rules and requirements for suppliers and delivery services:

- Around-the-clock-delivery is admissible in areas outside of the designated pedestrian zones and out of those streets with prohibited car entrance;
- Within the pedestrian zones, delivery traffic is allowed from 5 am to 11 am.

#### Rules and requirements for cyclists:

- 20 km/h speed limit throughout the whole inner city area;
- Cycling within the pedestrian zones is only admissible from 5 am to 11 am;
- Absolutely no cycling within particularly sensitive pedestrian zones and/or cycling only 8 pm – 10 am, all indicated on specific signs;
- There are, however, inner city areas, where cycling is allowed – those areas, again, are marked accordingly.

The above rules and requirements were introduced, first and foremost, to make the inner city more attractive for pedestrians, i.e. to increase the “walking share” in the modal split pie. At the same time, the city council introduced these rules (backed with technical support of urban and traffic planners) to facilitate the best possible co-existence scenario of different traffic participants (cyclists, delivery truck drivers) and of city space “users” (shop owners, residents, tourists).

However, of course, the successful implementation of the concept requires each of the above groups to follow their rules. Most of the time, conflicts occur in the classic traffic planners’ scenario of “different interests clashing” in the same space. And, we do encounter challenges that occur, most of the time, due to the different traffic and inner city space users’ motifs, concerns and needs. They probably seem to be very much every-day situations that we are all familiar with.

The difficulty we encountered was that although all the relevant information was available, signs in place etc. people still did not always adhere to the new rules. To make sure that all the different traffic participants comply, we have learnt, it is a good thing to have compliance checked by public order and safety staff and police officers patrolling through the city centre. As a matter of fact, both of these public institutions were actively and intensively involved at an early stage of drawing up the car-less city centre concept. And, as of this moment, their patrols serve to identify and solve problems, incidents, non-compliance cases, and, possible conflicts.

Also, worth mentioning here, the Leipzig citizens were involved in the further elaboration of the car-less city centre concept by way of an open citizen competition to submit proposals.

So, to sum up, we basically see two fundamental pillars guaranteeing the successful implementation of the concept:

1. Informing the public in a clear and comprehensible manner.
2. Regular checks by the police and staff of the public order office.

#### Transfer potential

We're convinced a car-less city centre does not only work well for Leipzig, but for other cities, too. We do see and hear that people are in fact enjoy their time in the city centre. And that was the primary goal of the concept. So, if you are among those who want to improve the attractiveness of inner city space to invite pedestrian visitors and residents to stay – reducing car volume is only logical.

Surely, as the most important thing before drawing up and implementing the car-less concept, we needed to pin down our specific goals and make sure to have the political stakeholders' support. We found it important to make the process transparent all along the way and to get all relevant stakeholders and decision makers on-board, at an early stage. That meant specifically to invite the relevant decision makers to working groups where the car-less city centre concept content and objectives were to be formulated. We considered this important to assure that the concept would be successfully adopted by the city council, to begin with.

In our case of the "car-less city centre concept" that meant inviting local companies and retail shop owners on one hand, and associations or interest group representatives of the different traffic participant groups, on the other hand.

The concept needs to be regularly checked for feasibility and functionality within the project area. By this, we can identify weak points, conflicts and changed framework conditions at an early stage and act accordingly to help to keep the concept up to date.

#### Key characteristics

Traffic concept

Car-less city centre

Car traffic reduction

Pedestrian friendly

Increase pedestrian mode in modal split objectives

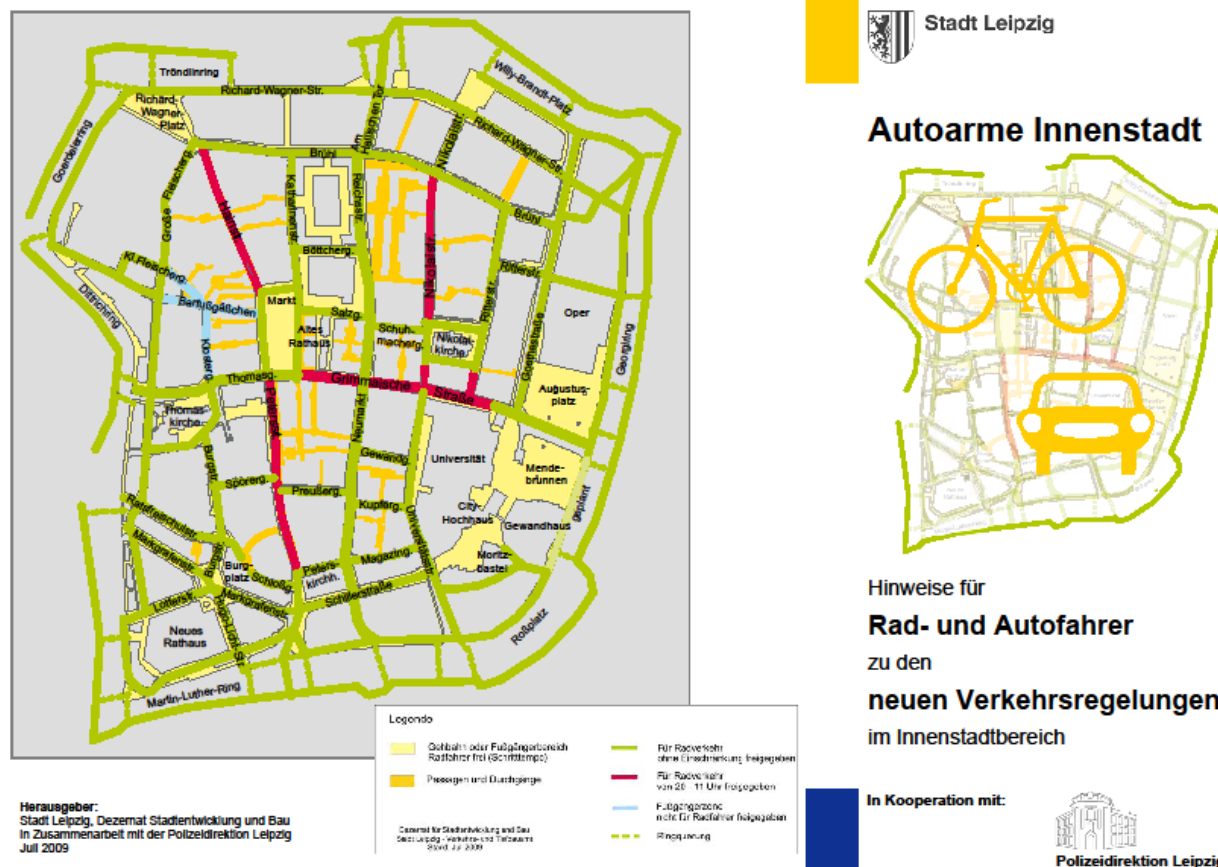
#### References and links

<https://www.leipzig.de/umwelt-und-verkehr/verkehrsplanung/verkehrskonzepte/autoarme-innenstadt/#c164529>

Contact information:

- Name:	City of Leipzig
- Organisation:	Office for Traffic Planning and Road Construction General Planning Department ("Abteilung Analyse und Prognose")
- E-mail	vta-planung@leipzig.de

Figure 16. Car-less city centre leaflet.



## 4.2. Spain: BIZI Zaragoza – As easy as riding a bicycle

### Summary description

Bizi Zaragoza is the urban transport scheme based on the shared use of the bicycle. A simple, practical and sustainable service that can be used in your journeys around the city. To go where you want and when you want, without smoke or noise. It can be combined with the rest of public transport and can get you as far as you want. Practice the Bizi whenever you want. To take part in the public service of BIZI Zaragoza, you have to request the card through the web <https://www.bizizaragoza.com/es/>

Once the request is made, all the information necessary to use this service is received.

Catching the Bizi is very easy. When the citizen card is activated you can start using it: you remove the bicycle from any of the Bizi stations, use it during the journey and return it to the station closest to

your destination.

### Main description

The main capital cities of Spain, and Europe, have been trying to solve the problems related to CO<sub>2</sub> and noise pollution in the center of the cities to achieve dynamic and sustainable mobility. This means, decreasing the volume of private transport and mainly that generating toxic gases and polluting the environment. Zaragoza is the fifth largest city of Spain, with a lot of transit traffic and, as expected, these problems affect it as well.

To explain what was the context which triggered the introduction of this practice, we must mention the EXPO 2008 which was celebrated in Zaragoza and promoted that cultural change in mobility. The role of this celebration in the transformation of Zaragoza was crucial due to the fact that the capital city of Aragon received more than one billion in terms of investment. Five years before the taking of the statistical sample in 2008, Zaragoza had only eight stretches of bike lanes that added up to 12 kilometres. The network has been growing since then and now extends for 131 kilometres.

BIZI was implemented by public sector creating bicycle stations around the city where citizens can take a bicycle through the BIZI's website or app. BIZI Zaragoza is designed as a means of transport to move from one point to another. The first thirty minutes of each journey are included in the subscriber fee. From there, you pay according to the time you use the bicycle, with a maximum of two hours per trip. What Bizi Zaragoza is not? Bizi is not a public bicycle rental system for tourist or recreational use. If what you want is to rent a bicycle to make a touristic round or a long-term trip, Zaragoza City invites you to visit the web page of Zaragoza City Council, where you can check the bike rental providers.

The decision-making process to introduce BIZI was based on different stages:

- Idea stage: identifying the problems of mobility and the environment.
- Legal stage: decisions are made following the legal framework and the advice of the Legal Department.
- Implementation stage: putting the idea into practice.
- Improvement stage: improving and expanding the infrastructure that goes with it.

This programme started on May 28, 2008 and 150 people took a bike ride with BIZI that day. Today there are 23.544 users, 130 stations and 1.300 bicycles. In this decade 22.5 million trips have been made and the average daily uses is 5.468. The number of users increased strongly until 2011 when it reached a peak and then they remained steady. This is possible thanks to people are aware of the environmental problems and their perfect behaviour. All this data are enough incentives to support management and public participation, new plans provide for an increase of the current bike lane network by 79% to achieve 240 kilometres in a period of eight years. Zaragoza city council has invested large amounts of money in this project but it's so difficult to estimate the specific amount because all the infrastructure expenses, related to cycle paths, are not only for the benefit of BIZI.

The main stakeholders and beneficiaries of this practice are the citizens of Zaragoza who usually use the BIZI programme to move around Zaragoza. And mainly those who have to go across the city center to get to their workplace, office, school, university, etc. A great example are the veterinary students whose faculty is located 20 minutes from the center by public transport because the tram line does not cover this area (the line runs only north-south), so they can arrive every day earlier using BIZI. We can generalize this example to describe the situation of the citizens who want cross Zaragoza from East to West and vice versa (perpendicularly to tram line).

Over this period some new challenges in mobility appeared like, the introduction of the private sector to provide different forms of mobility. New companies like Koko, Lime (scooters) or Moving (Bikes) are taking a part of the market share and this is the main reason for the slight drop in the number of BIZI users over the last few years. We can say that BIZI was an incentive for the private sector to invest.

#### Transfer potential

This practise can be externalized easily to cities where there is a large number of inhabitants, good infrastructure of cycle paths, enough economic power to implement it. This objective can be achieved through transferring information about the fantastic results of BIZI in the capital city of Aragon. These outcomes focus on:

- Positive evolution of the use of the bicycle increasing the number of users up to 23.544 and achieving a reduction of pollution from transport.
- Dynamic and sustainable mobility around the city.
- Easier connections through the city center.
- Incentive to exercise.

In this way, all these success factors can be transferred to cities close to Zaragoza and they can achieve the same results. Nowadays, there already are programs like BIZI in the main cities of Spain and most of them have been launched after the implementation of the programme in Zaragoza in 2008. Also, it's necessary to mention the impulse for private investment in this sector due to the results obtained in the public sector. Last year, some electric transport services began to appear, such as motorcycles, scooters and bicycles sharing the sector with the public sector.

#### Key characteristics

Car Reduction

Public transport

Cycling

Active mobility

environment

#### References and links

<https://www.bizizaragoza.com/es>

Contact information:

- Name:	BIZI Zaragoza
- Organisation:	Zaragoza City Council
- E-mail	atencioncliente@bizizaragoza.com

Figure 17. Bizi Zaragoza.



#### 4.3. Slovenia: Innovative cycling path in the Municipality of Ljutomer

##### Summary description

The Municipality of Ljutomer is located in the Pomurje region, in the north-eastern part of Slovenia. With its 11.000 inhabitants, it is the smallest Slovenian city with the SUMP and has implemented it so far in 75%. In the municipality, there is a lot of potential for cycling as the distances are rather short. As part of the investment in the Municipality of Ljutomer, two-sided cycling paths and a sidewalk with the length of 850 meters (425 meters on each side of the regional road) have been built. Street lighting has been installed too, the pedestrian crossing across the regional road and entries into some side streets have been raised, in accordance with the requirements of the municipal cycling guidelines, giving priority to cyclists instead of cars. As part of the investment, two more cycling counters have been put up, which will not only encourage cycling but will also provide data that the Municipality of Ljutomer can use for further development.

##### Main description

The cycling path through the town of Ljutomer is one of the measures included in the SUMP which could be co-financed by the national Ministry of Infrastructure. Under the national financial scheme they also supported cycling infrastructure. Therefore, the Ljutomer authorities applied for funds and



were successful. They had been facing the problem of the deficit of cycling paths and the existing ones had been poorly connected. The focus was especially on the appropriate design of the cycling paths. They are usually built in such a way that cars still have priority. The city decided to follow the municipality's cycling guidelines and build an innovative path that would give priority to cyclist and pedestrians. What was especially problematic was the city centre and the driveways leading to private houses. Inadequate planning of driveways greatly reduced the quality of bicycle surfaces. To avoid the situation where cyclists have to ride up and down when crossing the driveways or side streets, the cycle path must run on the same level, and the driveway and side-street entries should be raised in the narrow sections where they cross the cycle path. In the past, there were some other errors in the technical details of the construction of newly built cycle tracks, which slowed down the cyclists or even jeopardized their safety (for example, the width of the track, the shape of curbs, the side-roads entry priority, parking bollards, traffic lights in the middle of the track and the management and deployment of cyclists at intersections).

Since the infrastructure passes a few private properties, the engagement of the owners was crucial. Here the municipality had to make and maintain close contacts with them. There were a lot of meetings, negotiations and planning of the paths. The owners had to be persuaded to sell small parts of their property to ensure that an effective cycling path could be built. The stakeholder involvement had already been part of the SUMP process and continued with the implementation of each measure. In this particular case, the inhabitants (owners) were engaged in private meetings, they were treated individually and the municipality made specific offers to each of them.

The newly designed pedestrian and cycling path is located in the centre of the urban residential area, in the immediate vicinity of the main bus station; it provides a direct connection with the main railway line; it also connects the residential neighbourhood with business facilities and the city centre. Where space allows, a green belt is arranged between the path and the road without planting of shrubs and tree species that would prevent road visibility. In the described area, a cyclist counter is installed, on a pillar, with a LED display showing the number of cyclists. Three new pedestrian crossings are planned and a raised table, level with the pavement of the path, is being built, which will allow comfortable riding for cyclists. The existing street lighting system is supplemented and adapted to the new conditions.

The Municipality of Ljutomer has received an innovative cycling path in the town centre and the cycling paths are now connected. The inhabitants, commuters, tourists and others can commute and cycle smoothly through the city, they are safe, while cars automatically reduce their speed on the side roads, before entering the main road. The bicycle counters provide an attraction to the users as well as valuable insight into the daily and monthly numbers of cyclists.

#### Transfer potential

This model of the innovative cycling path has potential benefits that could be realised if cities increased their ambition to make cycling an ordinary, everyday activity.

When thinking about the development of cycling, we need to consider the needs of two groups of cyclists, each of which has its own specific needs. The first are the inhabitants who cycle to go about their daily business. A safe infrastructure for cycling in the small residential area and its immediate surroundings is important for them, especially the good connection between the key points in the settlement. The second group includes the inhabitants and visitors of the municipality who cycle recreationally. It is more important to have a comfortable, safe and pleasant infrastructure in the city, connections with other residential areas and with the key tourist points in the municipality and beyond. This model can be implemented in a municipality where the distances are short. The climatic conditions are also favourable and allow the use of bicycles throughout most of the year. By developing the cycling culture, improving the cycling infrastructure and raising awareness, we will encourage residents and visitors to significantly increase their use of bicycles throughout the year.

#### Key characteristics

Innovative cycling path in city centre  
Raised side-road entries  
Priority to cyclists and pedestrians  
Bicycle counter  
Stakeholder involvement of the land owners

#### References and links

<https://www.prlekija-on.net/lokalno/19103/v-ljutomeru-se-urejajo-manjkajoce-kolesarske-povezave.html>  
<https://www.prlekija-on.net/lokalno/20278/ureditev-manjkajocih-kolesarskih-povezav-v-ljutomeru.html>

#### Contact information:

- Name:	Mitja Kolbl
- Organisation:	Municipality of Ljutomer
- E-mail	mitja.kolbl@ljutomer.si

Figure 18. Bicycle counter on innovative cycling path in Ljutomer.



#### 4.4. Poland: Bicycle-sharing based on a mobile application

##### Summary description

The local authorities of Milanówek tested a bicycle-sharing system based on a mobile application. It was just as easy, as you think – both for the Town Council (no need to build docking stations) and for users (apps easy to install). Rental points were located in the key places of the town (shops, the playground, the cemetery, the town hall, the railway station) and one was located in the nearest city (Grodzisk Mazowiecki). Each bicycle had a GPS locator which monitored every movement of bicycle - routes, number of rentals and the most popular rental points. It means, that the Town Council not only tested the bicycle-sharing system, but also obtained a lot of data about the local cyclists' habits. It helped to find out which corridors are the most important for cyclists and where the infrastructure needs to be improved immediately.

##### Main description

Bicycles are very popular among the residents of Milanówek. A small town means short distances, narrow streets mean naturally reduced traffic and beautiful gardens and parks mean a lot of joy from riding a bicycle. Still, there is a shortage of appropriate infrastructure for cyclists, such as sufficient amount of bicycle paths, stands and shelters. Local government installs bicycle stands next to schools, train stations (excellent way to make first- and last-mile trips on everyday journeys to and from work) and in the town centre, where residents leave their bicycles even for many hours.

Over the last few years, bicycle-sharing has become really popular in Poland. The residents of Milanówek were also interested in such a way of using bicycles. But is it effective in a small town, with short distances and detached houses, where almost everyone has their own garden and garage, where they can keep their own bicycle? That was why the Town Council decided to test a bicycle and motor scooters rental system.

To make it easy to launch, a bicycle-sharing system based on a mobile application was used. To rent a bike, users needed only the mobile application on their smartphone, where they could book a bicycle, begin and complete a renting process. There was no need to build docking stations, which was a huge advantage – docking stations need additional infrastructure (electricity connections, etc.), building permits etc.

Rental points were located in the key places of the town (shops, the playground, the cemetery, the town hall, the railway station) and – an additional one – in the nearest big city (Grodzisk Mazowiecki).

Each bicycle had a GPS locator which helped to collect a lot of data (routes, number of rentals and the most popular rental point locations) useful for further infrastructure development planning.

The Town Hall signed an agreement with a private operator, who was responsible for operating the entire system for 3 months.

A survey conducted among the users showed that they were satisfied with the bicycle-sharing system, mainly because of low costs (the Town Council shared the real renting costs) and the right locations of rental points. They also appreciated the fact that a rental point was located in the nearest big city (Grodzisk Mazowiecki) next to the railway station.

The test of a bicycle-sharing solution showed that, despite specific conditions of a garden-town, the residents were interested in using bicycles in that way. That was why the Town Council plans to cooperate with several surrounding municipalities to launch a joint bicycle-rental system, to facilitate riding shared bikes even on longer distances. Together with the investments to improve the bicycle infrastructure it can help to reduce the number of cars in Milanówek.

#### Transfer potential

This practice can be useful especially in small towns and neighbourhoods which do not have enough land owned by the municipality and with legal a framework requiring special building permits for docking stations. It is also well justified in towns which just begin to promote cycling and still need to get the data about cyclists' habits in order to plan the development of bicycle infrastructure correctly.

#### Key characteristics

Cycling

Bicycle-sharing



Mobile Application

Car reduction

References and links

<https://milanowek.pl/strefa-mieszkanca/kultura-i-rozrywka/aktualnosci/11172-w-milanowku-wypożyczymy-rower-i-skuter>

Contact information:

- Name:	Aleksandra Żuraw
- Organisation:	City Hall of Milanówek
- E-mail	miasto@milanowek.pl

Figure 19. Easy bicycle sharing system tested in Milanówek.



#### 4.5. Italy: The bike-sharing service powered by solar energy

Summary description

About 20 kilometres from Genova, in the eastern part of Liguria region, there is an area that is very interesting from the nature point of view. The area, located in the Municipalities of Camogli, Portofino and Santa Margherita includes a natural park and a protected marine area. Its beauty attracts many tourists, so it is necessary to find alternative systems for tourist visits in order to reduce air pollution.

That was why, the Portofino Park Authority, the Municipalities of Santa Margherita and Camogli and Portofino, in cooperation with the private companies "Azzero CO2" and BicinCittà", promoted a new bike sharing service called "Portofino Park & Bike". The service has been active since March 2013.

The project was co-funded by the Italian Ministry of the Environment.

There are 60 bicycles (45 e-bikes and 15 traditional bikes) available in selected parks for citizens and tourists. The “one-way formula” service allows users to catch a bike in one park and to leave it in another selected park. Thus, people are also encouraged to use different transport modes.

The e-bikes are powered by a photovoltaic system. The system is connected into a network and is powered by a 7.5 Kilowatt photovoltaic system installed on the rooftops of several buildings. This guarantees sustainable mobility with a true zero impact.

#### Main description

The project aims to encourage citizens and tourists to leave their cars and visit the coast in a sustainable way.

The initiative promotes the use of eco-sustainable transport to visit a tourist area and encourages the interchange with public transport (train, bus) by offering a the „one way“ bike sharing formula. The new bike sharing service has been supported and planned since 2010 by the Park Authority of Portofino and the Municipalities of Santa Margherita and Camogli, and it generates a lot of interest from Ligurian users. The system, called "Portofino Park & Bike", was launched in March 2013 with the contribution of the Italian Ministry of Environment and with the collaboration of the "Bicincittà" company and the "AzzeroCO2" company. The system received co-financing from national funds for the implementation of "bike sharing" projects linked with renewable power systems and, in particular, a photovoltaic system. The service is currently operating and it offers a new opportunity to visit the Ligurian Riviera in a sustainable way. Without car queues and delays, you can take a bicycle in Santa Margherita and go up to Camogli with an option to reach Portofino and stop in a dedicated parking area. Under a special agreement, hotels can also reserve bike stands for its customers in the bike sharing parks.

The service can be used with a personal card (annual, weekly or daily, distributed in some stores and info points of the municipalities where the service is active). The service is free for the first half hour and it costs 1 € per hour for the following hours. The insurance cost is about 5 € and it is also possible to get an annual subscription for about 25 €. The service is available 24 hours a day.

Deployed in different towns, there are 8 automatic stations, to take a bike you must use the personal magnetic card, in every station there are 10 charging points. The stations are available in the following locations:

- Santa Margherita Ligure: Piazza Vittorio Veneto - Calata del Porto - Piazza G. Mazzini - Piazza San Siro - Railway Station, Via Trieste



- Camogli: Largo Tristan da Cunha - San Rocco, Via Molino Parking

The municipalities created a link that allows users to check the availability of the bikes in different locations in real time<sup>7</sup>, and a mobile application. There is also the emergency number to call if there is a need.

#### Transfer potential

Bike sharing powered by solar energy is potentially interesting for the whole of the Ligurian Riviera, the area exposed to sunlight for most part of the year, as well as for all those regions facing the sea or enjoying a good sun exposure. The system is widely used and beneficial because it promotes sustainable tourism, therefore it is important to disseminate information about such services. A totally eco-sustainable transport idea can be useful for tourist mobility as well as for everyday mobility (home-work/school). This system is perhaps more interesting and more easily transferable in small towns than in large cities, because of shorter distances to be covered and safer roads in small towns.

#### Key characteristics

User- friendly  
Zero emission transport  
Eco-sustainable electric charging  
Easy to use in different cities  
Low rates  
Ad hoc use for tourists and residents

#### References and links

<http://www.portofinoparkandbike.it>  
<https://youtu.be/Dt4ZGnc5DLY>

#### Contact information:

- Name:	Alessandra Vindigni Antonio Rossa Paola Debandi
- Organisation:	Comune di Genova
- E-mail	avindigni@comune.genova.it arossa@comune.genova.it pdebandi@comune.genova.it

<sup>7</sup> <http://bicincitta.tobike.it/frmLeStazioni.aspx?ID=93>

Figure 20. Eco-friendly bike-sharing service.



## 5. Public transport

Public transport is an important branch of any transport system. However, its popularity is strongly affected by the still rising popularity of individual means of transport, especially private cars. According to Eurostat data, between 1990 and 2006 in 28 countries of the European Union motorisation rate (number of vehicles per 1000 inhabitants) increased by almost 50%. Although it rose in all European countries, the highest growth values are visible in Central and Eastern Europe – for example in the Czech Republic it rose by 215%, and in Poland by 415%<sup>8</sup>!

In the past, public transport used to be perceived as outdated and uncomfortable. To respond to the passengers' demand and successfully compete with motorisation, public transport needed to transform. Thanks to huge investments, including those co-funded by the European Union, it became faster, more reliable, comfortable, eco-friendly and accessible to passengers with disabilities. Nowadays, it is commonly known that it is an important part of a sustainable transport system. It helps to reduce the negative impact of transport on the environment thanks to more effective use of vehicles and reducing the use of private cars, which not only drives down emissions, but also mitigates congestion and parking issues. Effective public transport can win the competition with cars mainly in big and congested cities – that is because of well-developed infrastructure, ensuring priority in traffic for buses and the separated tracks for trams, metro and suburban railway. Bus, tram and railway lines are very important for huge and important cities, like the blood circulation system for a human being. But it is not so obvious for suburbs and villages with low population density, where cars are still more reliable and comfortable to use.

What are the present challenges of public transport? According to specialists from International Association of Public Transport, the world is becoming increasingly urban – the share of urban population all over the world is expected to rise from 52% in 2010 to even 67% in 2050. The demand for urban mobility will most probably rise by 68% by 2030 and by further 55% by 2050. The proportion of global population living in urban areas and the demand for urban mobility continues to rise faster than the capacity of transport infrastructure – and we cannot expand this capacity by “pouring more concrete” forever. Current challenges faced by cities include:

- air pollution;
- CO<sub>2</sub> emissions;
- Noise;
- increasing ecological footprint;
- traffic chaos;
- traffic security;
- traffic congestion;
- deteriorating quality of life and convenience;
- increasing motorization;
- limited parking places<sup>9</sup>.

<sup>8</sup> EU transport in figures – Statistical pocketbook 2018, Publications Office of the European Union, Luxembourg, 2018.

<sup>9</sup> F. J. Van Audenhove, O. Kornichuk, L. Dauby, J. Pourbaix, The Future of Urban Mobility 2.0. Imperatives to shape extended mobility ecosystems of tomorrow, Arthur D. Little & UITP, 2014.

Solutions to most of these challenges include effective public transport. But it also must adapt in order to respond to the challenges. The Partners of DEMO-EC project presented their ways to improve public transport, which include:

- complex approach to planning public transport (Germany);
- integration of public transport services, still a huge challenge in many countries (Spain, Slovenia);
- developing regular public transport in less-densely populated areas (Poland);
- introducing zero-emission vehicles (Italy).

## 5.1. Germany: Public Transport Plan of the city of Leipzig<sup>10</sup>

### Summary description

In November 1998, the city council decided to draw up its first Public Transport Plan (hereinafter also referred to as the “Plan”) for Leipzig. This Plan establishes standards for the city’s public transport offer, describes a concept for an integrated traffic network, and provides relevant information concerning the underlying public transport financing context.

In 2007, the Public Transport Plan was subjected to a first revision, and in the autumn of 2018, the draft for the Plan’s 2nd version was put forward. At this point in time, a new “citizen participation” element was added to the elaboration process, which is further described, below.

The above-mentioned standards, concepts and financing information relate to the following core aspects:

- public transport offer;
- traffic infrastructure;
- interlinkage between different public transport providers.

Regarding these three areas, the Plan describes in detail how the transport network will and needs to be strategically developed, how operating standards must be stipulated and what future financing schemes can look like –all that in the light of the city’s future development in general (e.g. increasing mobility needs for growing population, green goals etc.)

In a nutshell, the Plan defines goals (of a binding nature), and gives recommendations, i.e. seeks to specify general framework requirements for Leipzig’s future public transport.

The following areas are NOT covered by the Plan:

- binding transport route determination in accordance with building regulations;
- stipulation of transport schedules;
- provisions concerning public (city) subsidies for public transport and/or any forecasts concerning transport pricing developments.

### Main description

#### **Main functions and characteristics of the Public Transport Plan**

In the most general sense, the Plan provides an important conceptualization for the city’s future mobility development. In addition, it defines the framework context for the resulting public transport traffic profile for the city’s territory for up until 2024.

<sup>10</sup> Nahverkehrsplan, 2<sup>nd</sup> version, as of 1<sup>st</sup> October 2018

The Plan serves as the basis for specific decisions to be taken on public transport topics. Apart from that, it is an indispensable tool to make sure that public transport remains efficient in the future. In line with that, the Public Transport Plan defines areas of further improvement that need to be further looked into and for which solutions need to be found.

### **Challenges and new developments call for Plan updates and revisions**

We are all aware that our future mobility and the resulting need to come up with an efficient public transport offer for citizens, and to fulfil green goals, and to deal with lack of funding, and to make different traffic users “happy” constitutes quite a challenge – not only for the city of Leipzig.

The Public Transport Plan’s first version has undergone its second revision (final draft: October 2018), by now. These revisions are necessary to respond to new challenges and foreseeable trends and development, such as:

- continued population growth in the city, more passenger volumes;
- specific traffic requirements of the superordinate “City Development Plan for Traffic and Urban Space” must be fulfilled;
- increasingly ambitious green goals;
- advancing digitalization and resulting new mobility offers;
- climate protection goals, “Clean Air Plan” (“Luftreinhalteplan”).

### **Content elaboration – step by step**

In the first step, the existing (version 1) Public Transport Plan was submitted to an analysis, very much like a “stock taking” process. We checked whether minimum binding requirements were fulfilled, or target requirements in the public transport offer were achieved. The analysis results were presented to representatives from the city administration, politicians, interest groups and the public.

In the second step, and based on the aforementioned examination results, various scenarios were drawn up reflecting upon the city’s public possible future public transport development. Just as in the “stock taking” phase, the scenarios were discussed with political representatives and the public, between October 2017 and September 2018.

In the third step, and following that mutual exchange, the draft for the 2nd version of the Public Transport Plan was finally written.

### **Specific content of the Public Transport Plan - basis for future public transport decision-making processes**

The Plan’s overarching goal is to make sure that Leipzig’s future mobility offer is safe, reliable, clean and affordable to all citizens. The specific requirements stipulated by the Plan can be further divided



into:

1. Minimum standards (= binding requirements);
2. Target standards (should be fulfilled, if possible, binding);
3. Recommendations for other public transport aspects;
4. Areas for improvements (= checks of potential improvements of public transport offers).

The Plan specifies the aforementioned “requirements” for the following distinct aspects:

- public transport operating cycles;
- connection of new urban areas to the public transport network;
- passenger volume capacity;
- travelling times (duration i.e. how long it takes for a passenger to get from A to B);
- interlinkage of different lines, routes and transport means (including stations to switch lines etc.);
- infrastructure and vehicles;
- guaranteeing barrier-free access;
- PR, information and service;
- environmental and climate protection.

Apart from these specific public transport areas for which the Plan spells out requirements and/or recommendations, it describes the general framework conditions for public transport financing, such as:

- European law framework for the granting of subsidies;
- Leipzig “Betrauungsmodell” (by which the local public transport provider, LVB, is obliged to fulfil the city-commissioned public transport demand);
- legal framework for additional service financing schemes (if present).

The challenges the city of Leipzig and its administration are facing in the financing area very much resemble a “making (extended) ends meet” scenario. Despite the permanently growing population and the resulting passenger volume increases, which urgently calls for an imminent transport network extension, those necessary changes, updates and enhancements must be somehow done with insufficient financing schemes.

It is the city administration’s responsibility to work closely together with its local partners, transport providers such as LVB, MDV, and ZVNL to find efficient solutions. In addition, the city as a municipality, is required by law to spend specific funds on statutory investments such as schools, health care etc.. Accordingly, out of these usual budget constraints, the city must always find the best possible solution - usually a compromise.

## Leipzig citizen participation

As we tried to explain earlier, the Public Transport Plan seeks to specify minimum and target standards for public transport, give recommendations and to identify areas for improvements.

In this process to find healthy balance in the light of the above challenges, we have learned along the way that it is helpful to involve citizens as early as possible in the planning process for a final Public Transport Plan draft. In an expanded exchange phase, citizens were provided with vast and detailed information. Those interested, such as traffic-political initiative representatives and interest groups, were invited to bring up their input. Following an evaluation of the resulting ideas and suggestions, pros and cons were weighted, and the Plan's draft revised, complemented and updated. The revised draft was then submitted to the responsible political bodies of the city administration for adoption by way of a resolution.

Of course, this is a long and challenging process. Of course, financing conflicts had to be discussed, and compromise-based solutions be negotiated. Unfortunately, there is no "one-size-fits-all solution", here, that we could recommend to our partners.

However, we can definitely say that the citizens participation format at least helps to avoid unnecessary future mistakes and conflicts, as it seeks to find consensus solutions right from the start.

## Transfer potential

We can definitely recommend writing a Public Transport Plan. It helps to stake out how to develop a city's future mobility, and hence its public transport offer.

To make this Plan more efficient, we advise making relevant updates. In this way you can respond to current changes, trends and challenges.

Of course, all these steps need to be supported and agreed upon by the political leaders. That is why we presented all specific measures resulting from the Plan's 2nd version final draft (such as the first stock taking results, discussion of the results coming from citizen participation) to and discussed them with the city's political decision-makers.

Further, we recommend our partner regions to maintain a close cooperation with all stakeholders right from the beginning. As a matter of fact, during the Plan's 2nd version elaboration process, the reciprocal evaluation of the 1st version marked one indispensable milestone.

In addition, and as we pursue a more intensified interlinking between different transport offers (such bus-tram-railroad-underground), all the relevant different transport providers should be involved in the plan's updating process as early as possible, too.

Finally, whatever the legal and administrative situation in our partner regions is like, the overall legal

context of statutory competencies must be taken into consideration. By law, Leipzig's local transport providers based within the city territory are obliged to contribute to writing the Public Transport Plan. The city of Leipzig is only responsible for road-borne traffic.

Once again, we'd like to underline the significance of citizens participation formats in the planning process of such large-scale measures for a city's public transport offer. In their role as primary traffic users they should be involved in order to avoid (or at least, minimize) future conflicts, mistakes and the resulting extra work.

#### Key characteristics

Public Transport Plan

Public transport

Green mobility

Public transport of passengers

Citizens participation

#### References and links

<https://www.leipzig.de/umwelt-und-verkehr/verkehrsplanung/oeffentlicher-personenverkehr/>

<https://www.leipzig.de/news/news/der-entwurf-des-aktuellen-nahverkehrsplans-liegt-vor/>

#### Contact information:

- Name:	City of Leipzig
- Organisation:	Office for Traffic Planning and Road Construction General Planning Department ("Abteilung Analyse und Prognose")
- E-mail	vta-planung@leipzig.de

Figure 21. Public transport in Leipzig.



## 5.2. Spain: LAZO card

### Summary description

The Transport Consortium of the Metropolitan Area of Zaragoza was formed ten years ago. The objective is to ensure that the public transport, trains and buses operate in an integrated manner and provide a real alternative to private vehicles.

CTAZ is a public entity consortium of associative nature, whose purpose is to implement the economic, technical and administrative cooperation among different entities, such as the General State Administration, in order to coordinate the use of competences in the area of planning, creation and management of infrastructure, transport services, the intermodal public transport.

Its functions are divided into different areas:

- Transport: management of 11 regular public road transport lines, through agreements signed directly (or through other consortium administration) with the public services operating companies.
- Integration: functional coordination, rates integration and system coordination.
- Mobility: promoting economic, social and environmental sustainability of the mobility system.
- Citizens: aspiring to be a meeting point between citizens and public sector.

To reach these goals, CTAZ has recently created the “LAZO card” which facilitates the use of this

communication and mobility network, choosing between different means of public transport.

#### Main description

The metropolis of Zaragoza is composed of the capital city and 33 municipalities, which all together belong to the Zaragoza Province. The CTAZ initiative originated in response to the difficulties in moving across and around the metropolis. This entity helps citizens to move around easily, using all possible options offered by different transport lines covering the area of 2.950,40 km<sup>2</sup> and approaching 260,5 citizens per km<sup>2</sup>.

In order to reach the objectives of public transport lines coordination and the implementation of a unified ticketing system a mobility-transport network has been created based on 6 interurban operators, 25 transport lines (including bus, train and tram and connecting 25 municipalities), 28 long-medium distance lines, 580 stations-stops and 21.402 interbus cards.

Therefore, to ensure that citizens and all municipalities are connected to one another, LAZO card has been introduced. It can be used to pay and gain access to different services with the balance of funds accumulated on the card. It is not necessary to be registered as a citizen of Zaragoza to use it. This card costs 12 € (including 9 € of pre-charged balance) and you can top it up on every stop or station and in 429 points of sale.

LAZO card can be used on a tram, urban and interurban bus, Renfe Cercanias, BIZI and a parking meter.

#### Transfer potential

The evidence of success is shown by the number of trips made:

- 5.406.285 trips made in 2014 in the group of collective public transport modes for passengers operating in the suburban and interurban areas.
- 120.686.561 trips made in 2014 in the group of collective public transport modes of passengers operating in the Zaragoza area (urban + interurban).

Last June (2018), CTAZ issued 10.000 LAZO cards and thanks to the fact that one does not need to be from Zaragoza to use it, a lot of university students and employees, most of whom are from other regions, use this card.

This practice could be potentially interesting to other regions which have not modernized their transport systems. They can copy this transport network model to improve the connections for citizens from villages which are located close to one another.

#### Key characteristics

Transport

Intercommunication

Citizen Attention

Metropolis

References and links

<http://www.consorticiozaragoza.es/>

<https://tarjetalazo.es/>

Contact information:

- Name:	Tarjeta Lazo
- Organisation:	CTAZ. Consorcio de Transportes del Área de Zaragoza
- E-mail	

Figure 22. Lazo card by CTAZ.



### 5.3. Slovenia: Integration of passenger transport

#### Summary description

Slovenia is introducing a Multilateral Passenger Transport Ticket, by which public transport will become more easily available, friendly, and attractive. On 1 September 2016, Slovenia introduced a system of integrated public passenger transport (IPPT), which enables users to use different types of public transport, in an uninterrupted manner, without the need to buy separate tickets. A multilateral passenger transport ticket thus provides a modern, efficient, and user-friendly public transport system in Slovenia. A multilateral passenger transport ticket will unify the use of different means of transport,



and integrate the use of regular rail and inter-urban bus transport in Slovenia as well as urban transport in the two largest Slovenian cities into a single system. In practice, this means that in Slovenia, a passenger can choose which mode of public transport he will use on a particular route with a single card. The project of introducing integrated public passenger transport or a multilateral passenger transport ticket is the final phase of a complex 15-month project, which was commissioned by the Ministry of Infrastructure and which will simplify the use of public passenger transport in Slovenia.

#### Main description

In Slovenia, the project "Integration of public passenger transport" has been implemented, as a result of which passengers have obtained a single ticket, there is now more transparency in the passenger transport system and better management. It is one of the most important measures adopted at the state level.

In August 2016, the Ministry of Infrastructure introduced the integration of passenger traffic concept. A common train and bus ticket, both for long distance and city transport, can be used by schoolchildren from September 2016.

Integrated public passenger transport project, carried out throughout Slovenia, currently works only with subsidized tickets, that is, for pupils and students and for participants of adult education. For example, a passenger who wants to travel from Point A by bus and train to point B, no longer has to buy two tickets, but will need only an electronic card with a chip on which the ticket will be saved.

The railway and bus transport will be included, together with urban and long-distance transport services. The latter apply also to Ljubljana and Maribor, and other cities. As a pilot project it was launched by the Ministry of Infrastructure in June 2015. The contractor was the IJPP consortium (IJPP – Integrated public passenger transport), which included the Slovenian Railways, Ljubljana and Maribor passenger transport; the technological subcontractors were Imovation and Margento.

Integrated ticketing is available now for approximately 56.000 pupils and 34.000 students. 34 % of users tend to buy a yearly ticket and 75 % of them are satisfied with the prices of public transport. 55% of users use inter-urban transport and 62% of them travel with the same transport operators. 83 % of users are aware of the positive effect of the integrated transport offer (e.g. use of more than one transport mode of public transport, use of more operators, lower subsidized prices).

The project focused not only on the technical introduction of a multilateral passenger transport ticket, but also on the establishment of the organisation of delivery and management of the system - from the design of concepts, development of systemic technology solutions, testing, and final implementation of the system in practice. The IPPT system is based on an information solution that enables automated fare collection and electronic management with data in the system. Information portal<sup>11</sup>, which in

<sup>11</sup> <http://www.ijpp.si>

addition to the possibility to plan the travel, provides passengers with information on the use and operation of the system, points of sale, and access to online forms.

#### Transfer potential

The public transport integration system implemented in Slovenia is worth promoting in other countries or regions as it facilitates travelling by public transit:

- it reduces unhealthy competition while encourages free and healthy competition;
- it is a perfect way of travelling by using all modes of transport harmoniously combined into a single system to provide transport services;
- it enhances effective use of all transport modes;
- it is cost efficient;
- is environmentally friendly when you compare it with each mode operated independently;
- it enhances capacity, reliability and safety when you compare it with operating each mode independently;
- it is aimed at satisfying customers' (i.e. passengers') needs as efficiently as possible;
- the system has the capacity to achieve greater productivity and savings;
- it creates no room for unnecessary gaps. every mode is efficiently used;
- it fosters unification and cooperation among transport industries.

#### Key characteristics

Integrated public passenger transport

Mobility in rural and sub-urban areas

Multimodal and multioperator ticket at the national level

Modern, efficient, and user-friendly public transport system in Slovenia

Automated fare collection and electronic management with data in the system

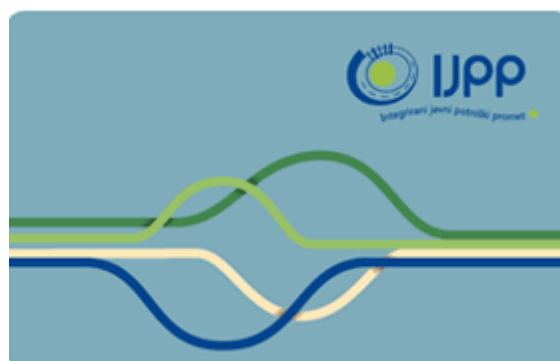
#### References and links

<https://www.prnewswire.com/news-releases/slovenia-is-introducing-a-multilateral-passenger-transport-ticket-by-which-public-transport-will-become-more-accessible-friendly-and-attractive-591263201.html>

#### Contact information:

- Name:	Suzana Habjanič
- Organisation:	Ministry for Infrastructure
- E-mail	suzana.habjanic@gov.si

Figure 23. A multilateral passenger transport ticket.



#### 5.4. Poland: Launching free buses during the reconstruction of the railway

##### Summary description

Railway is crucial for Milanówek, a small town in the Warsaw agglomeration – it's the fastest and most convenient mean of transport on everyday journeys. However, railway infrastructure is also a barrier which divides the town into two parts. At the beginning of 2017, the Polish railway infrastructure manager began reconstruction of the railway along the Milanówek section. The railway station with the main underpass connecting two parts of the town were closed for over one year. The railway replacement bus service was not as effective, as trains, so there was a risk that many passengers would switch to their cars, causing congestion. The town council decided to launch additional fare-free lines of public transport to reduce the usage of cars during that time.

##### Main description

Milanówek, with the population of 15.5 thousand, is a small town located about 30 km from Warsaw, the capital of Poland. Train is the fastest, the most convenient and the most popular way to get to Warsaw. However, railway infrastructure is also a barrier which divides the town into two parts, linked only by few connections – two footbridges and one underpass for pedestrians and only one overpass for vehicles.

At the beginning of 2017, the Polish railway infrastructure manager (PKP PLK) began reconstruction of the railway line running through Milanówek. As a result, the railway station with the main underpass were closed for over one year. That meant that not only the connection with Warsaw was affected, but so were the internal connections between two parts of the town. Many elderly residents were not able to cover the distance to the alternative connections (the overpass and the footbridges) to get to the other side of the town, where many public buildings are located (schools, the outpatient clinic, the City Hall, the cultural center, kindergartens, etc.). As the traffic on the overpass increased, the safety of pedestrians and cyclists suffered, which, again, forced residents to use cars more and more. For the time of the reconstruction, a replacement bus service was provided by the railway infrastructure manager, but it wasn't as effective as trains – buses were crowded and the trip to Warsaw lasted about 1.5 hour (more than traveling by car).

The city authorities were aware that there was a need to provide alternative connections, both for internal and external journeys. Especially when the long-term construction work caused a risk of change in transport habits of the residents that would be hard to reverse. In order to respond to those problems faced by the residents, the Town Council of Milanówek decided to expand the internal bus lines network by launching two additional fare-free bus lines:

- Line C (route length 7 km, 13 runs / day), which allowed residents to get to the other part of the town safely and comfortably (solution for internal connections);
- Line D (route length 12 km, 7 runs / day), which connected Milanówek with the railway station in Grodzisk Mazowiecki, from where there was a regular, direct fast train service to Warsaw; D-line shortened travel time to Warsaw up to 30 minutes compared to the regular replacement bus service provided by PKP PLK (solution for external connections).

The launching of additional bus lines improved the quality of everyday life of residents, in particular, the elderly people, the disabled and the children. It was also a chance to restrain the increase of car usage during the construction work.

The main challenges for the Town Council included:

- legal issues:
  - o legal framework of public transport in Poland does not support integration between different transport authorities, so smaller communes have difficulties with supplementing the public transport offer provided by national and regional authorities (railway) or the main city of the agglomeration (city buses);
  - o private ownership of some properties (roads, pavements, etc.) which could be the most suitable locations for bus stops;
- specific road network in Milanówek, consisting of very narrow streets, which made it impossible to use large buses;
- limited budget of the Town Council.

### Transfer potential

In fact, this solution is very suitable and effective for quiet towns or neighbourhoods, served by high-quality railway or bus service, connecting them with the main cities of the agglomeration. It may be useful also for cities divided by natural or artificial barriers (i. e. rivers, railways, highways, hills, etc.). What is noteworthy, the railway construction in this case was not seen only as a threat, but also as an opportunity to improve the public transport system. Because of a small area of the town, the existing regular bus service was used mostly by elderly passengers on optional journeys. Additional bus lines, supplementing public transport system during the railway construction, for many residents were the first opportunity to test (for free!) buses on everyday journeys. That is why the service on the C-line did not stop after the relaunch of trains. Eventually, the railway construction has helped to promote the internal bus service – that is a good starting point for further development!

## Key characteristics

### Public transport

#### Buses

#### Car reduction

#### Complementary transportation systems

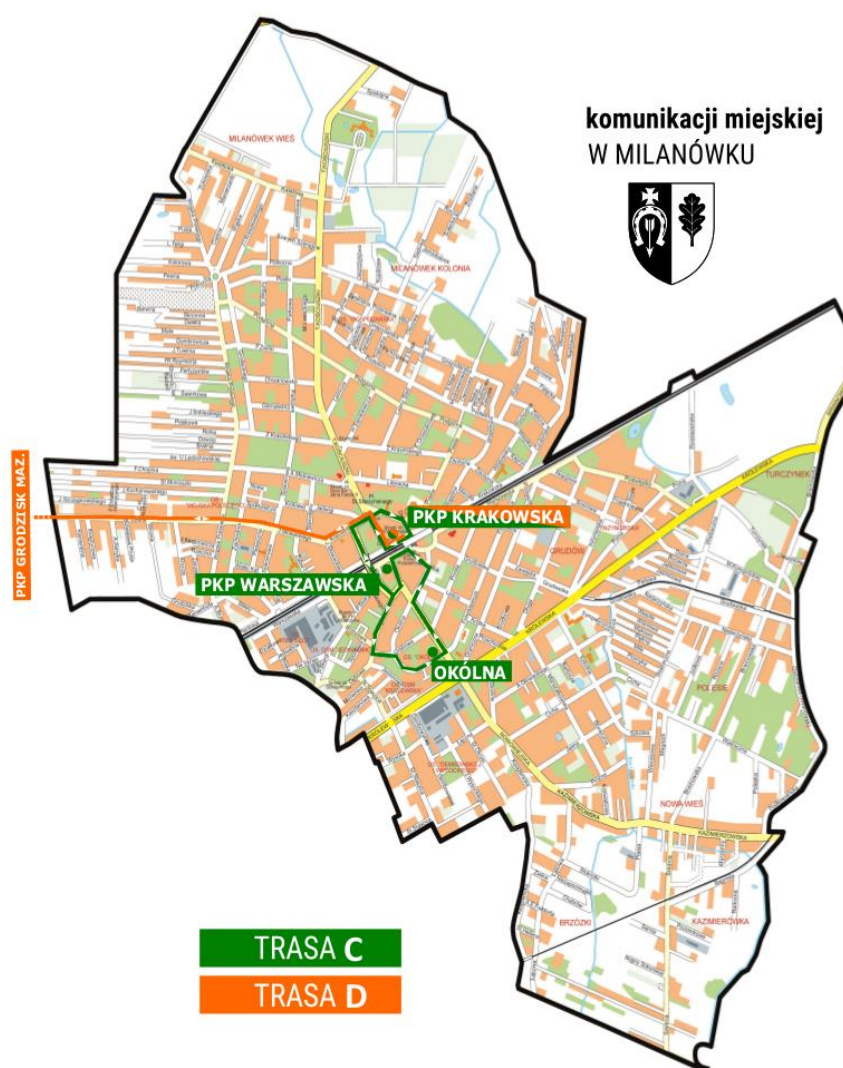
## References and links

<http://milanowek.home.pl/druk/219,228,komunikacja>

## Contact information:

- Name:	Aleksandra Żuraw
- Organisation:	City Hall of Milanówek
- E-mail	miasto@milanowek.pl

Figure 24. Poster showing routes of fare-free bus lines during railway construction in Milanówek.



## 5.5. Italy: Electric Local Public Transport in Liguria Region

### Summary description

In recent years, in the Liguria Region some initiatives have been explored and implemented to replace the traditional Local Public Transport (LPT) thermal vehicles (powered by fossil fuels) with zero environmental impact vehicles.

In particular, in the year 2018, in the Genoa Province, including the city of Genoa with #AMTInnova Program by AMT spa, the Local Public Transport provider in Genoa began replacing bus service thermal vehicles with electric vehicles, in particular trolleybus, purchased by the municipality of Genoa, but the same is also happening in the small towns Rapallo, Santa Margherita, and Portofino and in the city of La Spezia.

These initiatives are still at the initial stage but they will continue in the next years, with the view to obtaining a wholly electric public transport fleet in the future.

### Main description

#### First pilot case: Genoa

"#AMTInnova Program" aims to implement smart-mobility initiatives, according to the National Plan called Enterprise 4.0 that includes new technologies and new funding resources.

#AMTInnova includes:

- Energy & Efficiency;
- Smart LPT;
- Safety & Security on road.

With respect to the topic Energy & Efficiency, in January 2018, the testing of electrical buses began. The increase in the number of e-vehicles and the research into introducing a low emission transport system, encouraged the AMT company to test e-buses.

In 2018, AMT collected all the technical elements and obtained the first financing to purchase new e-buses. The goal is to have vehicles that can travel for a whole day with autonomous battery, that do not have to recharge while in service" but only by night, in the garage. The test began with number 518 line, inside the San Martino hospital area (one of the biggest hospitals in Genoa). A "challenging" hilly path is a good representation of the city's orography and can provide data necessary for the project design. With this e-bus line, AMT company wants to evaluate the efficiency of the electric system and to roll out the service onto other bus lines. After this first test, the introduction of electric public fleet, including in particular, trolleybuses in city centre is taking place.

To ensure adequate autonomy and power to travel over hills, the e-buses are equipped with relatively heavy and big battery packs. However, this is disadvantageous for medium-sized buses, and as a



result, the first e-buses have lower passenger's capacity.

Three bus lines are the "hill lines", following a difficult path, high slopes and narrow roads. The lines terminate their journeys at the same garage, making it possible to construct only one charging station for the testing. The buses have the capacity of 45 passengers and 60 km/h speed (full load, flat and straight path), the system charges in 8 hours.

The on-board electronic systems are connected to the GPS network system called SIMON, which provides real-time information at the bus stops.

Another line for testing, was announced in November 2018, during the Smart-Week Event. The line connects the city centre with the Erzelli Hill, near the airport, in one of the most populated suburban areas of Genoa. The hill is the location of an urban renovation project, where there are the headquarters of Siemens and Ericsson companies, Technology and Robotics Italian Institute and much more.

### **Second pilot case: Santa Margherita-Portofino-Rapallo**

The tourist towns of Portofino, Santa Margherita and Rapallo, will, in 2018, be connected with one another by electric buses, called "FracciaBUS" thanks to the project financing provided in February 2018, by Iveco Heuliez, all the Municipalities involved and the LPT service provider: ATP spa.

The testing starts with the number 82 line, along a panoramic road. The greatest difficulty was the need to create a suitable vehicle: standard vehicles are 12 and 18 meters long, but not 9.5 meters long (the maximum size to pass through the particularly narrow roads). The e-vehicles, called Portofino, have the appropriate size to travel with agility on the narrow and winding roads.

### **Third pilot case: La Spezia**

La Spezia replaced a whole bus line of traditional vehicles with the electrical SmartBUS, innovative electric vehicles, fast charging, with ultra-capacitors and without batteries. These capacitors use magnetic field to move vehicles. The ultra-capacitors are able to recover energy during braking. This test is the first true example of e-buses recharging during the stop in 5 minutes with a pantograph. The system does not need batteries, which are heavy and cost a lot, therefore it is perfect for the purposes of urban public transport. The new buses operate the number 3 line, provided by ATC spa. The SmartBUS vehicle was built by E-CO spa with Chariot Motors in collaboration with Milan and Genoa Universities. E-vehicles of this type have been operating since the beginning of April 2018 in La Spezia, as the first Italian city to test their use.

### **Transfer potential**

The introduction of e-buses instead of traditional vehicles in a territory such as Liguria with a complex orography, with narrow and winding roads and hills near the sea coast is very difficult. These

difficulties in the design of an electric bus fleet are still a useful exercise and an opportunity, in fact the case studies done on a complex territory can be tested and appropriately adapted to other territories with similar problems. The optimization of the system is important both with regard to the weight of the batteries but also for the passenger loads in relation to the high slopes of the roads.

#### Key characteristics

Zero emission vehicles

Energy and efficiency in Local Public Transport

Innovative electric vehicles for different cases (fast charging or traditional charging)

Test and optimization for different territories

#### References and links

<http://www.genovatoday.it/cronaca/bus-elettrico.html>

[https://www.atpesercizio.it/FrecciaBus/home\\_fb.php](https://www.atpesercizio.it/FrecciaBus/home_fb.php)

<https://www.atcesercizio.it/index.php/it/open-atc/approfondimenti/42-autobus/736-sperimentazione-smartbus>

#### Contact information:

- Name:	Alessandra Vindigni Antonio Rossa Paola Debandi
- Organisation:	Comune di Genova – Genoa Municipality
- E-mail	avindigni@comune.genova.it arossa@comune.genova.it pdebandi@comune.genova.it

Figure 25. Electric bus in Genova.

A GENOVA | 15 gennaio 2018

# Bus elettrici, a Genova la sperimentazione parte dal San Martino

video di Beatrice D'Oria

#AMTinnova

Autobus elettrico, primo viaggio di sperimentazione a Genova



**Bus elettrico,  
primo viaggio a  
Genova**

Al via la linea 518, quella  
interna all'ospedale San  
Martino

**Geno  
va**