



**REGIO-MOB**  
Interreg Europe



European Union  
European Regional  
Development Fund

# **REGIO-MOB**

# **Guidelines of**

# **Best Practices**

# **in Sustainable**

# **Mobility**

November 2016

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“This document has been produced with the financial assistance of the European Union under the INTERREG EUROPE. The contents of this document are the sole responsibility of the REGIO-MOB partners and can under no circumstances be regarded as reflecting the position of the European Union or the Programme’s management structures.”

## 1. INTRODUCTION

Nowadays the European regions face serious problems linked to the mobility at the same time that have increasing levels of congestion and CO2 emissions.

No doubt exists regarding the important need of increasing the use of sustainable transport models promoting the intermodality, the adoption of innovative technologies and the use of clean and efficient systems, between others.

It is thus imperative that European regions take up the transition towards sustainable and efficient modes of transport that allow improving the urban mobility, remove barriers and catalyse the economic growth and the employment.

In this so ambitious context, where an effective action requires a solid cooperation, REGIO-MOB project is born with the aim of ensuring the sustainable growth in Europe fostering the sustainable mobility and contributing to the improvement of the correspondent policy instruments in each participating region, and all of that as a result of a common and interregional learning process.

The REGIO-MOB consortium is led by the Andalusian Institute of Technology (Spain) and formed by the Institute of Traffic and Transport Ljubljana (Slovenia), Regional Association of Lazio Municipalities (Italy), Niepolomice Municipality (Poland), Regional Development Agency South-Wes Oltenia (Romania), Region of Western Macedonia (Greece) and South-East Scotland Transport Partnership (United Kingdom).

All of them hope to contribute to the consolidation of the sustainable mobility in their regions, improving the way in which the policies are executed. This improvement will be reached through the regional strategies development that includes environmental, economic and social factors and involves, since the beginning, the regional key actors for the development of the sector and the further strategy implementation.

Thus, the objectives of REGIO-MOB are:

- To learn, share and exchange knowledge and best practices between the regional and local authorities participating in the project, with the purpose of designing and/or improving and implementing regional plans of mobility.
- To boost sustainable, coordinated and safe mobility in the participating regions.
- To adopt an integrated approach on the challenge of the climate change in the regional mobility plans of the regions, not only with an environmental scope, but also economic and social.
- To convey the potential benefits of Information and Communication Technologies (ICTs) as key enablers of innovation, knowledge creation and e-commerce within the sector.
- To strengthen economic growth and job creation in the framework of sustainable mobility.

- To ensure the engagement of the key stakeholders in the process both at regional (regional stakeholders groups) and interregional level (learning platforms), encouraging them to play an active part in the achievement of results.

To achieve this objective, REGIO-MOB is structured in two phases, of two years duration each: Learning and Implementation.

The first phase called “Learning” has been closed with an interregional meeting organized in Craiova (Romania) and has generated very relevant documents for the project (regional analysis of the sustainable mobility in the participating regions and 42 best practices in this field).

The present document describes all the best practices identified in the seven participating regions in REGIO-MOB project with the objective to contribute to their dissemination in Europe and beyond. The descriptions include the following sections:

- General data: Title, project partner linked to the practice, organization responsible of the practice in the region, thematic coverage (TOPICS linked to the practice) and thematic coverage (INDICATORS linked to the practice).
- Brief description of the practice.
- Main results.
- Lessons learnt.

The consortium hopes this document will be of interest and keeps at the disposal of anyone who wants more detailed information about them.

The REGIO-MOB Consortium

## 2. PROPOSED BEST PRACTICES FROM SLOVENIA

### 2.1. Gorenjska Electro Trip: Network of charging stations for electric cars, electric bikes and electric scooters.

<b>Project partner linked to the practice:</b>	Institute of Traffic and Transport Ljubljana l.l.c.	
<b>Organization responsible for the practice in the region:</b>	<ul style="list-style-type: none"> <li>• Elektro Gorenjska d.d., the largest company for distribution of electric power in Gorenjska</li> <li>• Centre for sustainable rural development Kranj, a non-profit institute supporting activities for environmentally, economically and socially sustainable rural development of Gorenjska</li> <li>• Just EE d.o.o., a company for development of electric charging stations</li> <li>• Municipalities Jezersko, Preddvor, Bled, Bohinj, Kranjska Gora, as informal local partners</li> </ul>	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
		Location and characteristics of platforms for public transport
	x	Cycling routes and footpaths
	x	Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	x	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### **Brief description of the practice:**

In modern world, the trips, tours and constant desire for new experiences are an integral part of life. But it is obvious that the current forms of transport and tourism bring with them many negative consequences such as noise and environment pollution.

Traffic pollution in the Gorenjska region threatens sensitive environment of green alpine valleys and rural tourist destinations.

The rapid growth in number of electric vehicles is becoming a trend in all developed countries. This is also an opportunity for Gorenjska region in Slovenia, the opportunity for developing of environmental friendly transport.

Electric vehicles have needs in terms of infrastructure and awareness-raising, education and motivating people. The result is the project “Gorenjska Electro Trip” which enables and promotes a green way to travel and discover the beauties of the Gorenjska region.

### **Main results:**

Project was selected at the 2010 call of Local Action Group (LAG) Gorenjska Košarica in September 2009 within the LEADER axis of the Rural Development Programme 2007-2013 and was co-funded by The European Agricultural Fund for Rural Development.

With the project Gorenjska Electro-Trip, the first connected route for electric vehicles is established. Visiting natural attractions and rural tourist destinations in Gorenjska region is now possible in an environmentally friendly way. Within the project, 5 charging stations are placed on the route which links the natural and cultural attractions of Gorenjska region. Charging stations are intended to supply electric vehicles and they represent one of the incentives for “local green mobility”.

During charging of the vehicle, tourists can spend time visiting of natural and cultural attractions. On the route for travelling with the electric vehicles is located 5 charging stations (Jezerško, Preddvor, Bled, Bohinj and Kranjska Gora). “Electric route” links natural and cultural attractions of the region of Gorenjska. Network of charging stations allows visiting all region of Gorenjska and allows connection to Italy (via Rateče) and Austria (via Gorenjska). Each of the charging stations has one triple-phase plug (3x16A) for larger vehicles and two one-phase plugs (16A) for smaller vehicles. Charging stations enable charging also for electric bikes and electric scooters.

Within the project a promotional event “Gorenjska electric trip” was organized in which number of electric cars drove majority or even entire “Gorenjska electric route”, stopping at each of 5 new stations, so that local people could learn more about electric vehicles and functioning of charging stations. This was accompanied with practical demonstrations of other electric vehicles, e.g. scooters, bikes, wheelchairs, etc. That was very attractive for medias, as this was the first real demonstration how electric mobility functions in practice, as there were quite a lot of all kind of electric vehicles. In that moment Gorenjska region was leading region in Slovenia by the number of charging stations, even half of them.



## **Lessons learnt:**

Partnership cooperation (companies, local communities, NGOs, etc.) is very important, as electric mobility is still new sector and needs interdisciplinary know-how and approaches.

Elektro Gorenjska Co. got practical experiences and sample documentation for further planning and installing electro mobility infrastructure (especially charging stations).

Presentation of e-mobility to the people needs to be right mixture between attractive sensation and "boring" practical learning, in order to both get attention of people, but still allow rational learning about it.

E.g. Presence of 200.000 euros worth Tesla car was very attractive for participants and medias during promotional event, but on the other hand took too much attention which could be used for practical learning about e-mobility

E-mobility still needs constant learning and promotional activities, as there are lots of correct and incorrect stereotypes.

Many people, SMEs, tourism boards and also local communities came in very concrete (and sometimes first) contact with e-mobility. This allowed them to start with this new topic, and extended it further (e.g. in communities included into the project or nearby communities new charging stations were installed in following years, at least one charging station from the project was upgraded with better one).

## 2.2. First regional spatial development concept and strategy with the active participation of municipalities in Ljubljana Urban region.

<b>Project partner linked to the practice:</b>	Institute of Traffic and Transport Ljubljana l.l.c.	
<b>Organization responsible for the practice in the region:</b>	Municipality of Ljubljana, Municipalities in Ljubljana urban region (Municipalities of Brezovica, Grosuplje, Ig, Škofljica and Vodice), Regional Development Agency of Ljubljana urban region	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>X</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
	<b>X</b>	Cycling routes and footpaths
	<b>X</b>	Mobility patterns between cities
	<b>X</b>	Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
	<b>X</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

In December 2007 the Regional Development Agency (RDA) of Ljubljana urban region (LUR) advertised the public tender for preparation of the first regional spatial development concept and strategy following the new Spatial Planning Act (No. 33/2007) as a joint venture between the City Municipality of Ljubljana and other municipalities in the Ljubljana urban region. Regional spatial development plan was completed and approved by the LUR Council in year 2010 ([www.rralur.si](http://www.rralur.si)).

The Expert Basis for Managing public transportation in connection with the Regional Spatial Development Concept in LUR according to the EU and national policy recommendations but also according to the new spatial planning policies and legislation. Spatial Development Concept of LUR was co-financed from the ERDF (360.000 EUR) through the Operational Programme Strengthening Regional Development Potentials 2007-2013. The principle initiative for its preparation came from the City Municipality of Ljubljana, most notably the Department of Urban Planning which has been also responsible for preparation of the new Municipal Spatial Plan of Ljubljana (adopted in 2010) and its implementation.

### **Main results:**

With preparation of spatial development concept and implantation of practices Municipality of Ljubljana had taken a leading role in the regional scale to improve connectivity among other cities within Ljubljana urban region.

In the first steps of public transport improvement in Ljubljana urban region the implementation of Urbana electronic smart card in the year 2009 had taken place. At first it was introduced as an urban transport card and was later on also used on regional connections of Ljubljana urban transport (LPP) operator. Urbana also introduced a uniform payment system for city services which is making every day errands of the city residents (public library, admission to museums, sports and cultural events organised by the Municipality of Ljubljana) and visitors even simpler, friendlier, cheaper and more convenient.

To improve PT information for users, real time bus arrival displays were implemented in the year 2010 within the Civitas ELAN project. First 25 displays were mounted at bus stops and two P+R (Park and Ride) sites in the City of Ljubljana. Later on displays were also introduced on some of regional connections of Ljubljana urban transport operator to improve regional connectivity.

Following the Urbana card and real-time arrival displays activities for further spreading public transport (PT) to the regional scale were designed and implemented. In the year 2012 the urban PT system of Ljubljana began to operate also in the regional level. The most important were urban PT connections to Medvode, Škofljica, Ig, Grosuplje and Vodice municipalities. In the september 2016 LPP also extended its urban bus connections to Domžale municipality north of Ljubljana.

In order to improve regional connections to Ljubljana urbanised areas yellow lanes for PT were developed on the main tangential roads of Barjanska, Slovenska and Dunajska roads from 2013 onwards.

With the aim to improve conditions for cyclists in the Ljubljana region, a comprehensive cycling strategy (2012) was further adopted in Traffic policy of COL to 2020. It defined quality conditions for the city's cycling network, and addressed safety issues and accessibility, granting priority to cyclists.

Further on the city bike scheme Bikelj was developed which enables flexible and convenient cycle hire at 32 sites (2016) in Ljubljana. Since the system is very usable

(about 20 % of Ljubljana residents are part of the system) it became widely popular and reworded nationally and internationally.

**Lessons learnt:**

- Preparation of the development concept for regional transport and spatial development represented an important element for PT implementation on the regional scale;
- It was essential that the PT development activities were organised and followed by Ljubljana municipality in close cooperation with Regional Development Agency of Ljubljana urban region and provider of Ljubljana urban transport;
- In order to receive strong political agreement “Development committee of Ljubljana urban region (KIOP)” was implemented. It constituted from mayors of 26 municipalities in Ljubljana urban region;
- Studies have shown that Urbana smart card and improvement of timetables were the key driving elements for PT development and usage in the regional scale;
- Yellow lanes on Barjanska, Dunajska and Slovenska roads have improved the arrival times and punctuality of schedules of Ljubljana urban bus operator;
- For efficient PT implementation it was important that Ljubljana PT operator was Ljubljana “holding company”.

### 2.3. Implementation of Park and Ride (P+R) network in Ljubljana urban region (LUR).

<b>Project partner linked to the practice:</b>	Institute of Traffic and Transport Ljubljana l.l.c.	
<b>Organization responsible for the practice in the region:</b>	Municipalities in Ljubljana Urban Region (15), Regional Development Agency of Ljubljana Urban Region (RDA LUR) (mr. Matej Gojčič, ms. Katja Butina)  Ministry of Infrastructure	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
	X	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	X	Mobility patterns between cities
	X	Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	X	% Efficient connections in transport in the region.
	X	% Passengers using public transportation.
		% Increase of quality of life of the citizens.
	X	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The Park and Ride schemes provide efficient combination of private and collective transport in metropolitan regions. Local communities and the Ljubljana urban region included a broad participatory planning process in the preparation of P+R study. This

study identified the need for the construction of P+R collection points in the region which will enable development of public transport and reduce the number of cars.

As public transport (PT) and private cars are complementary, P+R systems need additional long-term land use and transport planning, process of P+R development began in the year 2007. In this year central Slovenia statistical region of 26 municipalities set out a significant outline of its development vision in 'The Regional Development Programme'. It was a fundamental programmatic document at the regional level of the Ljubljana Urban Region which was adopted by the Council of the Ljubljana Urban Region – i.e. by the mayors of the municipalities in Ljubljana Urban region (LUR). Besides other goals and measures also initial ideas for P+R development in Ljubljana urban region were outlined. Through the involvement of key stakeholders at national level Regional Development Agency of Ljubljana Urban Region (RDA LUR) managed to bring the project in the national strategies (OP) to provide EU funding.

### **Main results:**

At the first steps project on P+R was prepared. The main result of the P+R project preparation was to prepare a comprehensive study which would define the locations of all P+R sites in Ljubljana urban region. In the project preparation phase 15 municipalities were actively participating with experts who prepared study through meetings and workshops. Project group with 9 members had more than 10 meetings and was involved in content of project and study (they confirm every phase and document).

With great efforts, implementation of P+R system had gradually begun to take place. Basing on a four step transport model and other measures to allocate future main origin-destination centres, three basic types of intermodal interchange points have been specified in the first steps:

- Main transport centre (Passenger Centre located in the centre of Ljubljana),
- Intermodal hubs outside the regional centre and
- P+R schemes along arterial roads to urban centres.

There were altogether 23 P+R locations planned in 16 municipalities in Ljubljana urban region. Preparation of the investment documents and implementation is partly covered by EU cohesion funds, where constructions of P+R sites were done from municipalities themselves. Until end of the year 2015 10 P+R in Ljubljana urban region have already been constructed (among others Stožice, Barje, Domžale P+R) or re-constructed (Dolgi most P+R). From P+R locations further travel to the Ljubljana city centre is available with efficient Ljubljana urban transport (LPP) services using URBANA smart card (two rides with LPP for P+R users are free of charge on the day of parking payment).

The whole system of P+R sites in Ljubljana urban region now acts as intermodal interchange points situated in local centres and on the fringes of Ljubljana and has a greater positive impact on the passenger transport sector. The main idea is that users of P+R also have at their disposal other services from public (libraries, pharmacies, some administrative offices) to commercial (shops, banks and so on) sector. Current results indicate that there are still some measures to be done (improvement of PT timetables,

accessibility to P& R) in order to increase the number of P+R users in the greater Ljubljana urban region.

### **Lessons learnt:**

In the preparation (Study on P+R in Ljubljana urban region) and also in the implementation phases the main lessons learned can be outlined as:

- Importance of public participation in decision making process and participation of main stakeholders in the earlier stages of P+R study and implementation;
- Importance of constant communication among main stakeholders;
- Alternatives on »limitation measures« should always be offered;
- Importance to establish strong cooperation among supporting projects (cooperation with Urban bus transport companies and their projects, bus operators integration, development of infrastructure);
- It has been learned that strong consensus must be reached among all the stakeholders, local communities and state government responsible for transport and infrastructure sector;
- When implementing P+R one has to be aware about the greater positive impacts on society and daily transport changes take its time. It is a slow process, reaching even beyond project scope;
- Study vs. Reality: It has to be taken into consideration that not everything that is planned is realised in to the same extend (local characteristics);
- When planning P+R close cooperation with transport operators (rail, urban bus, regional bus) must be established;
- Payment and transaction systems need to be well defined before implementation.

## 2.4. Demand-Responsive Transport service and Public transport identification Cards for persons with disabilities in Ljubljana urban region.

<b>Project partner linked to the practice:</b>	Institute of Traffic and Transport Ljubljana I.l.c.	
<b>Organization responsible for the practice in the region:</b>	Ljubljana Public Transport (LPP)	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
	x	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
	x	Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
	x	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

The public company Ljubljana Urban Transport (LPP) provides safe, reliable and comfortable transport in the City Municipality of Ljubljana and 16 suburban municipalities. 280 buses transport over 200,000 passengers per day. Passengers can enter at over 700 bus stops; the most popular ones are equipped with bus arrival displays. No bus stop in the capital is more than 500 m away from passengers' homes.

Demand-Responsive Transport for persons with disabilities is a service firstly being implemented in 2008 on the city bus lines and later on also offered on regional public transport connections in Ljubljana urban region. Supported demand-responsive transport was implemented in the context of transport services, provided with adapted low-floor



vehicles. Together with Public transport identification Cards for persons with disabilities, service provides more carefree and safe mobility to persons with disabilities on Ljubljana buses.

### **Main results:**

The demand responsive transport service operates as an exchange of information between the person ordering the transport (a person with a disability) and the transport provider (Ljubljana Urban Transport – LPP). The passenger calls the LPP traffic control centre on the number +386 1 58 22 425 or +386 51 44 99 92, requesting transport on a certain day at a certain hour within the possibilities that the system holds, and receives immediate feedback on the possibility of the transport and confirmation of it.

The LPP traffic control centre announces the passenger to the driver who takes the passenger on board the bus in the appropriate manner at the agreed time and place. In this way the disabled person avoids unnecessary stress, and the driver is informed about a passenger who will require assistance and can act appropriately.

When a user calls the traffic control centre, they obtain their identification number under which information about the user is kept (type of disability, contact number). The user then always uses the same number to register in the system, which gives the operator the control over what kind of disability the user has.

Results indicated that there are about 3-4 persons with disability (including people on wheelchairs, mentally handicapped persons, people with head injuries and the sensory impaired) that call and have a request on the service.

Another measure of Ljubljana public transport (LPP) is an identification card for persons with disabilities that has been made in cooperation with Work and Job Centre Janez Levec in Ljubljana in the year 2010. The first card was called "A card which will help you ride a city bus independently".

The "LPP Identification card" has been presented to wider audience in Ljubljana as a sustainability measure during European Mobility Week 2014 and has been designed to help persons with mental disabilities travel independently on a city bus. The card indicates the usual start and end of the public transport route of the user and address/contact of the "medical personnel" in case person with disability would need a help.

First results indicated that parents and children with mental disabilities grew fond of this special card and started using it a lot.

### **Lessons learnt:**

The call is much more appreciated (than the reservation with an application) among people with disabilities, since they are more used of it and they prefer to have the direct (telephone) communication with the personnel of public bus operator.

The results indicated that it is of great importance to the driver that he is informed in advance about a passenger requiring assistance. In this way, it is easier for them to do their job and simultaneously help a disabled person if there is any problem. For the disabled this means they can travel with much less stress.

Transport operator indicated that it is important to receive feedback from the DRTS users. On the basis of the positive experience Ljubljana urban transport is continuing to improve the service for persons with disabilities, as it sees many benefits.

For DRTS implementation, some first EU funds were received (EU project CiViTAS Elan), which helped the implementation of the system.

PT operator learned that sometimes the passenger with disability does not need to call any more to the call centre, since their ride becomes part of “daily routine” for the bus drivers.

In the case of Public transport identification Cards for persons with disabilities, it was important to have at first some years of “pilot testing” (beginning in the year 2010) so the usable & widespread system could be implemented in the year 2014.

## 2.5. Subsidized tickets for pupils, students and education of the adult participants.

<b>Project partner linked to the practice:</b>	Institute of Traffic and Transport Ljubljana I.I.c.	
<b>Organization responsible for the practice in the region:</b>	Republic of Slovenia, Ministry for infrastructure	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
	x	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	x	Mobility patterns between cities
	x	Modal share
	x	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
	x	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

Beginning May 2013 entered into force new law on road transport, which introduces innovations relating to subsidize the transport of pupils and students. Also, in August 2013, there were adopted the Rules on the implementation of the subsidized transport and the Rules on the pricing of subsidized transport. Right can be exercised by pupils, students and adult learners who stay for at least 2 km from the educational institutions. Subsidized ticket is given to those beneficiaries who travel daily from home to the venue of education. More precisely, in accordance with the applicable Rules on the implementation of the subsidized transport (Official Gazette of RS, no. 55/14) and the Law on Amendments and Supplements to the Law on Road Transport ("ZPCP-2F", Official Gazette of RS, No. 131/06, 5 / 07 - corr.) subsidized ticket belongs to all pupils, students

and adult learners who are resident for at least 2 kilometres away from the place of training and educating.

The beneficiary of a subsidized ticket must prove a valid status:

- Students up to 27 years of age, which is before the age of 22 years of age enrolled in the first program of lower vocational education, secondary vocational education, secondary technical or other professional and general education;
- Participants in adult education, which educates the programs of vocational, secondary and higher professional education to the age of 26, if they are not educated in accordance with the regulations on the organization of the labour market;
- Students until they reach 32 years of age, if they have before the age of 27 first enrolled in a program of post-secondary or higher education in the first or second degree, and further, if in the Republic of Slovenia abroad they:
  - Are not employed or carrying out its own registered activity;
  - Have entered in the register of unemployed persons with the competent authority and
  - Are not management person of a company or a director of a private institution.

### **Main results:**

According to the rules beneficiary pays a subsidized monthly, half-yearly or yearly ticket for a single subsidized price, depending on the class of distance. For students it is possible to buy a ticket for the six-month period from 1.9. to 31.1. (5 months), from 1.2. to 30.6. (5 months), annual passes in the period from 1.9. to 30.6. (10 months). For students, it is possible to buy tickets for the six-month period from 10.01. to 31.1. (4 months) and 1.2. to 30.6. (5 months), annual passes in the period from 01.10. to 30.6. (9 months).

The difference between the full price of a monthly ticket (based on a regular bus and railway tariffs) and the price of subsidized monthly ticket, paid by the beneficiary, constitutes a subsidy (paid by the state). The methodology for calculating the full cost of monthly, six-monthly and annual tickets, as well as the prices of subsidized monthly, half-yearly and annual tickets for 10 journeys, paid by the beneficiary and the distance classes are determined by the minister, responsible for transport in agreement with the minister responsible for education and Labour and social Affairs. The full price of the subsidized services are set forth in fixing the prices of the subsidized transport (Official Gazette of RS, no. 69/2013).

For all tickets it takes into account the unique element of the regular price of the ticket of bus and railway operator, which is depending on the duration of the ticket (monthly, annual, semi-annual) multiplied by various factors, which are determined by the competent ministry.

Ticket prices for long-distance passenger, in EUR	Monthly ticket	Half-year ticket		Annual ticket	
		4 months	5 months	Students 9 months	Pupils - 10 months
<i>Ticket type</i>					
<i>Ticket for 10 journeys per months</i>	<b>20</b>	70,00	87,50	135,00	150,00
<b>1 Class: up to 60 km</b>	<b>25</b>	90,00	112,50	180,00	200,00
<b>2 Class: more than 60 km to incl. 90 km</b>	<b>35</b>	130,00	162,50	270,00	300,00
<b>3 Class: more than 90 km</b>	<b>55</b>	210,00	262,50	450,00	500,00

The user of subsidized long-distance tickets is entitled also to buy a ticket for city public transport at a reduced price. The table below shows the prices of tickets in urban transport in Ljubljana, Maribor and Jesenice for the recipients of subsidized long-distance ticket.

Supplements for urban transport, in EUR:	Monthly ticket	Half-year ticket		Annual ticket	
		4 months	5 months	Students 9 months	Pupils - 10 months
<i>Urban transport</i>					
<i>Ljubljana</i>	<b>10</b>	40,00	50,00	90,00	100,00
<i>Maribor</i>	<b>5</b>	20,00	25,00	45,00	50,00
<i>Jesenice</i>	<b>15</b>	60,00	75,00	135,00	150,00

Information platform for beneficiaries and providers of subsidized services was set up. All information regarding subsidized transport are available on the website of the subsidized public transport links: <http://www.ijpp.si>, <http://subvencije.ijpp.si/>.

As a major effect of introduced subsidized ticket it has been registered a large increase in the use of public transport by the school-age population, especially students. The number of passengers in the long-distance bus operations increased by 28.4% between 2010 and 2014.

### Lessons learnt:

Since the introduction of the subsidized ticket one of the fundamental conclusions is that it would be appropriate to introduce a single ticket (through ticket) offer for bus and rail transport between the starting and destination of travel, where the passenger is free to choose between both transport modes in the both directions of travel.

Therefore, in the context of the establishment of an integrated public transport (IJPP) in Slovenia, the first through ticket introduced, is the subsidized ticket for pupils, students and education of the adult participants. Key innovations regarding subsidized tickets in IJPP in 2016 are as follows:

- New subsidized ticket IJPP is a single electronic ticket that a creditor may apply to the transport by rail, long-distance bus and urban city bus in Ljubljana and Maribor. Subsidized ticket IJPP allows the user to free choice of daily regular public transport (all modes) for long-distance route (both directions) indicated on the application.

- If the applicant needs a trip inside the city (urban transport) that is outside the long-distance route, there must be bought a combined ticket.
- Subsidized tickets for public transport in Kranj, Koper, Novo mesto, Jesenice and in Murska Sobota, are not yet the products of IJPP, so beneficiaries can gain them only at the point of sale of the urban city carriers and is used only on vehicles of the carrier;
- Ticket IJPP (long-distance route, and urban transport in Ljubljana and Maribor) will be imposed on new contactless chip card IJPP.
- Register online role for subsidized transport is available at the following link: [http://91.209.49.136/Web\\_vloga/Default.aspx](http://91.209.49.136/Web_vloga/Default.aspx)

There are also published GENERAL CONDITIONS FOR USE OF SUBSIDISED TICKET integrated public transport - SPUP-IJPP, link: <http://subvencije.ijpp.si/portal/588/splosni-pogoji-uporabe-subvencioniranih-vozovnic>.

## 2.6. Supporting the preparation of Sustainable Urban Mobility Plans (SUMP) and its implementation in municipalities with EU Funds through the Operational Programme for the Implementation of the EU Cohesion Policy in the Period 2014-2020.

<b>Project partner linked to the practice:</b>	Institute of Traffic and Transport Ljubljana l.l.c.	
<b>Organization responsible for the practice in the region:</b>	Republic of Slovenia, Ministry of Infrastructure	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
	<b>x</b>	Location and characteristics of platforms for public transport
	<b>x</b>	Cycling routes and footpaths
	<b>x</b>	Mobility patterns between cities
	<b>x</b>	Modal share
	<b>x</b>	Economic and financial issues
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	<b>x</b>	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

Ministry of Infrastructure of Republic of Slovenia adopted a decision No. 371-29/2014/122-00841223, dated 12.1.2016, which defines the financing of implementation of Sustainable Urban Mobility Plans (SUMP) by municipalities in Slovenia. According to this decision the co-financing of preparation of SUMP and co-financing of some measures adopted in SUMP is regulated. SUMP are co-financed in part by European Union through the Cohesion Fund, to a maximum of 85% of eligible costs.

The operation is performed under the Operational Programme for the implementation of the European cohesion policy in the period 2014-2020, Priority Axis no. 4: Sustainable use and production of energy and smart grids, investment priorities 4.4: Promote low-carbon strategies for all types of territories, in particular urban areas, including the promotion of sustainable multimodal urban mobility and the corresponding mitigation adaptation measures in the context of a specific target for the development of urban mobility to improve air quality in cities.

### **Main results:**

By the year 2014 only 11 Slovenian municipalities (from 212 municipalities) had implemented Sustainable Urban Mobility Plan (SUMP). Because of new approach for co-financing implementation of SUMPs, adopted by Ministry of Infrastructure in 2016, the number of municipalities implementing SUMP significantly increased.

Support under the investment priority is provided for the activities which reduce the effects of private car use on air quality and respond to the increasing mobility needs through improvements in sustainable mobility, thus contributing to a better quality of life. Investments in sustainable urban mobility is aligned with the integrated approach and it is based on an integrated mobility concept for cities or functional urban areas, which cover all relevant mobility modes (walking, cycling, using public passenger transport and other alternative forms of sustainable mobility) and measures to promote them. This represents an integrated concept of technical, political, and soft measures that improve the efficiency and cost-effectiveness of investments.

In order to reduce GHG emissions and lower the level of PM10 particles emissions from transport in urban areas and their hinterland Sustainable Urban Mobility Plans will be developed for cities and regions, which will define priority CF and ERDF supported measures in the field of sustainable mobility at the level of municipalities or regions.

### **Lessons learnt:**

Only the guidelines and presentation of good practice is not sufficient to stimulate a wide range of local authorities to be efficient in a field of sustainable mobility.

Expert work should be supported with co-financing. That kind of approach brought results and common satisfaction on local and national level.



### 3. PROPOSED BEST PRACTICES FROM ITALY

#### 3.1. ECOTRIP - Emission and Consumption Calculation Software Based on Trip Data Measured by Vehicle On-Board Unit.

<b>Project partner linked to the BP:</b>	ANCI LAZIO	
<b>Organization responsible for the practice in the region:</b>	ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>X</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
	<b>X</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>X</b>	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>X</b>	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
	<b>X</b>	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

ECOTRIP is a modelling and calculation system to improve the sustainable management and security of the flow of people, vehicles and goods. ECOTRIP calculates the fuel consumption, the emissions of carbon dioxide (CO2) and the main air pollutants produced by combustion of vehicles engines, both during the heating phase of the engine (cold emission) and during the operating temperature (hot emission).

This good practice targets the decision-makers involved in policies for mobility and urban traffic. The innovative character and the originality of the software ECOTRIP come from

the ability to use data in real time on the actual paths, on the drive cycle and on the characteristics of the vehicle, as well as operating on different levels of aggregation and detail, according to the journey data made available by the operational centre that controls and manages all on-board units installed in vehicles. ECOTRIP incorporates multiple methodological approaches with levels of accuracy and computational complexity that can provide estimates for fuel consumption and vehicle emissions, both from aggregate kinematic parameters for each covered route and from the instantaneous velocity profiles measured with a frequency of 1 Hz.

The automobile market can be affected by a conversion of the sector towards energy efficiency and new forms of motorization.

The current trend of diffusion of information and communication technologies on board the vehicle fleet will improve the accuracy and validity of the estimates and, therefore, will enhance the strategic importance of ECOTRIP as a tool for the continuous monitoring of consumption and emissions of vehicular traffic at urban and suburban scale.

<http://www.enea.it/it/ateco/schede/stima-dei-consumi-e-delle-emissioni-dei-veicoli-a-partire-dai-dati-di-viaggio-misurati-da-unita-di-bordo>

### **Main results:**

The novelty and originality of the service lies in the ability to operate on different levels of aggregation and detail, depending on the travel data made available by the operations centre that monitors and manages all on-board units installed in vehicles. The advantage of Ecotrip consists of providing geo-referenced estimates on fuel consumption and pollutant emissions, thus achieving a useful tool for monitoring and evaluation of energy-environmental impacts of road traffic.

ECOTRIP was filed as a new patent in 2012. It has been installed on hardware platforms of the Floating Car Data system of Octotelematics, a platform specialized in the provision of telematics systems and services for the insurance market. Octotelematics manages the largest fleet in Europe by number of telematics units installed on board (approx. 1 million corresponding to 2.7% of the vehicle fleet).

The product has all the qualities to contribute to the development of new applications aimed at the insurance market for the management of new car insurances that would reward the people who pollute less.

ECOTRIP was applied in the Province of Rome, the most populous province of Italy.

Ecotrip software provides punctual estimates on traffic zones and air pollution, being able to geo-reference CO<sub>2</sub> emissions in the specific areas. Through traffic simulation models Ecotrip can support tools to develop, evaluate and manage increasingly complex mobility scenarios, by reducing traffic pollution and traffic flows.

ECOTRIP gives the opportunity for:

- Characterization of road traffic intensity, displacements and stops;

- Checking the variations in time of the trips behaviour;
- Targeted studies on the feasibility and the impact of measures taken by institutions such as Electric vehicles, car sharing, car parks.

### Lessons learnt:

The insurance sector ECOTRIP can be considered as a suitable tool for the establishment of new 'green' policies that provide more savings for those who pollute less, where the insurance premium is calculated on the base of emissions of air pollutants and in relation to actual driving conditions of motorists.

Therefore, the main users of the product are the companies managing Car Data systems, pursuing the goal of developing new applications targeted at public administrations, local authorities, motorway / road operators and Agencies of mobility, in order to improve and innovate the processes of monitoring and traffic management in the field of energy efficiency and environmental sustainability.



Figure 1. Example of a ECOTRIP screen.

### 3.2. Road Safety Plan of Rome.

<b>Project partner linked to the BP:</b>	ANCI LAZIO	
<b>Organization responsible for the practice in the region:</b>	City of Rome	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The “Road Safety Plan” has endowed the city of Rome with an instrument of government specifically dedicated to road safety. Its objective is to reduce road accident deaths by 50% by 2020, in a city with the highest density of motorisation in Europe – 1,022 vehicles per 1,000 inhabitants – 165 traffic-related deaths and over 16,000 injuries per year.

The Road Safety Plan provides the foundation for an integrated policy on road safety in order to drastically reduce accidents and increase safety road, through the use of new ICT.

According to the Urban Development Plan of Rome, the need of the adoption of the “Road Safety Plan and its tools is due to the fact that approx. 200,000 people are expected to reside outside the Great Ring Road of Rome by 2020. As a consequence, displacements of commuters and private vehicles in the metropolitan area of Rome will significantly increase. All this implies that the citizens of Rome are supposed to support an average social cost of over 2 billion of Euros.

#### Main results:

The Road Safety Plan (Resolution GC no. 397 of 14 December 2011) includes urban mobility technology and "Info-mobility": video surveillance cameras; Variable Message Signs; System "UTT - Urban Travel Time"; "Sorpasometro" (control of overtaking manoeuvres); "Photored" for the control of any steps with the red; Control lanes; Electronic Access Control of ZTL System "Atacmobile").

The goal is to reduce the mortality rate by 50% in Rome by 2020 (compared to 2009). The work carried out in the streets over the past four years on more than 200 intersections, sections of road, pedestrian (and more than 100 are in the design phase) resulted in a total reduction of more than 51% of accidents and the number of injuries by 49 %.

### **Lessons learnt:**

A Road Safety Plan combined with a policy in favour of the public transport and the Right to Mobility, contributes to the improvement of public health, reduces air pollution and ensures a high standard of safety for all road users.

The good practice includes the creation of an Interdepartmental and multidisciplinary Working Group.

The city of Rome is allocating a budget corresponding to more than 4,5 M€ to the Road Safety Plan that includes the financial contribution of the Region and the State. Part of this budget, approx. 1,2 M€, is for the set-up of the Monitoring Centre.

Annual interventions:

- Securing of pedestrian crossings; supply of breathalysers to the Municipal Police, supply of "pink boxes" protective equipment satellite.
- Systems for detecting and managing accidents; awareness campaign; road safety education in schools.

Detailed urban traffic plans to the implementation of PGTU:

- More than 80 actions to promote road safety, the smooth flow of traffic and urban regeneration;
- Safety of the "Network Carrier", about 300 Km from the main network, with identification of the routes to "zero tolerance" and the definition of the necessary measures (civil works, signs, tools and technologies for traffic management).
- Replacement of curbs separating the lanes for public transport, with studs surmountable (clout nails).

Every day on the streets of the capital take place over 7 million of trips, in 60% of cases by private car or motorbike.

### 3.3. CATCH – MR - Cooperative Approaches to Transport Challenges in Metropolitan Regions.

<b>Project partner linked to the practice:</b>	ANCI LAZIO	
<b>Organization responsible for the practice in the region:</b>	PROVINCE OF ROME	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>X</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>X</b>	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>X</b>	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
	<b>X</b>	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

Outline the practice highlighting the following aspects:

- Challenge addressed.
- Implemented solution.
- Solution’s features that make it a good practice in your region.

Catch-MR was focused to:

- Cooperation between Metropolitan area of Rome and the Lazio Region on transportation policies.
- Increasing the use of public transport.
- Increasing the use of more energy-efficient and low-emission modes in both private and public transport.

### **Main results:**

Good living conditions and active local stakeholders are the core elements of successful Metropolitan Regions.

Both informal cooperation in the sense of voluntary, participatory decision making, and the establishment of a more formalized joint institution in charge of developing the policies for all the units included can be successful.

In both cases, success is strongly dependent on the ability of governing bodies to reach agreement about how to coordinate sectorial and territorial interests, as well as tiers of government across the region.

The involvement of wider groups of stakeholders can also help to ensure long-term acceptability of the visions and joint strategies. This way, a wide range of interests and knowledge can be taken into account. Achieving agreement on the main points in a joint integrated strategic plan is of key importance, which should be mandatory and binding for developers and land-use and transport planning authorities as far as this is politically possible, and include instruments for implementation, including joint financing.

Numbers and facts about CATCH-MR:

- 6.496 Documents in the E-library
- 4.000 members in CATCH-MR Linked-in Group
- 30.000+ searched performed during 2015
- 1 Policy labs carried out during 2016

A joint result is the definition of the following 15 policy recommendations:

- Integrated planning for land-use and transport throughout the metropolitan region;
- Plan for compact settlements – the sustainable transport depends on it;
- Coordination among transport services in the metropolitan region;
- Joint financing for public transport at regional level aimed;

- Activate new sources of funding in favour of sustainable mobility such as “Road user charging” (Road-user Charging is a mechanism through which motorists pay to use a defined area of road. It can also form a larger scheme to charge for use of road space, and provide a means through which road space can be re-allocated in favour of sustainable public transport, for example);
- Make intermodal nodes more attractive places;
- Strengthen intermodality in the region – Park and ride through private-public partnership;
- Starting with low-cost measures – priority to public transport, cycling & walking;
- Developing regional energy partnerships;
- Support different and innovative technologies;
- Renewable energy in public transport;
- Encouraging change of behaviours;
- The functional area of the metropolitan region must be recognised for a more effective governance in terms of transport and mobility at regional level;
- Establish a joint cooperation platform;
- Include stakeholders from the very beginning – building visions together.

The final results of Catch-MR were disseminated at local, regional and European level in order to support the cooperation in the Metropolitan Regions, through the guide "Towards Sustainable Mobility in European Metropolitan Regions". It is available at [www.catch-mr.eu](http://www.catch-mr.eu).

### **Lessons learnt:**

The following key factors have been identified:

- Transport is one of the key prerequisites for economic development;
- Regional vision is required for transport policy in the metropolitan areas;
- Governance as a means of working together between Metropolitan area of Rome and Region of Lazio;
- Policy for financing public transport in Metropolitan Regions has to be developed in a strategic way;
- Intermodal nodes are an essential feature of a well-functioning public transport system in Metropolitan Regions;



- Sources of energy, mobility behaviour and the changing needs of transportation users are also important;
- The involvement of wider groups of stakeholders can also help to ensure long-term acceptability of the visions and joint strategies.



Figure 2. Pictures relative to CATCH-MR.

### 3.4. PASTA – Physical Activity Through Sustainable Transport Approach.

<b>Project partner linked to the practice:</b>	ANCI LAZIO	
<b>Organization responsible for the practice in the region:</b>	Roma Servizi per la Mobilità (RSM)	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
		Location and characteristics of platforms for public transport
	X	Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	X	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
	X	% Passengers using public transportation.
	X	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

P.A.S.T.A. aims to show how promoting active mobility (i.e. walking and cycling) can lead to a healthier, more physically active population - saving money and more importantly improving our lives. The project team comprises leading experts in various fields: health, physical activity, transport modelling, safety, air quality, but also European networking and communication.

The PASTA project analyses measures aimed to support “active mobility” (walking, cycling in combination with the use of public transport) and to evaluate its effect on the health of citizens. The project has a duration of 4 years (11.01.2013 - 10.31.2017) and is funded by FP7 - Health program (Framework Program 7 - Health).

<http://www.agenziamobilita.roma.it/it/progetti-internazionali/pasta.html>

Only one-third of the European population meets the minimum recommended levels of physical activity (PA). Physical inactivity is a major risk factor for non-communicable diseases. Walking and cycling for transport (active mobility, AM) are well suited to provide regular PA. The European research project Physical Activity through Sustainable Transport Approaches (PASTA) pursues the following aims: (1) to investigate correlates and interrelations of AM, PA, air pollution and crash risk; (2) to evaluate the effectiveness of selected interventions to promote AM; (3) to improve health impact assessment (HIA) of AM; (4) to foster the exchange between the disciplines of public health and transport planning, and between research and practice.

### **Main results:**

The PASTA project has developed an indicator set to help understand active mobility (AM) and the conditions which support or constrain it. A better understanding of framework conditions and their relations can help decision makers to choose the most appropriate packages of measures to increase AM.

### **Lessons learnt:**

The World Health Organization (WHO) defines Physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits.

It recommends:

- for children/adolescents: 60 mins of moderate to vigorous intensity per day;
- for adults (18+): 150 minutes of moderate-intensity activity per week.

It is relevant to take into account:

- Physical inactivity (PA) is the fourth leading risk factor for death worldwide.
- Yet, only one third of the European population is estimated to meet the minimum recommended levels of PA
- Half of all trips shorter than five kilometres are undertaken by car.
- Active commuting is associated with 20 percent reduced risk of mortality for all causes.
- 30 minutes of daily cycling or walking is associated with reduced mortality in the range of 30 percent.
- A systematic review of quantitative health impact assessments on active transport policies was performed and published in a scientific journal (Mueller et al. Health impact assessment of active transportation: A systematic review; Prev Med 2015).

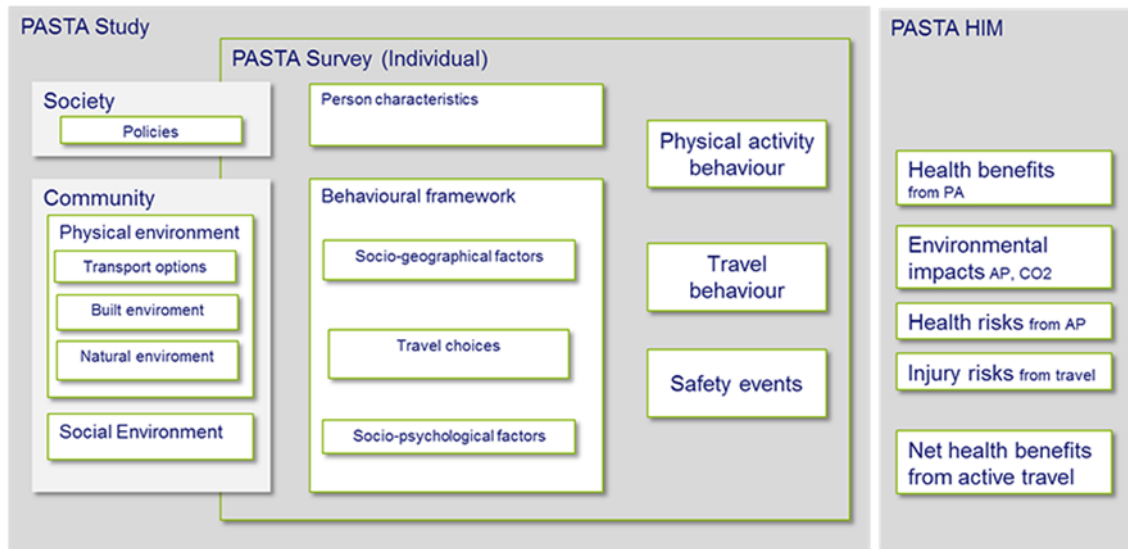


Figure 3. Pictures relative to PASTA.

### 3.5. Limit4WeDA - Light Mobility for Weak Demand Areas.

<b>Project partner linked to the practice:</b>	ANCI LAZIO	
<b>Organization responsible for the practice in the region:</b>	LAZIO REGION, TRANSPORT DEPARTMENT (ITALY)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The project LIMIT4WeDA (Light Mobility and Information Technologies for Weak Demand Areas) deals with mobility in areas affected by weak demand of transport. Such urban or rural areas are generally characterized by inefficient public transport systems and consequently a widespread use of private car. This reduces the territorial accessibility while perpetrating a not sustainable mobility system which discriminates people.

The project has elaborated solutions to make local public transport systems for weak demand areas more flexible and less expensive. The use of new technologies, the creation of networks, experimentation of light mobility, info mobility and intermodal transport for people, sensitization of decision makers at different levels, citizens awareness raising will be the means to succeed.

Nine partners from six countries of the MED area have been involved, representing a variety of local situations with common mobility problems at different level and in different socio-economic contexts. From Italy three partners have represented decision makers at the three institutional levels: regional (Lazio Region, lead partner), provincial (Province of Pavia) and municipal (Municipality of Perugia). From Cyprus local stakeholders have been involved by experts (Troodos Regional Tourism Board and Cyprus Center for European and International Affairs). From Spain BCNecologia, a public consortium dedicated to rethink cities in key of sustainability, has been involved. Transport innovation experts were from Malta (MIEMA) and Greece (BIC of Epirus), while the association of mountain regions (AEM) was from France.

LIMIT4WeDA is a project funded within the MED Programme with a budget of 1,2 Euros. The partners have developed different pilot experiences. One highlighted project is the ProntoBus in Perugia, an innovative service completely flexible on demand, with no fixed timetable nor fixed paths, operating with small buses, able to reach places not accessible by conventional buses and natural gas-fuelled.

More information about LiMIT4WeDA project on the official site: <http://ftzcom.eu/miema1/index.php/the-limit4weda-project>.

### **Main results:**

The different pilot projects LIMIT4WEDA contributed to identify and validate business models, the raising of citizens' awareness, and helped to support public institutions to make decisions. Three showcases were produced in Perugia, Pavia and Barcelona. One highlighted project is the ProntoBus in Perugia, an innovative service completely flexible on demand, with no fixed timetable nor fixed paths, operating with small buses, able to reach places not accessible by conventional buses and natural gas-fueled.

The Prontobus system provides a service without definite routes or times, activated at the request of users. The users may reserve the service via a call centre by indicating the time and place of departure and arrival. The service is operated through small natural-gas buses, with a capacity of 25-40 seats, and able to access in areas that traditional buses cannot. Prontobus is equipped with specific software that allows the call center operator to manage calls and communicate with the vehicle driver. Users may make two types of reservations: off-line, valid for the next day or repeated for a fixed period of time; and on-line, valid for the same day. Results:

- Passengers/day = 125
- Km/day = 350
- Runs/day= 22
- Km /run = 16
- Cost/Km = 1.59 Euro (traditional service 2.03 Euro cost/km).

### **Lessons learnt:**

The analysis of implementation processes of the pilot projects and the identification of success factors was fundamental in the view to make the experience transferable to other cases that can present similarities. For each of the pilots presented the resulting implementation process is illustrated along with success factors:

a) Car-pooling, Malta

Implementation process: 1. Benchmarking and analysis of weak demand areas of Malta and mobility problems 2. Ex ante evaluation and individuation of technical instruments to employ 3. Creation of a web portal 4. Promotion of the service 5. Design of carpool systems and routes through the web portal 6. Reservation of car parking in the cities of Valletta and Floriana 7. Experimentation. 8. Ex post

Success factors: area based approach Capability to reach larger number of people through the web portal Flexibility of the carpooling service Adaptability to different users: residents and tourists, workers and students.

b) Bus routes and Infomobility, Cyprus

Implementation process: 1. Benchmarking and individuation of pilots experimentation 2. Ex ante evaluation and individuation of technical instruments to employ: thematic Centers, Information Points; run pilots bus routes for events; MTIS Services based on internet. 3. Creation of web portal and promotion of the service 4. Experimentation. 5. Ex post evaluation

Success factor: area based approach Capability to reach larger number of people through the web portal Thematic transport connected to events can easily help local authorities to find private sponsors Adaptability to different users: residents and tourists, workers and students and so on.

c) The Prontobus on-demand transport service, Italy

Implementation process: 1. Benchmarking 2. Analysis of Municipality of Perugia needs, individuation of weak demand areas of the city and critical points of transport local systems 3. Comparison with other territories and experiences, cooperation 4. Analysis of people's needs 5. Ex ante evaluation and defining ideal place of experimentation 6. Analysis of economic benefits for Municipality of Perugia 7. Promotion of the service 8. Realization of experimentation 9. Ex post evaluation and analysis of Origin/Destination matrixes and real cost (€/km)

Success factors: Integration with local transport policies (Urban Mobility Plan) and with other local policies Use of Automatic Vehicle Monitoring (AVM) system Complete Flexibility of times (no time tables) and routes (no fixed ways), flexibility to users' needs and characteristics (old and young people, residents or tourists, etc.) Flexibility as a new way to satisfy people's needs of mobility. Educating people to change its habits. Use of new technologies to mapping origin/destination of people and to monitor and evaluate project results Innovation of transport way and environmental sustainability due to natural gas fueled buses. Economic sustainability of the pilot experimentation: -30% of costs in comparison with

traditional system Cheaper transport system but not free: its cost makes more responsible and educates people to its correct use. Area-based approach-

d) Bike Sharing, Italy

Implementation factor: Benchmarking and definition of innovative transportation systems in similar areas. Ex ante evaluation and defining ideal place of experimentation Comparison with PP's territories and experiences, cooperation Definition of bike sharing technical characteristics to develop a system conforming to territorial characteristics (hills) and infrastructures (presence of bike routes) Choose of electric assisted bikes mountain) Involving of territory and local administration Promotion and communication activities and Information of people, local associations, other municipalities of the territory Ex post evaluation.

Success factors: cooperation between different levels of public local bodies (Province of Pavia – Municipality of Rivanazzano Terme) Partnership between private (Foundation – Gal Oltrepo Pavese) and public bodies (Province of Pavia) as a way to integrate different abilities and competences. Accurate definition and good choice of the place for experimentation as important success factor. Innovative content for the territory (what is innovative in Oltrepo Pavese maybe is not innovative as well as in another country) Integration with other local services: Time and Services local plan of Rivanazzano Terme (in starting phase), European Funds POR 2007/2013 and PSR 2007/2013 Area-based approach.



Figure 4. Pictures relative to LiMIT4WeDA.



### 3.6. RETROFIT – National Regulation concerning the installation procedures of Energy Regeneration System for Electric Vehicle within the international categories M1, M1G, M2, M2G, M3, M3G, N1 and N1G, originally registered with combustion engine - Decree of 1st December of 2015 n. 219, in force since January 1st 2016.

<b>Project partner linked to the BP:</b>	ANCI LAZIO	
<b>Organization responsible for the practice in the region:</b>	Ministry for Infrastructures and Transport	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>X</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>X</b>	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>X</b>	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
	<b>X</b>	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The new National Regulation allows regenerating the thermal propulsion system of vehicles with electric propulsion systems. The Regulation is in line with the following Regulations UN10, UN85, UN100 e UN101 of the United Nations Economic Commission for Europe.

<http://www.gazzettaufficiale.it/eli/id/2016/01/11/15G00232/sg>

## **Main results:**

The novelty of this legislation and its advantages consist in the opportunity to transform vehicles with combustion engines into electric vehicles which comply with the Rules of the road.

This will greatly allow people to reduce the costs to switch from thermal systems to fully electric systems, using existing vehicles, as the costs can be limited to the sole drive system. Before such a Regulation people had to necessarily buy a new vehicle.

Therefore, the impact of this National Regulation is of considerable importance: it will allow both to private and public sector to plan investments for modernization of the fleet at an affordable cost, thereby facilitating the transition to electric vehicles.

This new Regulation is in line also with the significant investments that the same Ministry for Infrastructures and Transport is implementing to facilitate the diffusion process of charging stations for electric vehicles, especially for those of fast charging.

The results of the RETROFIT regulation:

- Exemption of road tax for five years;
- 50% of reduction on the price of the insurance policy;
- Access free to the Limited Traffic Zones.

The electric car conversion costs approx. from 5,000 to 20,000 euros depending on the vehicle type), comprehensive of:

- Cost of work (dismantling of the petrol or diesel engine, radiator, exhaust pipes and cooling and replacing them with electric motor, rechargeable batteries, network interface; Installation electronic components);
- Cost of the retrofit kit, according to the type and brand of the vehicle to be converted.

A recent very tangible result of this new Legislation is the Reborn project presented in June 2016, arisen from the initiative of the Crafts Confederation of Treviso and Vicenza, and through a network of small businesses of car-repair sectors - electromechanical - engineering industry, aimed at the development of know-how and technological innovation in the field of used car recovery and electric vehicles, as well as the development of a network of specialized automobile repair shops in the activity of transformation to electric vehicles.

The first car prototype was a Fiat Panda. Born with an internal combustion engine, now it is reborn with a "heart" electric, retaining all the features and original equipment. The final result is a car, on the go, very quiet (only produces a puff instead of the usual noise), very cheap, which runs about 100 km at a cost of about 2/3 Euros.

An important issue is the electric charging: the development of true electrical corridors is needed, not only in urban areas but on long trips at intercity and regional level.

To convert a car with a battery up to 100 km, approx. 6,000 euros are needed. Its cost per kilometre is one-fifth of a conventional car. But the real saving comes from the reduced operating and maintenance costs compared to a combustion engine.

A market research was carried out by the craftsmen of Vicenza and Treviso: the new electric cars have achieved remarkable technical performance and autonomy, but they are still too expensive or even impossible to buy. And to this type of potential customers who Reborn is addressed to, offering retrofitted electric cars, efficient, zero emissions and zero fuel consumption.

It is an opportunity for the craftsmen: the transformation can take place in a normal automobile repair shop. This is the added value of RETROFIT. It represents a good opportunity for the development of the economy of the EU countries and for the environment preservation.

See the web site of the Crafts Confederation of Treviso and Vicenza:

<https://www.trevisocarmobility.it/portaleconftv/pages/public/pagine/index.seam?newsid=79&page=newspage>

See the video: <https://player.vimeo.com/video/129874687>

### **Lessons learnt:**

National, regional and local policies are too often an insurmountable barrier to the development of new technological systems. Together with excessive bureaucracy, these policies are often a higher barrier to the lack of needed funds to the implementation of new infrastructures and technologies, as they demotivate private investors to act towards the innovation and not to take advantage of possible opportunities for the use of public resources.

Therefore, the modernization of the existing regulatory framework is a fundamental step to be carried out as quickly as possible to encourage public and private investments in the field of sustainable mobility.



Figure 5. Reborn project: Fiat Panda converted into an electric vehicle.

## 4. PROPOSED BEST PRACTICES FROM SPAIN

### 4.1. Management of urban and metropolitan transport of travellers in Andalusia through a regional law. .

<b>Project partner linked to the practice:</b>	Instituto Andaluz de Tecnología (IAT)	
<b>Organization responsible for the practice in the region:</b>	Consejería de Fomento y Vivienda (Junta de Andalucía)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
	<b>x</b>	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	<b>x</b>	Mobility patterns between cities
		Modal share
	<b>x</b>	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	<b>x</b>	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The process of the population concentration in large urban agglomerations causes relevant problems of mobility when satisfying the citizens' needs of transport for work, studies, health, leisure, etc.

The mobility in these urban agglomerations extends beyond the urban area therefore it is necessary view it since a metropolitan perspective, as well as considers its coordination including municipal and regional competences.

Due to this fact, it was considered necessary to include the concept “metropolitan transport” in the regulation, together its management and coordination with the urban transport as well as to support the creation of the Consortia of Metropolitan Transport.

This was carried out through the Law 2/2003, of 12th May, about the Management of the Urban and Metropolitan Transports of Passengers in Andalusia (Boletín Oficial de la Junta de Andalucía, nº99 del 27 de Mayo de 2003).

The factors determining the success of the good practice developed in Andalusia are:

- The creation of a metropolitan organization that coordinates the mobility.
- The consideration of the system’s financing.

### **Main results:**

The main results derived from the implementation of this good practice are the following:

- Creation of the Consortia of Metropolitan Transport in the 9 Andalusian urban agglomerations.
- More than 200 municipalities associated.
- Clarification of the competences and coordinated planning.

### **Lessons learnt:**

Between the lessons learnt for the implementation of this good practice it is possible to highlight:

- It is necessary to advance towards:
  - The planning criteria in a way that not only does not the regulation indicate what is necessary to plan, but also that it includes how.
  - The fare integration with State Competence.
- The redaction and approval of the law requires a highest possible level of consensus and a very high degree of participation of the local and regional entities.

## 4.2. Regional coordination of the sustainable mobility strategies: Model of Consortium as the Metropolitan Transport Authority.

<b>Project partner linked to the practice:</b>	Instituto Andaluz de Tecnología (IAT)	
<b>Organization responsible for the practice in the region:</b>	Consejería de Fomento y Vivienda (Junta de Andalucía)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	<b>x</b>	Mobility patterns between cities
		Modal share
	<b>x</b>	Economic and financial issues
	<b>x</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
		% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

One of the main challenges in Andalusia has been to get a unitary transport organization in a way that it facilitates an harmonic operation of the transport system, overcoming the disadvantages derived from the power compartmentalisation as well as an administrative and technological coordination.

The solution developed in Andalusia has entailed the creation of consortia with the necessary competences to ensure the efficient operation of the transport system and able to carry out the transport planning and coordination in the corresponding metropolitan areas, as well as the corresponding Metropolitan Transport Plan.

It is relevant to highlight regarding each consortia, that all the local corporations included in the corresponding metropolitan areas, besides the citizen association and other social agents involved in this transport modality can be integrated in it.

This consortia structure has allowed:

- Centralize the coordination tools among the Andalusian Transport Consortia, allowing the development of actions and common projects.
- Define a contractual and licensing framework that can be the base to the common relationship between the Consortia and the transport operators.
- Establish standardized solutions with the suppliers.

The factors determining the success of this good practice developed in Andalusia are:

- The involvement of the local and regional administration of the Consortia, together the citizens' association and other social agents. All this with a common presidency for all the consortia represented by the Regional Administration.
- The existing Law of Planning of the Urban and Metropolitan Transports of Passengers in Andalusia, which supports the creation and operation of the consortia.
- The establishment of common goals to be achieved with common solutions. This has enabled common image and technological solutions to all the consortia.

### **Main results:**

The main results derived from the implementation of the good practice in Andalusia are:

- 9 created consortia, one for each urban agglomeration existing in Andalusia.
- More than 200 involved municipalities (that implies a 50% of the Consortia members).
- Number of cards in 2015: 1.324.372 (13% more than in 2014).
- Number of passengers in all the metropolitan transport modes (without considering the use of the card in the urban transport modes): 50.392.759 (1,19% more than in 2014).
- An unique interlocutor in the dialogues with operators and suppliers, and the resulting minimization of the incidents and costs (less than half) and a greater stability in the relationship with operators.
- A unique image is transmitted to the users, who see the transport system as a tool at his disposal.

### **Lessons learnt:**

Between the lessons learnt through the implementation of this good practice, it is possible to highlight:

- It is necessary to develop a significant level of detail at regard the administrative organization to achieve the maximum coordination.
- The participation of the citizens 'participation and social agents is key for the success.



### 4.3. Technological Network of Transport with Open Architecture: Standardization and Homologation.

<b>Project partner linked to the practice:</b>	Instituto Andaluz de Tecnología (IAT)	
<b>Organization responsible for the practice in the region:</b>	Consejería de Fomento y Vivienda (Junta de Andalucía)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
	x	Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
	x	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The proposed solution in this practice lies in creating a tool in Andalusia, called “Technological Network of Transport” (“Red Tecnológica de Transporte” (RTT)), based on an open architecture that allows:

- To offer to the public transport users flexible and agile solutions easily adaptable to their needs.
- To ensure the incorporation of new systems, the scaling of the existing ones and the supply of advanced technological solutions to the transport.

The technical solution implemented allows the complete mobility of the citizen in the Transport Network of Andalusia without increasing the network level of complexity and without losing the autonomy for the management of local transport policies and the geographical distribution model. This differentiating factor has allowed to keep the current efficiency and speed in the implementation of solutions able to satisfy the citizens' transport needs in the metropolitan area.

The daily operation of the Transport Consortia of Andalusia is supported by the RTT. This network in turn models the behaviours and integration of five networks: Network of Users (Red de Usuarios), Network of Sales (Red de Ventas), Network of Cancellations (Red de Cancelaciones), Network of Operation (Red de Operación) and Network of Information (Red de Información). These networks are interrelated between them through some interfaces. The standarization process has consiste on standardizing each of these interfaces.

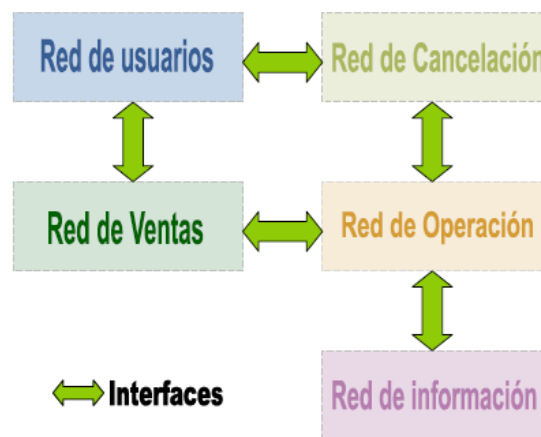


Figure 6. RTT Model.

On the other hand, a relevant aspect to highlight in regards the RTT is the definition of a homologation process that it is used by the Administration to accredit the technological solutions as compatible to the RTT system.

The factors determining the success of this good practice developed in Andalusia are:

- The sign of the General Protocol and the common technology base agreement between all the transport consortia in Andalusia. Part of this agreement is the interoperability Project which has allowed designing a strong Metropolitan Transport Network, easing the autonomy in implementing solutions for the transport and standardizing the technological solutions of the network.
- The adaptation of the consortia fare systems (in their structure and operation model) to achieve the compatibility of each metropolitan area with the interoperability needs.
- The ICT design based on an open architecture that has allowed: a) To offer flexible and agile solutions (which are adapted to the emerging needs of the sector) to the

public transport users; b) Ensure the incorporation of new systems, the scaling of the existing ones and c) Supply advances technology solutions to the transports.

### **Main results:**

The main results derived from the implementation of this good practice in Andalusia are:

Since the transport operators 'point of view:

- Possibility of accessing to advances solutions without need of increasing the operation and maintenance costs.

Since the companies of technological development's point of view:

- Facility to offer their products in the sector, due to the ease to add any solution regardless of manufacturer, through homologation processes.

Since the Administration's point of view:

- Facility to satisfy the needs of public transport in the XXI century, while the investment and expenditures are being reduced (to less of the half), without any technological dependence of providers/suppliers.

### **Lessons learnt:**

Between the lessons learnt in the application of this good practice, we can highlight:

- This practice requires a greater previous effort (above all for the management) and less effort after the implementation (for the management of the solutions and contracts). It is relevant to take into account this when planning.
- The saving of cost and time in the implementation has been much lower than usually (less than half).
- A continuous and flexible effort is necessary to satisfy the new needs of the public transport users.

#### 4.4. Implementation of a combined service BUS+BIKE for a sustainable metropolitan and urban transport.

<b>Project partner linked to the practice:</b>	Instituto Andaluz de Tecnología (IAT).	
<b>Organization responsible for the practice in the region:</b>	Consejería de Fomento y Vivienda (Junta de Andalucía)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
	<b>x</b>	Cycling routes and footpaths
		Mobility patterns between cities
	<b>x</b>	Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	<b>x</b>	% Journeys undertaken by public and private travel or low energy vehicles.

##### Brief description of the practice:

This practice aims at boosting the combined use of public transport and bike in the bus station being the transport card the nexus.

This practice is the regional implementation. E.g. The public transport users in the metropolitan area of Seville (one of the 9 managed currently) has a free service of bikes (180 units) since of 2006 in one of the main bus station of the city (Plaza de Armas). These bikes are offered for the users 'urban journeys from 7:30 to 00:00h all working days in a year. This is offered as a added advantage to the use of the transport card of the Consortium.

All the bikes are registered in the bicycles registration of the Seville Council City, insured against third party liability and provided with a security lock.

Currently the service is integrated as a service of the bus station and a room prepared as bikes maintenance and repair workroom.

Besides in Seville, the operation model of the Bus+Bike service has been implemented in the metropolitan areas of Cadiz Bay, Cordoba, Almería, Campo de Gibraltar y Costa de Huelva.

### **Main results:**

The general appraisal of the service by the users is 8,80 over 10 in the last survey conducted.

The BUS+BIKE service users express in the survey that using this service they save time and money in their journeys.

### **Lessons learnt:**

- Link the transport card to the combined use of the bus and bicycle is a good measure to boost the use of the public transport.
- The combination between the public transport and bicycle is efficient and attractive when the cities have a good cycle paths connecting the different centers of generation and attraction of journeys.
- Public transport and bicycle do not compete but complement each other in a common objective of reducing the private vehicles to improve the quality of the environment in our cities and regions.

#### 4.5. Intermodal Transport Title for all the transport modes and in all the Andalusia metropolitan areas.

<b>Project partner linked to the practice:</b>	Instituto Andaluz de Tecnología (IAT)	
<b>Organization responsible for the practice in the region:</b>	Consejería de Fomento y Vivienda (Junta de Andalucía)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	x	Mobility patterns between cities
		Modal share
	x	Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
		% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The Metropolitan Transport Plan of Seville: The Sustainable Mobility Plan establishes a set of guidelines for planning and coordinating the elements that make up the Metropolitan Transport System. Between these guidelines and in the point regarding the fare framework, the Plan indicates “At least a title useable for all the metropolitan transport modes will exist. This title must allow and agile the obtaining, recharging and cancellation operations, and improve, at the same time, the commercial speed of the services, easing the modal shift.

The proposed solution in this practice is the way in which Andalusia has accomplished this guideline through the transport card of the consortia. Actually, this can be used as

transport title in the metropolitan bus network of Andalusia, in the metropolitan maritime lines as well as in the urban transport services (bus and metro) in numerous Andalusian cities. This way, the citizens will benefit from discounts and advantages using the unique card in their inter-urban journeys.

This transport card, contactless technology-chip based on, can be used in all the metropolitan areas in Andalusia with integrated fare system and it can be obtained in any of the authorised sales centers existing in all the municipalities.

The factors determining the success of this good practice developed in Andalusia are:

- Establishment of annual objectives to extend the scope of the card gradually.
- The organization of 9 metropolitan consortia makes possible the implementation of the card in all the metropolitan areas simultaneously, adapting the advances to the features of each one.
- The participation of the Local Entities together the Regional Administration in the consortia.

### **Main results:**

The main results derived from the implementation of this good practice in Andalusia are:

- Number of cards in 2015: 1.324.372.
- Number of operation in the sales centers in 2015 (2.057 sales centers): 4.799.464.
- Number of passengers in the metropolitan area that use the transport card in other different metropolitan area in 2015: 205.664.

### **Lessons learnt:**

Between the lessons learnt for the implementation of the good practice, it is highlighted:

- It is necessary a continuous and flexible effort to satisfy the new needs of the public transport users.

## 5. PROPOSED BEST PRACTICES FROM POLAND

### 5.1. Fast Agglomeration Railway.

<b>Project partner linked to the practice:</b>	Niepolomice Municipality	
<b>Organization responsible for the practice in the region:</b>	Regional authority – Marshal Office	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
	X	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	X	Mobility patterns between cities
	X	Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	X	% Reduction of CO2 emissions associated to transport.
	X	% Municipalities involved in the implementation of the sustainable mobility plan.
	X	% Reduction of PM10 in the provincial capitals.
	X	% Efficient connections in transport in the region.
	X	% Passengers using public transportation.
	X	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The role of the railways inside of the agglomeration is still marginal, mainly due to the lack of infrastructure, ensuring the smooth functioning of the railway connections. In particular, the deficiencies concern: railway sidings, train stops, additional tracks, and Park and Ride systems.

Rail transport, due to the long-term repairs of tracks, stations and stops, wasn't a sufficient alternative to road transport. For this reason Regional Authority launched in 2014 the project Fast Agglomeration Railway with P&R systems.



A good example illustrating the demand for P&R solution is launched in December 2014 in Wieliczka interchange with P&R system, combined with Fast Agglomeration Railway.

Since the system started, Wieliczka authorities observed a tendency of leaving cars in the parking (which is currently filled with 100%) and the use of railways in the regular journeys to work. Currently Niepolomice Municipality is at the stage of implementation of P&R systems (new regular service from 12/2016).

### **Main results:**

Regular connection between Wieliczka and Krakow helped improve the percentage of efficient connections in the region (regular service every 30 minutes) and to improve the connection to the airport in Balice. At the same time improved travel time and the standard of travel which is reflected in the number of people leaving cars on the P&R in Wieliczka.

### **Lessons learnt:**

- The P&R combined with fast, regular agglomeration railway will reduce the share of individual transport to public transport which will contribute to reducing emissions. In the case of an efficient public transport system, residents are able to change their habits.
- Very important during the constructing works of P&R system is to take into account all the needs of travellers (parking place for: bicycles, motorbikes, cars, buses, pedestrians' zone).
- There is a clear need to develop this system associated with the feeder lines.

## 5.2. Biogas from inoperative landfill

<b>Project partner linked to the practice:</b>	Niepolomice Municipality	
<b>Organization responsible for the practice in the region:</b>	Wodociagi Niepolomice	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	X	Mobility patterns between cities
	X	Modal share
	X	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	X	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	X	% Reduction of PM10 in the provincial capitals.
	X	% Efficient connections in transport in the region.
	X	% Passengers using public transportation.
		% Increase of quality of life of the citizens.
	% Journeys undertaken by public and private travel or low energy vehicles.	

### Brief description of the practice:

Over the last 15 years the consumption of fuels (gasoline and diesel) in the public and private transport increased over 40%. Significant is also the fact that individual transport and the public transport have about 20% share in the generation of air pollutants.

The gas from the inoperative landfill in Niepolomice was used only in the aggregate generator when the local operator lunched the pilot program together with external experts. The object of the project was the installation of two containers of a research installation for the purification of the gas coming from the inoperative landfill in Niepołomice (approx. 94 m<sup>3</sup>/h).

Installation of upgrading biogas is designed to vehicles fuelled by compressed purity biomethane (CBG). Refuelling of vehicles is carried out in this same way as CNG vehicles.

After running the research station, biogas was available for the residents (test drives). The next step was the initial agreement between city and public transport company for regular bus connection fuelled by CBG.

### **Main results:**

- Increasing interest on alternative fuel in the region.
- The possibility of refuelling for free as part of the pilot (experimental station), the initial agreement between the operator and the city for regular bus connection between cities fuelled by CBG (negotiations on lower fees with operator).

### **Lessons learnt:**

The upgraded biogas can be used as fuel in CNG installations. Possession of such installation by the municipality (city) or region may be a bargaining chip when negotiating fees with the bus operator. Raise the profitability of some of the bus lines (weak occupancy of the route).

### 5.3. Ecodriving techniques.

<b>Project partner linked to the practice:</b>	Niepolomice Municipality	
<b>Organization responsible for the practice in the region:</b>	Niepolomice Municipality	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
	X	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	X	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	X	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
	X	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The implementation of the Eco-driving techniques was one of our main goals because of significant CO2 emissions from fuel consumption in transport. According to researches a 19.6 percent of the CO2 emission (28 448 Mg) come from fuel consumption in transport.

Ecodriving is an approach that incorporates techniques and technologies to reduce fuel consumption and costs, greenhouse gas (GHG) and other air pollutant emissions, vehicle and road degradation, and accident-related costs such as property damage, injuries, fatalities, and insurance.

Niepolomice Municipality with external experts (based on research of the Uppsala region) lunched a pilot program aimed at establishing guidelines for implementation of the principles of ecodriving in companies with significant share of heavy vehicles that

consume lots of petrol. The pilot program has been developed in collaboration with MAN trucks, acting within the special economic zone in Niepolomice, and with the Mobilis Krakow (bus company).

Implementation of the pilot program:

- The general objectives of the pilot project were presented to the vehicle drivers. It was planned that the driver would first drive using the general principles of testing vehicles used by MAN trucks.
- The license driver of a MAN performed a test drive in accordance with general principles of testing vehicles used in - MAN - driving were made mainly in the areas which are not intensely developed. Distance - 481 km, fuel consumption 130 liters of diesel, average fuel consumption 27,03 [l/100 km].
- After the training with the external experts – session, the license driver of a MAN tracks performed a test drive in accordance with the new rules of ecodriving techniques ("eco-driving Decalogue"). Distance 446 kilometres, fuel consumption 107,5 litres of diesel, average fuel consumption 24,10 [l/100 km].

The most important benefits from the BP's are as followings:

- Reduction of CO<sub>2</sub>.
- Significant fuel savings.
- Lower costs of vehicles maintenance.
- Lower insurance premiums.
- Reducing the stress level of the driver.
- Increasing the skills of the driver's handling of the vehicle.
- To increase job satisfaction.
- Higher level of road safety.

### **Main results:**

- The results of the pilot program realized in cooperation with the MAN trucks, and with the Mobilis buses (agglomeration bus line) by changing the driving techniques.
- Reducing fuel consumption: 10.8%, identical to the value of reducing CO<sub>2</sub> emissions – MAN trucks
- Reducing fuel consumption: up to 20%, identical to the value of reducing CO<sub>2</sub> emissions – Mobilis buses.

**Lessons learnt:**

Ecodriving techniques can be easily transferred and implemented in the other regions. Ecodriving techniques can improve fuel economy by up to 20%, and can reduce air pollutant emissions.

## 5.4. Good planning when using heavy machines.

<b>Project partner linked to the practice:</b>	Niepolomice Municipality	
<b>Organization responsible for the practice in the region:</b>	Niepolomice Municipality	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>X</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
	<b>X</b>	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>X</b>	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>X</b>	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
	<b>X</b>	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

This best practice was identified through discussion between partners of the SEECA project. Niepolomice Municipality identified the need of implementation of good planning when using heavy machines during the road works.

Niepolomice Municipality with the environmental external experts analysed whether fuel savings and reduction of carbon dioxide could be achieved in Niepolomice Municipality.

Objective of the best practice: how to plan works, road works other planning with heavy machines, how to make them more efficient, and how to reduce fuel consumption of machines.

### Main results:

Good planning guideline when using heavy machines has been published during that analyse. Main issues (rules) from that guideline have been handed after winning a tender (to improve good planning, minimize greenhouse gas emissions, and to improve energy efficiency in transport).

Through a change in behaviour it is relatively easy to reduce fuel consumption for heavy machinery by approximately 10%.

[http://wspolny.niepolomice.eu/dokumenty\\_na\\_strone/raport\\_dobre\\_praktyki.pdf](http://wspolny.niepolomice.eu/dokumenty_na_strone/raport_dobre_praktyki.pdf)

### **Lessons learnt:**

For a small construction sites (such as the construction of the roundabout which was the subject of observation) the application of standards for proper storage of materials and the limited movements of means of transport can be difficult to implement due to too small amount of space available to the construction crews. In this case, pay special attention to the optimal selection of the size of used machinery, equipment and vehicles.



## 5.5. Tele-Bus.

<b>Project partner linked to the practice:</b>	Niepolomice Municipality
<b>Organization responsible for the practice in the region:</b>	Kraków City (one of the stakeholders of REGIO-MOB in the region)
<b>Thematic coverage (TOPICS linked to the practice):</b>	Measures to coordinate transport services
	Location and characteristics of platforms for public transport
	Cycling routes and footpaths
	Mobility patterns between cities
	<b>X</b> Modal share
	Economic and financial issues
	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	% Reduction of CO2 emissions associated to transport.
	% Municipalities involved in the implementation of the sustainable mobility plan.
	% Reduction of PM10 in the provincial capitals.
	<b>X</b> % Efficient connections in transport in the region.
	<b>X</b> % Passengers using public transportation.
	% Increase of quality of life of the citizens.
% Journeys undertaken by public and private travel or low energy vehicles.	

### Brief description of the practice:

The Tele-Bus is an on-demand “many to many” public transport (PT) service with fixed stop points but flexible routes and timetables which operates every day in the south-eastern area of the city and during defined operating hours. The service is available in three districts with low-density residential and industrial areas where a conventional PT service is inappropriate.

Dedicated to DRT (demand responsive transport) only, the daily service operation is managed by the transport dispatch centre (TDC) which belongs to the Tele-Bus operator – Miejskie Przedsiębiorstwo Komunikacyjne SA MPK (Public Transport Operator – Krakow). Customers book the service via TDC using a special free phone number. The online booking must be made at least 30 minutes before the planned start of the trip.

The Tele-Bus visualisation concept is based on a special corporate identification system applicable to all elements of the service, i.e. vehicles, bus stops, and customer information material. Corporate blue and green colours of the Tele-Bus distinguish the flexible service from conventional PT.

The main objectives of launching this service were as follows:

- To better attune PT to the needs of the citizens.
- To provide the link to those bus lines running to the city centre.
- To manage the PT fleet in a more effective manner.
- To extend the existing PT system within the framework of current pricing and service regulations.
- And finally to increase the number of PT users.

### **Main results:**

The new DRT service launched in Krakow developed gradually during its first year, starting with 300 customers per month in the first quarter, exceeding

2000 passengers served in January 2008 and finally reaching a stable monthly average of 1900 Tele-Bus users. The people in the Tele-Bus operation area were sceptical about the idea of a flexible PT service before it was introduced, but eventually accepted this innovative solution and now cannot imagine PT without the Tele-Bus. What is more, they actively participate in the further development of the service by making suggestions about the extension of the service network. In the very near future it is planned to extend the Tele-Bus availability areas and the existing network to meet customer demand.

### **Lessons learnt:**

The service can be used in districts with low-density residential and industrial areas where a conventional PT service is inappropriate. This successful project has been watched by other Polish cities, and some of them are giving consideration to the Tele-Bus flexible lines as an alternative to the conventional service in new areas not yet covered by PT. This means that there is a real chance for the further development of DRT services in Poland.

## 6. PROPOSED BEST PRACTICES FROM UNITED KINGDOM

### 6.1. Flow Centre

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	NHS Lothian	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>X</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	<b>X</b>	Mobility patterns between cities
	<b>X</b>	Modal share
	<b>X</b>	Economic and financial issues
	<b>X</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>X</b>	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>X</b>	% Reduction of PM10 in the provincial capitals.
	<b>X</b>	% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The Flow Centre is a centralised service to support the flow of patients across all sites in Lothian. Services previously known as the Lothian Transport Hub and Bed Bureau have amalgamated to form the Flow Centre in July 2016. The Flow Centre is working with GPs and IJBs to create clear pathways for admission, and access to alternatives to admission, to ensure that the patient is seen in the right place, at the right time, by the right person. The Flow Centre has a call centre set up and has the ability to track vehicles and monitor hospital waiting times.

The Flow Centre provides an urgent referral service for all GP surgeries within Lothian, and a transport service to all acute sites within NHS Lothian and the surrounding areas.

Referrals are routed to the appropriate hospital or speciality, liaising with the on call Clinicians, Specialist Nurses, Scottish Ambulance staff and Capacity Management.

### **Main results:**

- The Flow Centre is open 7 days per week 365 days per year answering 2500 inbound calls per week.
- The management of patient flow is fundamental to the smooth and efficient running of the NHS. The patient pathway needs to be coordinated /planned from the beginning of the patient's journey in primary care to the patient returning home. Patient flow also needs to have an overview across all sites as a whole, in real time, to give a Lothian wide system perspective.
- Previously, patients referred for emergency admission through Bed Bureau only had 2 options for transport into hospital: emergency ambulance or transport via a friend/relative. The Scottish Ambulance service has given priority to emergency 999 cases and so this has often left patients waiting significant times to be collected and therefore attending Emergency Departments later in the day.
- By utilising the infrastructure and processes already in place for the former Transport Hub and providing alternative forms of transport for patients, patients are brought into hospital earlier in the day improving flow, outcomes and patient experience.
- The Flow Centre is working with hospital sites to support timely discharge by encouraging pre-booking, reducing cancellations and utilising transport to full capacity. The Flow Centre is also working with the voluntary sector to support the discharge process, and to reduce delayed discharges.
- By combining the present skillsets and resource within one team, rather than separate groups, there is opportunity to create consistent processes, reduce duplication and the ability to access the most appropriate transport in a timely manner.

### **Lessons learnt:**

Transferable to other sectors:

- Single point of contact and consolidation of services.
- Efficient utilisation of vehicles reduces waiting times for repatriations across Scotland and increasing capacity.
- Overview of patient flow and capacity in real time. By using technology to advise sites / services of points of challenge.
- Single point of information on services available as alternatives to front door admission.

## 6.2. Bus Priority Lanes – “Green ways”.

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	City of Edinburgh Council	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
	x	Cycling routes and footpaths
	x	Mobility patterns between cities
		Modal share
	x	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
	x	% Municipalities involved in the implementation of the sustainable mobility plan.
	x	% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
	x	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

Bus lanes, designated as “Greenways” and painted green, are for use only by buses and taxi cabs during specified peak times on all main routes to and from the city.

### Main results:

Improved bus journey times and increased bus patronage along with reduced car numbers. For example, within the SEStran area, comprising over 25% of all Scottish vehicle-km, traffic has reduced by 3.5% from 2007 to 2012.

### Lessons learnt:

- The practice is potentially controversial so wide consultation advised.

- Be consistent with operational times on all routes to avoid driver confusion.
- Can be a benefit to cyclists but need to watch conflict with buses.
- Permitted taxis need to be recognisable black cabs to ease enforcement.
- Effective enforcement is essential.

### 6.3. Park & Ride Facilities.

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	SEStran & Partnership Councils	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
	<b>x</b>	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	<b>x</b>	Mobility patterns between cities
	<b>x</b>	Modal share
	<b>x</b>	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	<b>x</b>	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

Bus and rail park & ride sites, with rest facilities, at key locations surrounding mainly in the city of Edinburgh but also at key locations in the surrounding local authority area. This improved regional mobility as commuters based in towns and cities outside of Edinburgh can park there car at a station and travel by bus or rail to the city.

#### Main results:

- Reduced car numbers within the city.
- Increased bus and rail patronage.
- There are a number of rail and bus park and rides all of the region.

- Car parking spaces vary between 76% and 94% full.

**Lessons learnt:**

- Location of sites critical and associated road infrastructure needs to be adequate to avoid unnecessary delay to private and public transport.
- Facilities at the sites should be of a high standard and maintained.
- Partnership with operators is essential.



## 6.4. Specific Route Queue Management (ICT).

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	City of Edinburgh Council	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	<b>x</b>	Mobility patterns between cities
	<b>x</b>	Modal share
	<b>x</b>	Economic and financial issues
	<b>x</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	<b>x</b>	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

The City of Edinburgh introduced a fully automated queue management system on the A90 approach, over 50km, to the city from the Forth Road Bridge, to give buses priority but at minimal delay to other traffic. Temporary signals are employed at two locations, activated by traffic density to stop all traffic, and buses are diverted to the head of the queue.

### Main results:

13 minutes saved from bus journey times over the route and other vehicles times subject to minimal delay.

### Lessons learnt:

Bus priority need not be at the expense of other vehicles and can be achieved with minimal investment in additional infrastructure by using existing slip roads, etc.

## 6.5. Bus Real Time Passenger Information (RTPI).

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	SEStran and Partner Bus Operating Companies	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
	x	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	x	Mobility patterns between cities
	x	Modal share
	x	Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	x	% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
	x	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

- Real Time Passenger Information addresses the need to provide public transport users with the real time arrival of the bus. This provides the user with the confidence to know that their bus will actually turn up and when it will turn up. This is particularly important in areas that infrequent bus services e.g. rural areas.
- SEStran's RTPI system provides real time information for the three main bus operators in the SEStran region. This year, SEStran aims to expand the RTPI system to include other smaller operators in the SEStran region. This information is provided via a website and mobile app (apple and android) and more recently, is displayed via digital screens in public and commercial premises, with the aim of

encouraging increased bus patronage and fewer private car journeys in the SEStran area.

### **Main results:**

Since the formal launch of SEStran's bustracker (RTPI) system in April 2014, both the website and app have had a steady number of hits demonstrating a demand for the information. SEStran's deployment of digital screens with live travel times in the region has also been successful, demonstrating a desire for live travel times in publically accessible areas. In 2014, SEStran was also awarded a Gold Award for the project at the UK Bus Awards.

### **Lessons learnt:**

- Partnership with bus operators is fundamental.
- It is desirable to have all operators in the region involved.
- Be prepared for fairly rapid technology development and future-proof the system as far as possible.
- It is essential to fund long-term maintenance.

## 6.6. SEStran Sustainable and Active Travel Grants.

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	SEStran	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
	<b>x</b>	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	<b>x</b>	Mobility patterns between cities
	<b>x</b>	Modal share
	<b>x</b>	Economic and financial issues
	<b>x</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
	<b>x</b>	% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	<b>x</b>	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

SEStran offers the Sustainable and Active Travel Grant scheme to organisations within the region. Successful applicants can receive matched funding to assist in projects focused on Sustainable and Active Travel.

### Main results:

A range of different projects have arisen from the sustainable grant scheme. For example:

- Shared bike scheme between the Colleges and Universities of Edinburgh.
- Electric vehicle monitoring project with Edinburgh College.

- Travel Plan surveys conducted at Queen Margaret University.
- Bicycle marking and maintenance by Edinburgh Police.
- Dedicated car pool spaces at Scottish Water.
- Establishment of a car share scheme at Forth Valley College.

**Lessons learnt:**

The scheme offers a good incentive to organisations within the region to take sustainable transport projects forward.

The matched element of the scheme allows a small amount of funding to have an extended reach and provided added value. Plus, this investment demonstrates the commitment from applicants to the grant.

## 6.7. Coordinated development of the region's Transport Strategy (RTS) and Strategic Development Plan (SDP).

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	SEStran & SESplan (South East Scotland Planning Partnership)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
	x	Location and characteristics of platforms for public transport
	x	Cycling routes and footpaths
	x	Mobility patterns between cities
	x	Modal share
	x	Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
	x	% Municipalities involved in the implementation of the sustainable mobility plan.
	x	% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
	x	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

In preparing both the Regional Transport Strategy and Strategic Development Plan, input and advice from the professionals associated with both organisations is shared so that future development is progressed in a way that optimises healthy and sustainable transport, at a fundamental level.

### Main results:

Further congestion on key routes is avoided. Sustainable transport use encouraged. Congestion and pollution have been reduced. For example, within the SEStran area, comprising over 25% of all Scottish vehicle-km, traffic has reduced by 3.5% from 2007 to 2012.

### **Lessons learnt:**

Interaction between strategic planning and transport functions needs to start at an early stage. It would be of benefit if a central fund, contributed to by private sector developers, to invest in new infrastructure can be set up. (Legal issues in Scotland have prevented this from happening, to date).



## 6.8. Strategic Cross Boundary Cycle Development.

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	SEStran	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
	<b>x</b>	Cycling routes and footpaths
	<b>x</b>	Mobility patterns between cities
	<b>x</b>	Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
		% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

SEStran used a consultant to develop a strategy for guiding investment in cross local authority boundary sections of the cycling network, with particular focus on routes suitable for commuters. The approach involved the following key stages: best practice review, desktop study, and initial consultation, site audits, developing of recommendation and stakeholder workshop.

### Main results:

- Effective partnership working with local authorities. Twenty-five stakeholders were consulted as part of this process. Thirteen key actions were identified with

short and long term solutions offered for each. Thirty-eight key barriers and missing links within the strategic commuter cycling network were identified.

- Coordinated implementation of the strategy, and new working relationships between neighbouring council cycling officers
- Supporting grant (match-funded) scheme established and investment from local authorities and landowners (e.g. Edinburgh University).

**Lessons learnt:**

- Be ambitious but realistic in your objectives.
- Cross boundary issues are not always at the forefront of Councils priorities so a broader perspective is necessary.

## 6.9. Thistle Card (Equality Forum).

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	SEStran	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	x	Mobility patterns between cities
	x	Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
	x	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

SEStran has developed the Thistle Card to make using public transport easier for older people or those with disabilities or illness.

The card, which is supported by a wide variety of voluntary organisations in South East Scotland and by most bus operators, is credit-card sized and comes with a supply of peel-off stickers, which advise the driver of a personal disability in an easy-to-read format.

The Thistle Card App trial has recently been launched and is designed to replicate the original SEStran Thistle card with an initial page for the customer to input their disability using the same previously agreed symbols (with audio guidance). The second page displays the information to be shown to the bus driver.

## Main results:

The success of the Thistle Card within South East Scotland has generated a high level of interest from organisations and local authorities throughout Scotland and beyond. SEStran is committed to promoting best practice and is therefore making the design elements available to those who would like to produce a similar card for use in their region.

Using the Thistle Card basic design as the standard will ensure that such assistance cards are commonplace nationwide and, ultimately, that travellers who require assistance when using public transport can expect public transport drivers nationwide to recognise the cards and the symbols at a glance.

The main benefit of the app is the convenience of use for the customer. There is also potential to include usage statistics and where the app is being used. This will be discussed with the bus companies as part of the consultation. These additions can be added as feedback incrementally as use of the initial app increases

To date there have been nearly 42,000 cards distributed across the SEStran Region. The figures below summarise distribution and requests since 2011/12:

Sector	Quantity
Bus Companies	16.636
Council	5.070
Disability Groups	6.604
Healthcare	9.314
Other	2.376
Personal	997
Elderly Care	342
Libraries	426
Total:	41.765

## Lessons learnt:

- Work with Equality Forum (representatives from disabilities groups) in order to offer a product which is truly beneficial and effective.
- Receiving feedback and consultations are crucial in the development of the product.

## 6.10. SEStran Tripshare.

<b>Project partner linked to the practice:</b>	SEStran	
<b>Organization responsible for the practice in the region:</b>	SEStran	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
	x	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	x	Mobility patterns between cities
	x	Modal share
	x	Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	x	% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
		% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

Tripshare is the Region's web-based car sharing (carpooling in the EU) scheme to link car drivers or passengers who are making similar journeys in South East Scotland and wish to share the costs. The scheme is the umbrella group, of which SEStran's 8 local authorities are covered. The scheme also includes private membership from Colleges, Universities and Private Sector organisations (e.g. Edinburgh Airport).

### Main results:

To date:

- Over 8,800 members.

- Mileage savings by BUDi teams (forecast for next 12 months) - 3,350,720 miles.
- Financial savings by BUDi teams (forecast for next 12 months) - £810,887.
- Linked, potentially, to mainland Europe through partnering a European Projects.
- CO2 savings by BUDi teams (forecast for next 12 months) - 1103.3 tonnes.

**Lessons learnt:**

- Partnership working is key to TripshareSEStran's success.
- The scheme can only be as good as its communication activities.
- National Liftshare Week (October) has been a valuable tool in raising both awareness and membership.
- Tripshare can be used to join up journeys, and assist in areas where the Public Transport provision is limited.

## 7. PROPOSED BEST PRACTICES FROM ROMANIA

### 7.1. CAR-SHARING /CARPOOLING.

<b>Project partner linked to the practice:</b>	RDA SW Oltenia	
<b>Organization responsible for the practice in the region:</b>	IPA SA	
<b>Thematic coverage (TOPICS linked to the practice):</b>	-	Measures to coordinate transport services
	-	Location and characteristics of platforms for public transport
	-	Cycling routes and footpaths
	x	Mobility patterns between cities
	x	Modal share
	x	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
	-	% Municipalities involved in the implementation of the sustainable mobility plan.
	-	% Reduction of PM10 in the provincial capitals.
	-	% Efficient connections in transport in the region.
	-	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

Car-Sharing/carpooling is an unconventional alternative to road transport. It's going to destination by car with someone you do not know or take with you on certain distance, various people who have the same destination.

In the South West Oltenia, this system was introduced by CHUMS project, implemented by IPA Craiova.

The strategic aim of CHUMS is simple – to “attract car-poolers, match them and retain them”, to keep the numbers rising, and to develop and transfer this proven practice to

generate a core sustainable market for carpooling across Europe, so that it becomes a habitual way to travel and a recognised mobility mode for transport planning. Once proven, the application will be equally valid for “open” systems for citizens in general.

**Target Groups and stakeholders:** The city/regional authorities; the organisations implementing CHUMS at their sites; the citizens in the organisations benefitting from the pooling option.

### **Main results:**

The CHUMS expected outcomes:

- Changes in travel behaviour mind-sets for commuting leading to more energy efficient transport.
- Shift towards sharing the journey for the half of the working population (>80% of car commuters) who currently drive alone to work.
- To attract-match-retain more employees to use carpooling for their commute to work trips. The CHUMS behaviour change strategy includes a carpooling week, conducting personalised travel plans which include carpooling options and providing a mobility jackpot lottery to attract people to carpool.

### **Lessons learnt:**

CHUMS initiative will raise wider general awareness of carpooling and contribute towards changing the mind-sets of the local car commuters. This will be of great value for when the carpool scheme is extended to cover the whole of the west industrial area, which contributes 7000 cars a day on the city streets in rush hour.



## 7.2. E-BIKE NET.

<b>Project partner linked to the practice:</b>	Regional Development Agency South-West Oltenia	
<b>Organization responsible for the practice in the region:</b>	Beneficiaries Regional Development Agency and Business centre – Vidin, Chamber of Industry and Commerce Vidin, The Romanian Association for Industry, Electronics and Software Oltenia, The Local Small and medium enterprises Patronage Calafat.	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
		Location and characteristics of platforms for public transport
	x	Cycling routes and footpaths
	x	Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

The project (financed by ERDF, INTERREG Romania-Bulgaria) aims at creating a network of electric bikes which people can use in the entire cross-border area along The Danube River (32 cities).

According to the Project, 240 bicycles will be procured, from which half will be rented in Bulgaria, and the other half in Romania. The electric bikes will be distributed in 16 cities in our country and 16 cities in Bulgaria. In South-West Oltenia Region, the electric bikes can be rented in the cities: Drobeta-Turnu Severin, Craiova, Caracal, Slatina si Calafat.

Starting date: 02.02.2016

End date: 01.02.2018

Duration: 24 months

**Main results:**

- 32 cities will be equipped with electric bikes stations
- 70 charging points for the electric bikes will cover the entire cross border area.
- (At least) 480 persons will participate to the e-biking events within the project.
- 2350 free e-bikes renting will be provided within the project.
- 2 studies related to the connection of the E-bike network to the Ten-t network.
- 18 e-biking events - tournaments and promoting festivals will be organized in order to promote the e-biking as an option to the individual mobility.

**Lessons learnt:**

- 1 common mechanism created (the e-bike network).
- The cross border population (95.000 persons), served by the modernized infrastructure.

### 7.3. HYPERION, The first electric train in Romania – Improving the regional mobility.

<b>Project partner linked to the practice:</b>	Regional Development Agency SW Oltenia	
<b>Organization responsible for the practice in the region:</b>	SOFTRANS SRL	
<b>Thematic coverage (TOPICS linked to the practice):</b>	-	Measures to coordinate transport services
	-	Location and characteristics of platforms for public transport
	-	Cycling routes and footpaths
	x	Mobility patterns between cities
	-	Modal share
	x	Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
	-	% Municipalities involved in the implementation of the sustainable mobility plan.
	-	% Reduction of PM10 in the provincial capitals.
	-	% Efficient connections in transport in the region.
	-	% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	x	% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The Softronic company is the only producer of locomotives and new electric trains, and is also offering solutions and equipment for their modernization. The newest products are the electric locomotive bi system, capable of circulating on railways with two supply voltages and the Hyperion train. Both products fulfil the requirements regarding the interoperability on the European railroads, the safety and the comfort of passengers and are part of the register for the rail road means accredited to circulate on the European railroads.

Starting from the analysis of the request (increase of the passenger number), Softronic identified as an opportunity the increase of the economic competitiveness of the company by producing the electric train.

By accessing European funds, the company developed and made the Regional Electric Train type EMU (Electrical Multiple Unit). This product was never fabricated in Romania.

The train was built for transportation on rail roads on short and medium distances (max. 800 km in 24 hours), has a low energetic consumption and is offering optimal travel conditions for a maximum of 200 passengers with a maximum speed of 160 km/h.

The Hyperion electric train is ensuring a regional and interregional mobility on a radius of 400 km.

Routes:

- Craiova – București – Brașov.
- Craiova – București - Constanța.

### **Main results:**

The constant increase of the number of passengers, the increased trust in rail road transportation, the increase of the satisfaction of the passengers, increase the business income.

The main achieved indicators:

- Train-km = approx. 520.000 km/year
- Passenger-km = approx. 4.800.000 /year

### **Lessons learnt:**

- Compared to the road and air transportation, the rail road transportation on an electrified railways the cheapest, the safest and the least pollutant.
- The railroad transportation with multiunit trains is suitable both for short distances (within a region) and also for medium distances (between regions); can be used in the metropolitan areas (best practice example: the metropolitan areas of Europe).
- The effort necessary to increase the rail road transportation of passengers reflects in:
  - Modernisation of the infrastructure (increase of the speed map, introducing the mandatory elements of interoperability).

- The endowment with electric multi-unit trains can ensure the safety and comfort of passengers - investing approx.5 mil Euro in a train with 4 wagons.

## 7.4. Ring Road for Dragasani Municipality – Intercities mobility and accessibility.

<b>Project partner linked to the practice:</b>	RDA SW Oltenia	
<b>Organization responsible for the practice in the region:</b>	Dragasani Local Council	
<b>Thematic coverage (TOPICS linked to the practice):</b>		Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
	x	Mobility patterns between cities
		Modal share
		Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	x	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

The Dragasani city was affected specially by the intense transit traffic especially on the main road. The street was relatively narrow, and the majority of the constructions are over 50 years old. They were not built properly in order to absorb the vibrations produced by the intense and heavy traffic. This situation represented a threat over the stability of many constructions in the city.

That is why the public administration decided to build a ring road aiming at improving region's accessibility and population's mobility between cities.

The project consisted in building in the outside area of Dragasani a ring road of 5.9 km.

The road assures the decongestion of the traffic on the national road no.64, road that links the South and The North area of Oltenia. Also, it removes outside the urban density area of the intense circulation (4 vehicle/ minute).

### **Main results:**

- Ring road for Dragasani Municipality – 5,9 km
- Decreasing the crossing time for Dragasani city from 15 min. to 9 min.
- Decreasing the annual maintenance costs for the road from 500,000 euro/year to 100,000 euro/year
- Decreasing the rehabilitation costs (once every 5 years) of the main road in Dragasani – from 1,750,000 euro to 850,000 euro.
- Diminishing the traffic accidents – from 0.48 in a million passengers/km to 0.39 in a million passengers/km.
- Reducing the fuel costs for a vehicle - from 0.50 euro to 0.47 euro.
- Decreasing the greenhouse gases issued by cars from 5,200kg/day to 3,600 kg/day.

### **Lessons learnt:**

Given the fact that the ring road for Dragasani Municipality contributes to the improvement of region's accessibility and population mobility by streamlining the urban traffic, RDA SW Oltenia undertook some major steps towards the competent institutions in the field, in order to be materialized as soon as possible other three ring roads in the region, underlining their importance and necessity. We consider that, starting from the identification of real needs, this practice has potential for replication in other regions, as well.

## 7.5. Ring Road for Targu Jiu Municipality – Intercities mobility and accessibility.

<b>Project partner linked to the practice:</b>	RDA SW Oltenia
<b>Organization responsible for the practice in the region:</b>	Targu Jiu Local Council Project financed under ROP 2007-2013
<b>Thematic coverage (TOPICS linked to the practice):</b>	Measures to coordinate transport services
	Location and characteristics of platforms for public transport
	Cycling routes and footpaths
	x Mobility patterns between cities
	Modal share
	Economic and financial issues
	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	% Reduction of CO2 emissions associated to transport.
	% Municipalities involved in the implementation of the sustainable mobility plan.
	% Reduction of PM10 in the provincial capitals.
	x % Efficient connections in transport in the region.
	% Passengers using public transportation.
	% Increase of quality of life of the citizens.
	% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

Public administration in Targu Jiu has implemented a project aiming to decongest the urban traffic, reduce the transportation time, eliminate the roadblocks and cross Tg Jiu city in safety conditions.

The investment in transportation infrastructure facilitates the mobility of the population and goods and reduces the transportation costs for passengers and goods. Also, it will improve the access on the regional markets, will increase the efficiency of economic activities, will decrease the time and energy loss while creating conditions for extending the commercial exchanges and implicitly the productive investments.



The development of the transportation network will also facilitate the interregional cooperation and will contribute to the economic growth of the enterprises and of the work force mobility.

### **Main results:**

- Removing the transit traffic from Tg Jiu City.
- Decongesting the transit traffic outside Tg Jiu City.
- Easing the transit traffic due to the modernization of existing ring roads and also avoiding the passing through the populated areas.
- Increasing the circulating speed to 50 km/ h and 80 km/h.
- Achieving optimal conditions for the traffic safety by reducing the traffic accidents, the areas crossed by the new ring road being little or not at all populated.
- Improving the surrounding area of the city by reducing the pollution of the environment.
- 13 km of ring road built.
- Decreasing the operational costs of the vehicles with 17.89 % in the 7-th year after putting into use (4,945,599 Euro).
- Decreasing the operation time of the vehicles by 65.25% in the 7-th year after putting into use (1,285,196 Euro).

### **Lessons learnt:**

Given the fact that the ring road for Targu Jiu Municipality contributes to the improvement of region's accessibility and population mobility by streamlining the urban traffic, RDA SW Oltenia undertook some major steps towards the competent institutions in the field, in order to be materialized as soon as possible other three ring roads in the region, underlining their importance and necessity. We consider that, starting from the identification of real needs, this practice has potential for replication in other regions, as well.

## 7.6. Orientation and Coordination tool for projects regarding transportation and mobility in South West Oltenia Region.

<b>Project partner linked to the practice:</b>	Regional Development Agency SW Oltenia	
<b>Organization responsible for the practice in the region:</b>	Beneficiaries : Regional Development Agency SW Oltenia .	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
	x	% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

The justification of this initiative started from the necessity to establish a vision at regional level in the transportation field.

Thus, at the initiative and coordination of RDA SW Oltenia, it was drawn up a Study (Study regarding the transportation and mobility in SW Oltenia Region), oriented towards the mobility and transport system, in order to contribute to the development and substantiation of the politics in the field of transportation and improving the accessibility.

The results of this study are a useful tool for the decision making bodies at regional, county and local level in establishing the economic justification for financing the specific

investments (especially the ones under ROP 2014-2020, Priority Axis 6 – Improving the road infrastructure of regional and local importance).

To validate and assume the information in the Study, a partners Group was created, formed of representatives of the county councils, city councils and also regional stakeholders (Craiova Airport, Road and Bridges Regional Direction, Regional Railway Direction, etc.)

### **Main results:**

- The data base in a table format, graphic format and also a GIS format, which allows the beneficiary to update the information.
- A strategic instrument to support the programming and planning process for 2014-2020
- A monitoring mechanism for the Action Plan.

### **Lessons learnt:**

The study can be considered a useful instrument which supports the policy makers at regional, county, and local level in establishing the economic justification for specific investment financing.

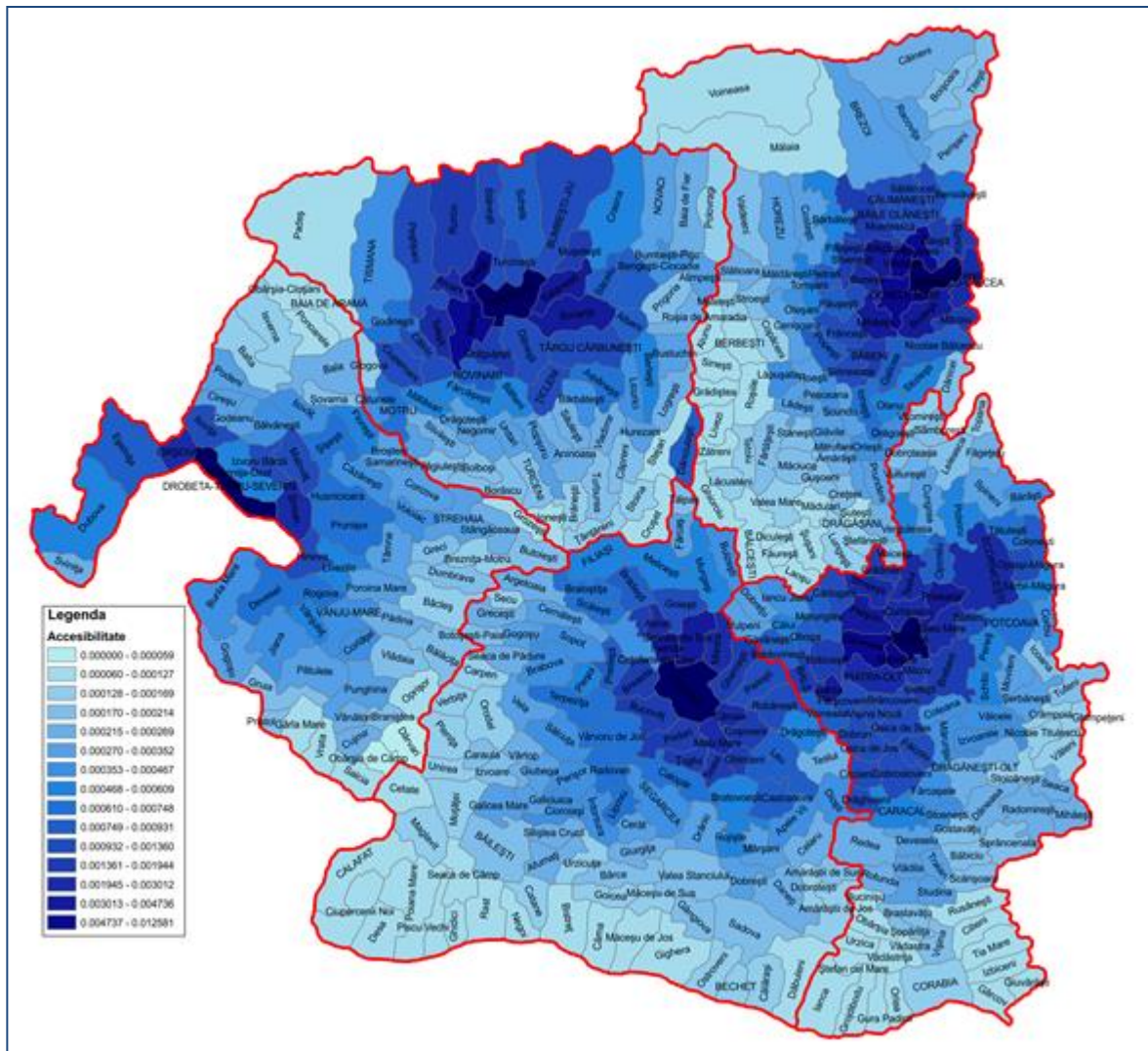


Figure 7. Territory accessibility at regional level, compared to the main transportation pole in each county – cities of Craiova, Slatina, Târgu-Jiu, Drobeta Turnu-Severin, Râmnicu-Vâlcea. (Study regarding The Transportation and Mobility in South West Oltenia Region).

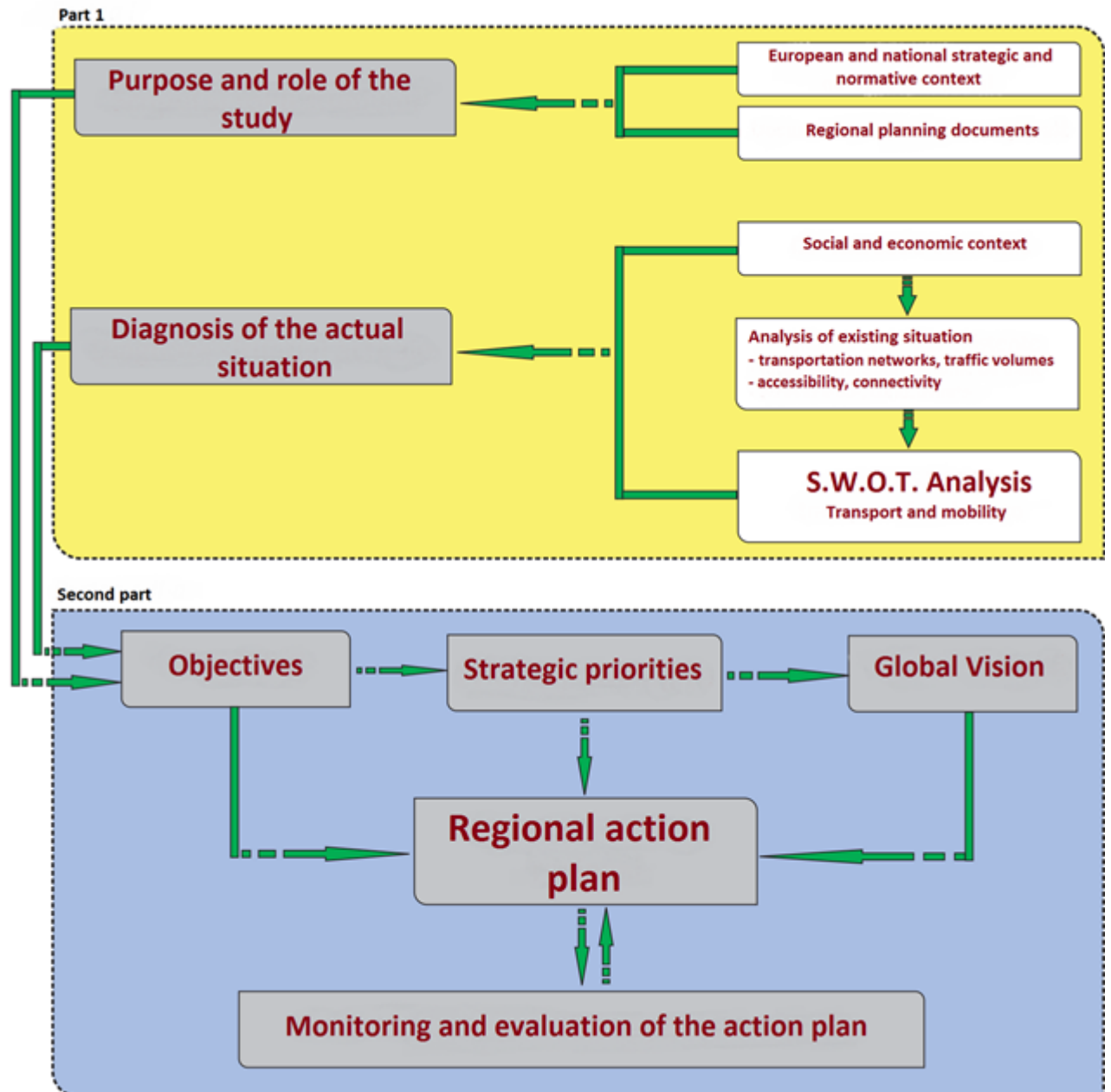


Figure 8. Scheme of the practice.

## 8. PROPOSED BEST PRACTICES FROM GREECE

### 8.1. Egnatia Motorway (traffic) Observatory.

<b>Project partner linked to the practice:</b>	Region of Western Macedonia	
<b>Organization responsible for the practice in the region:</b>	Egnatia Motorway (stakeholder)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
	<b>x</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
		% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

#### Brief description of the practice:

The Egnatia Motorway is a Trans-European Transport Networks (TEN-T) priority project. It represents a major investment in the transportation infrastructure of Northern Greece assisting the development of the region specifically and SE Europe in general.



Figure 9. Egnatia Motorway.

EGNATIA ODOS (eng. Motorway) S.A. established and operates the Egnatia Motorway Observatory in order to:

- Support the integrated management of the motorway.
- Contribute to the utilization of the project in the cohesion and development of Northern Greece and the greater area of SE Europe.
- Contribute to the harmonized assessment of impacts of Trans-European Transport Networks on the cohesion of the European area.

The Egnatia Motorway Observatory, based on documented scientific methods and the development of modern infrastructure of information systems collects, processes, and provides valid and updated data concerning parameters such as:

- The mobility in and accessibility to regions, urban centres, markets, and services.
- The development level, the cohesion degree, the competitiveness, and the intraregional inequalities.
- The building development and the networking of urban centres.

- The properties of the transport system and the operation of the road network.
- The quality of the environment.

The Egnatia Motorway Observatory is the only Greek Observatory of Transports with a permanent organization and operation. It is a Unit of EGNATIA ODOS A.E. under the Support Services Division. By creating the Observatory and incorporating it in the existing structure of EGNATIA ODOS A.E. the maximum possible compatibility and complementarity with the other activities of the company is achieved, and at the minimum possible cost, as the existing human resources and equipment are utilized in a more rational and effective way.

### **Main results:**

Through the Observatory, EGNATIA ODOS S.A. takes care of the assessment of spatial impacts of the Egnatia Motorway and vertical axes system in relation to the project implementation progress, i.e. in relation to “before” and “after”. In this way the impacts on the social and economic cohesion shall be determined, as well as on the territorial planning, the transport system, and the environment in Northern Greece.

The objective of the Egnatia Motorway Observatory is to collect and process data, and calculate indicators to be used for monitoring the long-term impact of the motorway on the social and financial cohesion, the physical planning arrangement, the system of transport, and the environment.

### **Lessons learnt:**

The Observatory is being developed:

- As a strategic tool providing information and support to policies and programmes of development planning, at the service not only of the EGNATIA ODOS A.E. but of all Regional and National Authorities and development agencies of the greater impact area of the motorway.
- To promote the cooperation and networking with similar organizations both at a national and international level, as well as with developmental agencies in the wider impact area of the motorway.
- Continuous communication with citizens and stakeholders: the results, reports, and generally the material produced by the Observatory is supplied to the public and interested agencies over the internet and through leaflets, events etc.



## 8.2. Evaluation of road traffic accident data in Western Macedonia.

<b>Project partner linked to the practice:</b>	Region of Western Macedonia	
<b>Organization responsible for the practice in the region:</b>	Technical Chamber of Greece / Department of Western Macedonia (stakeholder)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	x	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
		Economic and financial issues
	x	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	x	% Efficient connections in transport in the region.
		% Passengers using public transportation.
	x	% Increase of quality of life of the citizens.
	% Journeys undertaken by public and private travel or low energy vehicles.	

### Brief description of the practice:

This study aims to evaluate the Road Traffic Accident Data in Western Macedonia, in order to support the decision making process, in the field of Road Safety.

In general, Road Traffic Accident Data usage in Greece is limited to serve statistical purposes only, while its contribution in decision-making process is narrowed.

Taking these facts into consideration, road inspections of identified by statistical data black spots were accounted as a proper tool to manage the road accident data, and support the decision making process in the field of Road Safety. In order to implement the methodology, the whole region of Western Macedonia was chosen as a case study area.

(Notation: Only road accidents where damages (death and injuries) occur are registered by the Statistic Service of the Traffic Police).

Road Safety is considered as a significant topic world-widely, both at national and international level.

The consequences of Road Traffic Accidents are significant for the social, economic and political level of a city, a region or a country.

The efforts to address the problem, more or less systematically, aim to reduce the number of road accidents and the severity of their impact. An important step in this direction is to investigate the causes of accidents, and to identify possible differences according to the location of an accident.

Some of the strategies are common in many states, but it is clear that each country or region adapts and refines the above mentioned, based on the local characteristics, culture and needs.

The current study is evaluating the road safety of the national road network of the region of Western Macedonia in relation to the remaining regions of Greece for the period 2006-2010.

Black spots (hazardous road locations) are identified based on the available statistical data as well as based on inspection.

The study area concerns the entire national road network of the Region of Western Macedonia (secondary, tertiary) with a total length of 700 km throughout the regional units of Grevena, Kastoria, Kozani and Florina. Not studied are the central axis and the vertical axes of the Egnatia Odos (primary network), which are operated under the company's (called Egnatia Odos S.A.) responsibility.

The national road network of the Region was on-site inspected using portable GPS (ARCPAD software) having as a guide the black spots based on the statistical data and on the expert opinion of the working group. Particular attention was given to the network with increased traffic volume.

The total black spots (183 points) with geographical coordinates and corresponding photographic documentation of each inspection were recorded on a digital map of RWM (see pics below) using the ARCGIS program (version 9.3.1) and could be a useful tool - proposal to all public authorities and entities that have responsibility for road safety.

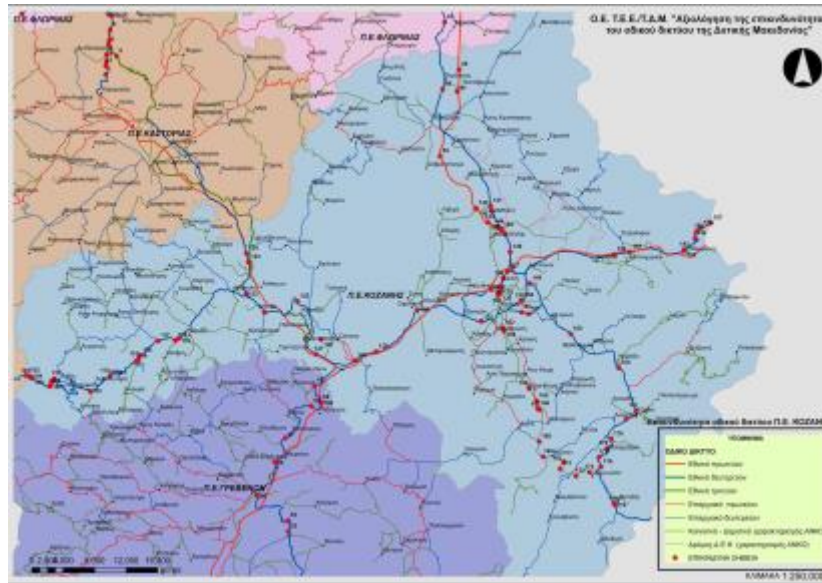


Figure 10. Digital map of Kozani Regional Unit.



Figure 11. Digital map of Region of Western Macedonia.

## **Main results:**

Identification of causation of increased rates of accidents:

- Conjunction with other roads.
- Direct access of adjacent commercial entities.
- National road (primary) passing through residential area.
- Geometrical characteristics of road (marginal road width, inclination etc.).
- Environmental characteristics (e.g. rock falls).
- Poor condition of road surface.
- Poor road maintenance (fixing potholes and cleaning drainage facilities, replacing missing traffic signs, guard-rails, road markings and other safety features essential to create a safe road network).

## **Lessons learnt:**

Useful tool for both policy makers, in order to target measures which will ensure the road safety of the users as well as for the users themselves who in the meanwhile will avoid black spots due to the information provided. The region gains:

- Environmental and health benefits (less injuries and fatalities because of less crashes, collisions and casualties, less damages in road network).
- Mitigate the impact on socio-economic aspects of road accidents (fatalities cost of injuries etc.)
- Best practice could be upgraded, taking into consideration:
- User of the road (driving culture and behaviour).
- Vehicle Safety Standards.

### 8.3. National Wildlife Observation Network.

<b>Project partner linked to the practice:</b>	Region of Western Macedonia	
<b>Organization responsible for the practice in the region:</b>	Association for the Protection and Welfare of Wildlife (Anima) NGO on national level	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
	<b>x</b>	Modal share
	<b>x</b>	Economic and financial issues
	<b>x</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>		% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
		% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
		% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	% Journeys undertaken by public and private travel or low energy vehicles.	

#### Brief description of the practice:

Every year, millions of wild animals are killed on Europe's roads. For every animal counted, many more die unnoticed.

In Greece, the National Wildlife Observation Network is developing new ways to prevent wildlife from being run over to protect both biodiversity and drivers.



Figure 12. General image of the practice.

Vehicles are a big threat to wildlife populations and biodiversity. Collisions can also cause serious accidents to cars and drivers.

Through the National Wildlife Observation Network, citizens can record any sightings of sick or injured wild animals they spot on their journey via their mobile phones or tablets. The incidents are uploaded into a database; better an electronic platform ([www.paratiro.gr](http://www.paratiro.gr)), which is used to track the causes and injuries of wildlife. The data can also be used to determine better accident prevention policies in the long term.

The initiative is run by the Association for the Protection and Welfare of Wildlife (Anima), and has received a grant of almost €50,000 from Iceland, Liechtenstein and Norway through the Greek NGO Programme.

In 2014 alone, Anima treated 3.600 injured animals, of which over 1.230 were injured in accidents, mainly occurring on the roads. Turtles, hedgehogs, foxes, martens and badgers are just some of the animals killed on the roads, mainly due to a lack of awareness on the part of the driver.

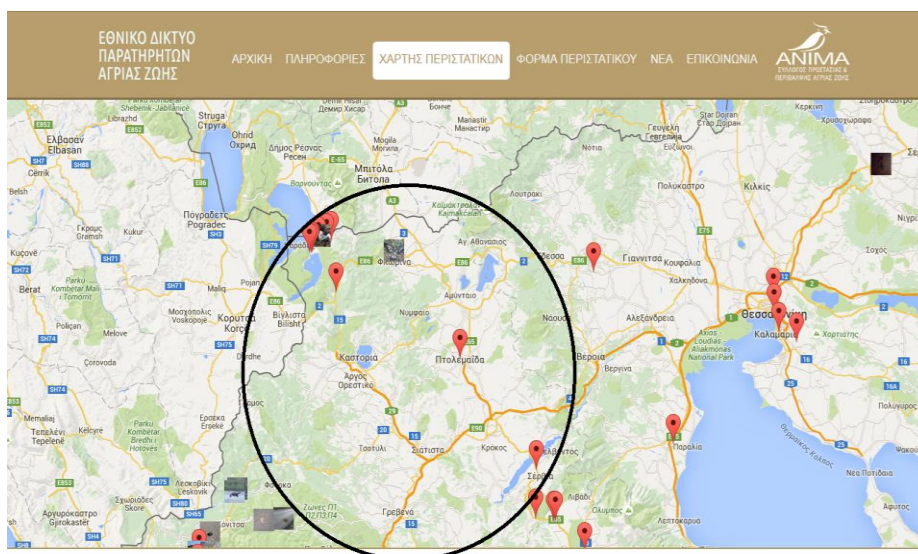


Figure 13. Map of incidents on the platform of the Network (circled is the Region of Western Macedonia).

ΕΘΝΙΚΟ ΔΙΚΤΥΟ ΠΑΡΑΤΗΡΗΤΩΝ ΑΓΡΙΑΣ ΣΤΗΣ

ΑΡΧΙΚΗ ΠΛΗΡΟΦΟΡΙΑ ΧΑΡΤΗΣ ΠΕΡΙΣΤΑΤΙΚΟΥ ΦΟΡΜΑ ΠΕΡΙΣΤΑΤΙΚΟΥ ΝΕΑ ΕΠΙΚΟΙΝΩΝΙΑ ANIMA

**ΦΟΡΜΑ ΠΕΡΙΣΤΑΤΙΚΟΥ**

Εάν η περίπτωση που διακρίνετε είναι τύπου που γεννιέται με κωμό ή άλλων ή βλάβη, τυφλότητα, "έλασση κορδέλας", στο μένιου που αναφέρεται για χρήση της τρέχουσας τοποθεσίας σας από τον ανιψιό ή τον αρσενικό ή σπανίως βλάβη.

Εάν η περίπτωση που θέλετε να αναφέρετε το περιστατικό σε ένα ζώο, από σφάλμα υπολογιστή, συμπληρώστε το στοιχείο της διεύθυνσης. Η νέα κατάσταση παραμένει πάντα ανοικτή μέχρι να γίνουν οι πληροφορίες που παρέχουν στην περιοχή που θέλετε να γράψετε και στη συνέχεια διατεί τον κωδικό κωδικό στην ομάδα ζώου του περιστατικού.

Map of Greece showing the location of the incident.

**Τοποθεσία \***

Εισάγετε Τοποθεσία  Εύρεση Τοποθεσίας

**Υπαρξη Φωτογραφίας \***

Ναι  Όχι

**Κατάσταση ζώου**

Επιλέξτε κατάσταση

**Χαρακτηριστικά Τοποθεσίας \***

Επιλέξτε...

Παρακαλώ διαλέξτε μία από τις παρακάτω ομάδες στην οποία μπορεί να ανήκει το ζώο \*

Επιλέξτε Ομάδα ζώου

Μπορείτε να αναγνωρίσετε το ζώο σε επίπεδο ΕΙΔΟΥΣ;

Ναι  Όχι

**Ημερομηνία**

Figure 13. Picture of the tool.

Data required by the platform for each incident are the following:

- Location with address.
- Condition of animal (dead or injured).
- Animal Group (reptile or amphibian, bird, mammal or domestic).
- Type of animal.
- Site Features.
- Date.
- Name and e-mail.

- Comments - other information.

### **Main results:**

- Insufficient animal crossing signs are a major cause of accidents.
- Accidents are also caused by the construction of major roads, which often cut across wild mammal habitats with no provision for any wildlife crossings.
- The general findings are:
  - Road accidents with wild animals are not limited to motorway traffic. The phenomenon is intense also on the roads with low traffic volumes, even in protected areas.
  - Accidents with animals do not depend on the vehicle speed, but on the driver's attention.
- Data reported (period mid-March 2015 – end of November 2015):
  - 330 incidents all over Greece.
  - 125 citizens or institutions reported.
  - 85% of incidents were dead animals.
  - 60% were accompanied by a photo.
  - 80% of incidents were at road accidents.
  - Animal group of all incidents reported: reptile 18%, amphibian 2%, bird 28%, mammal 48% and domestic 4%).

### **Lessons learnt:**

The project created a National Wildlife Observation Network by citizens who collect data on incidents of sick and injured wild animals in the whole Greek territory. This network also transports wild animals in need of care to ANIMA's facilities or to other organizations which operate an animal hospital in order to receive veterinary care. The network is based on the use of modern technology (smart phones) so that citizens can take photos of the incidents, record geographic data and commentary.

Indicative, some mitigation measures to modify traffic and/or driver behaviour are:

- Reduce Vehicle Speed, install Wildlife Warning Signs.
- Wildlife fencing with crossing opportunities: underpasses and/or overpasses.
- Long tunnels or long bridges.

Benefits for the community:



- Biodiversity conservation, with benefits for animals and humans along with financial benefits from the reduction of car accidents, etc.
- Impact on socio-economic aspects of road accidents.

## 8.4. Planning of waste transport/transfer of the Integrated Waste Management System of W. Macedonia.

<b>Project partner linked to the practice:</b>	Region of Western Macedonia	
<b>Organization responsible for the practice in the region:</b>	Waste Management Company of Western Macedonia (DIADYMA) S.A. (stakeholder)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
		Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
	<b>x</b>	Economic and financial issues
	<b>x</b>	Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
		% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
	<b>x</b>	% Efficient connections in transport in the region.
		% Passengers using public transportation.
	<b>x</b>	% Increase of quality of life of the citizens.
	% Journeys undertaken by public and private travel or low energy vehicles.	

### Brief description of the practice:

DIADYMA S.A. has the responsibility to organize waste management services at the region of Western Macedonia. It was founded in 1996 to serve the needs for Waste Management in the area, according to the Strategic Plan approved by the Regional Council in 1997.

The company's major task is to design, develop & operate the regional Integrated Waste Management System (IWMS) of Western Macedonia (12 municipalities, 300.000 residents).

The regional IWMS includes:

- Collection with special waste trucks.

- Transfer stations and large transshipment vehicles.
- Recovery and Recycling via a 4-bin system.
- Mechanical treatment and Recovery (future plant).
- Sanitary Landfill.
- Landfill restoration.

The implementation of the Intergraded Solid Waste Management System in the region of Western Macedonia (ISWM) consists of the procedures of reloading and transportation of solid wastes, of collecting and processing the recyclables and of the sanitary landfilling of non-hazardous wastes. Through these activities DIADYMA have gained valuable real time data about the quantity of each type of waste that enters the transfer stations and the Sanitary Landfill.

#### Present waste management system

The Region of Western Macedonia is designed around one regional site (Waste Management Centre - WMC). The WMC is located in the area of a former lignite mine and includes a Sanitary Landfill for non-hazardous waste and a Regional Recycling Facility. It should be noted that due to the fact that recyclables are separated at source (4-bin system), the Regional Recycling Facility is actually a large Temporary Storage facility, where all collected recyclables are processed (removal of any unwanted materials), baled (paper and plastics) and stored prior to their sale to end users.

In order to transfer waste or separated at source recyclables, a network of transfer stations is in operation that consists of 10 Transfer Stations: 4 in the Regional Authority of Kozani, 2 in Grevena, 1 in Kastoria and 2 in Florina. The transfer stations also serve as local facilities for the Temporary Storage of Recyclables coming from the various municipalities, prior to their transfer to the WMC.

The existing infrastructure for mixed waste includes:

- 6 day collection with municipal waste vehicles.
- 10 Transfer Stations.
- 1 Sanitary Landfill for non-hazardous residues.

The existing infrastructure for Recyclables includes:

- Source separation in (4) distinct bins for paper, plastic, glass and metals.
- 10 Local Temporary Storages for recyclables (for paper, plastic, glass and metals).
- One Regional Recycling Facility.

Collection vehicles for mixed waste and recyclables include:

- Waste Collection Vehicle with Press 16m<sup>3</sup>, 12m<sup>3</sup> and 8m<sup>3</sup>.
- The transportation of mixed waste from the network of Transfer Stations to the WMC is done with semi-trailers equipped with a compression system and a capacity of 36m<sup>3</sup>.

### Main results:

A best practice example related to regional mobility is the planning of waste transport/transfer of the Integrated Waste Management System of the Region of Western Macedonia, according to which, transfer stations have been distributed across the region with the aim of creating economies of scale that optimize transfer and transport while satisfying the principle of proximity within the Region (see aforementioned description).

Additionally, the pricing policy of waste management services have been adjusted to be equally shared by all the municipalities despite distance from nearest waste transfer facility, thus taking away the burden of increased costs for the most remote municipalities.

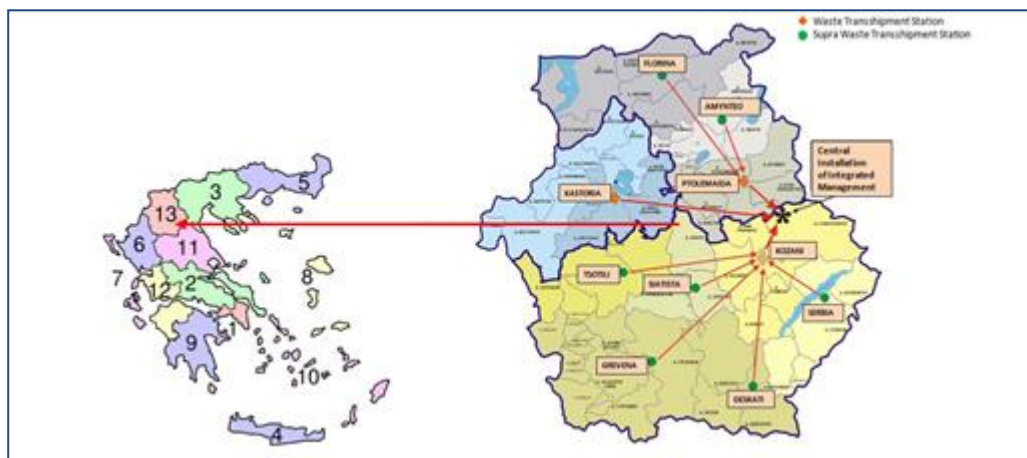


Figure 14. Integrated Waste Management System of W. Macedonia.

DIADYMA is owned by 12 municipalities and the company's main responsibility is to provide service of collection, post-collection treatment of household waste and treatment of commercial and industrial waste within these municipalities.

Municipalities set the level of fees for the acceptance of the waste. The fee is paid (on a bimonthly basis) by the households through their electricity bill as municipal fee, the so-called "fee for cleanness and lighting". This fee depends on the surface of the household, e.g. the fee is calculated as follows: surface X coefficient for each year (for the municipality of Kozani in 2009, it was 1.65 € for households and 6.50 € for other buildings). From this fee, both waste management and municipal lighting is paid. Industrial and commercial clients conclude a contract and pay the cost based on that.

### Lessons learnt:

Planning a network for waste transportation/transfer at regional level:

- Allowed for economies of scale to arise, which in turn assured a more economical financial plan for the system of waste management.
- Revealed the strong correlation between waste generation and cost for waste management as impacted by waste transport.

## 8.5. Green eMotion.

<b>Project partner linked to the practice:</b>	Region of Western Macedonia	
<b>Organization responsible for the practice in the region:</b>	Public Power Corporation (stakeholder)	
<b>Thematic coverage (TOPICS linked to the practice):</b>	<b>x</b>	Measures to coordinate transport services
	<b>x</b>	Location and characteristics of platforms for public transport
		Cycling routes and footpaths
		Mobility patterns between cities
		Modal share
	<b>x</b>	Economic and financial issues
		Dashboard and monitoring procedures
<b>Thematic coverage (INDICATORS linked to the practice):</b>	<b>x</b>	% Reduction of CO2 emissions associated to transport.
	<b>x</b>	% Municipalities involved in the implementation of the sustainable mobility plan.
	<b>x</b>	% Reduction of PM10 in the provincial capitals.
		% Efficient connections in transport in the region.
		% Passengers using public transportation.
		% Increase of quality of life of the citizens.
		% Journeys undertaken by public and private travel or low energy vehicles.

### Brief description of the practice:

The Green eMotion project was launched in March 2011 and ended in February 2015. The project had a total budget of €42 million and was funded by the European Commission with €24 million.

The consortium consists of forty-two partners from industry, the energy sector, electric vehicle manufacturers, and municipalities as well as universities and research institutions.

The project has defined and demonstrated a European framework that connects all stakeholders for a seamless and cost-efficient electromobility ecosystem.

The primary goal of the project is to define Europe-wide standards. To this end, practical research is being conducted in different demo regions (10) all over Europe with the aim of developing and demonstrating a commonly accepted and user-friendly framework that combines interoperable and scalable technical solutions with a sustainable business

platform. For the implementation of this framework, Green eMotion will take into account smart grid developments, innovative ICT solutions, different types of EVs, as well as urban mobility concepts.

The results of the Green eMotion project are presented under the following headings:

- Social acceptance.

To enable a mass roll-out of electromobility in Europe, social acceptance is a prerequisite. Social profitability in regards to actual benefits and costs for all players in the EV ecosystem may be reached soon.

However, major concerns of the customers are the costs and the range of EVs. Only with clear commitments from all levels of policymakers, from the municipality level to the national and European level, will a holistic and consumer friendly future mobility incorporating EVs happen.

Incentives and the installation of a suitable public charging infrastructure will be required. All measures should be aligned with the needs of target groups like commuters or owners of fleets to achieve a maximum impact with the lowest possible costs.

- Freedom of movement.

To allow convenient EV traffic throughout Europe, a standardised, interoperable electromobility system is required, creating new business cases and making investments future-proof. Green eMotion has defined the European ICT architecture that is needed to ensure a proper connection of all market participants. It will allow open and convenient access by EV drivers to public charging infrastructure.

The ICT systems of all participating companies are networked by means of a so-called marketplace. While users get easy access to charging infrastructure independent of the equipment operator, service providers can offer their services to all market participants. In addition, value-added services like reserving a charging point can make e-driving a more convenient experience.

- Economic challenges.

As the first EVs have appeared on the market, it becomes apparent that not only the costs of the car, but also the investments in the required infrastructure hinder a quicker upswing of electromobility. A major result of the Green eMotion project: While economies of scale must substantially lower the price of batteries in the coming years, public charging as a sole business case can only be profitable within such mid-term business scenarios if there are highly frequented charging stations. However, a combination with other services in places of high interest will improve the business case.

Costs for grid integration of charging infrastructure can be significantly reduced by intelligent ways of controlling the charging time and power.

For more information, visit [www.greenemotion-project.eu](http://www.greenemotion-project.eu)

There are currently some 2.000 electric vehicles operating in Green eMotion's 12 regions (10 demo regions and 2 replication regions), supported by 2.500 charging points.

One of the main achievements in Greece was the installation of a rural and urban charging infrastructure, consisting of 8 public charging posts in Kozani (Western Macedonia) and 7 public charging posts in Athens (Attica) and 15 leased EVs. Electromobility was a totally new experience in those cities and especially local authorities were invited to use the EVs. This direct experience will motivate the policy makers to support necessary actions for the further electromobility roll-out.

Greece's largest energy provider PPC (stakeholder in REGIO-MOB) was responsible for this pilot project.

In Greece, which was the main replication region, the Green eMotion project implemented a real greenfield installation of an electromobility system by replicating proven solutions from other demo regions. This covered charging infrastructure and the connection to the Green eMotion marketplace for roaming.

The Greek experience shows the need for stakeholder involvement at the earliest possible opportunity, avoiding possible setbacks and allowing the uniformity among activities, projects and tools.

Stakeholders involved in Kozani, Western Macedonia:

- Municipality of Kozani.
- Region of Western Macedonia.
- University of Western Macedonia.
- Technical Institute of Western Macedonia.
- Public Power Corporation (PPC).
- Hellenic Electricity Distribution Network Operator S.A.

### **Main results:**

The replication was focused on a selection of Green eMotion use cases: AC charging in big cities (Athens) and smaller ones (Kozani), alongside the integration of local demonstration into the general idea of wider EU framework (e.g. through the “search” and “roaming” services). In Greece within the timeframe of 1 year an electromobility initiative was initiated, 15 charging stations deployed and the local pilot was connected to Green eMotion wider framework, finally demonstrating some of the main Green eMotion products, such as Search, allowing customers to display charging stations from all EU on Green eMotion website and Roaming.

One of the main achievements was the installation of a rural and urban charging infrastructure, consisting of 8 public charging posts in Kozani and 7 public



charging posts in Athens and 15 leased EVs. By working on the installation, connecting it to the grid and operating public charging posts, obstacles were identified and solutions investigated.

The pilot project raised public awareness for the potential of electromobility and brought together the authorities responsible for the creation of the proper institutional frame. Next to successfully implementing roaming, the pilot project allowed addressing various practical issues and laid the foundations for easier implementation of future electromobility projects.

Other results in a nutshell:

- The objective of the Greek pilot – a start-up of e-mobility in Greece with public charging posts – was successfully achieved.
- Regulatory issues in combination with public awareness should be addressed in order to assist the implementation of e-mobility.
- Roaming and smart charging also investigated in the project provided valuable information which must be further investigated to form a possible business case.

#### **Lessons learnt:**

- There is a small number of EV owners in Greece.
- Economic crisis and lack of incentives are not supporting a mass EV market, even if the first signs are quite promising.
- Neighbourhoods in the same city with quite different social and economic profile meaning geographical differentiation in EVs' diffusion (applies to large cities like Athens, and not to Kozani, which is a medium sized city).
- Most of the Greek cities have traffic congestion issues, providing sometimes unexpected travel delays.
- Local authorities unable, due to financial or technical reasons, to invest in charging post networks.
- Private investors look for a minimum number of EV customers to support a sustainable investment.
- A chicken-or-egg problem between EV diffusion and charging post availability.
- In order to support e-mobility in Greece, a combination of the two models is proposed, thus providing the necessary confidence to potential EV owners leading to increase the EVs' number, permitting thus, private investments in a stable market with open competition.

- A main charging station backbone-network will be implemented upon certain criteria according to the DSO\* model (by the DSO or with the DSO participation) as part of the regulated grid asset.
- Private market players should have the possibility (according to predefined rules and licenses) to install public charging stations in the area of their interest, which assure their investment's sustainability.
- The backbone-network's owner – operator (DSO or with DSO participation) will provide an open platform permitting multi-vendors use of the charging stations' network in a not discriminatory way for all e-mobility service providers.
- These could be either companies owning their own network according to the integrated market model or e mobility service providers holding a contractual relation with an electricity supplier and no ownership of charging stations.

\*Distribution System Operator (DSO)



Figure 15. Charging station with EVs.



Figure 16. Charging card.

## 9. ANNEX: CONTRIBUTORS AND ORGANIZATIONS CONSULTED

### In Italy:

- Pomos.
- Regione Lazio.
- GAL dei Castelli Romani e Monti Prenestini.
- Lazio Innova S.p.a.
- ESRI Italia.
- ENE-Unità Tecnica per l'Efficienza Energetica.
- RAI-Club Dirigenti Tecnologie dell'Informazione di Roma.
- Comune di Velletri.
- Comunità Montana Castelli Romani e Prenestini.
- ANFELMA S.r.l.s.
- Comune di AlbanoLaziale.
- Comune di Ariccia.
- Comune di Artena.
- Comune di Castel Gandolfo.
- Comune di Castel San Pietro Romano.
- Comune di Cave.
- Comune di Colleferro.
- Comune di Colonna.
- Comune di Frascati.
- Comune di Genazzano.
- Comune di Galliciano nel Lazio.
- Genzano di Roma.

- Comune di Grottaferrata.
- Comune di Labico.
- Comune di Lanuvio.
- Comune di Lariano.
- Comune di Marino.
- Comune di Montecompatri.
- Comune di Monte Porzio Catone.
- Comune di Nemi.
- Comune di Palestrina.
- Comune di Rocca di Cave.
- Comune di Rocca di Papa.
- Comune di Rocca Priora.
- Comune di San Cesareo.
- Comune di Valmontone.
- Comune di Zaragolo.
- Agenzia Turistica Incoming.
- Dimensione Transporti.
- DMO Castelli Romani. Consorzio SBCR.

**In Spain:**

- Federación Andaluza Empresarial de Transporte (FANDABUS).
- TUSSAM.
- EMT Málaga.
- Metro de Sevilla S.A.
- Metro de Málaga S.A.
- Red de Consorcios de Transporte de Andalucía.

- Consejería de Fomento y Vivienda.
- Consorcio de Transporte Metropolitano del Área de Sevilla.
- Consorcio Metropolitano de Transportes de la Bahía de Cádiz.
- Consorcio de Transporte Metropolitano del Área de Málaga.
- Consorcio de Transporte Metropolitano del Área de Granada.
- Consorcio de Transporte Metropolitano del Campo de Gibraltar.
- Consorcio de Transporte Metropolitano del Área de Almería.
- Consorcio de Transporte Metropolitano del Área de Jaén.
- Consorcio de Transporte Metropolitano del Área de Córdoba.
- Consorcio de Transporte Metropolitano de la Costa de Huelva.
- Unión de Consumidores de Andalucía (UCA).
- FACUA-Consumidores en Acción.
- Ecologistas en Acción.
- Andalucía Inclusiva (Confederación Andaluza de Entidades de Personas con Discapacidad Física y Orgánica).
- Asociación Ciclista “A CONTRAMANO”.
- Sindicato Unión General de Trabajadores (UGT).
- CCOO de Andalucía.
- Ingeniería, Investigación e Innovación para Internet S.L. (I3NET).
- GMV SISTEMAS SAU.
- NEX CONTINENTAL HOLDING S.L.U. (Explotadora Estación Autobuses Sevilla-Plaza de Armas).
- DAMAS S.A. (Explotadora estación Autobuses Huelva).
- Universidad de Granada.

### **In Poland:**

- Marshal Office of the Malopolska Region (Department of Transportation and Communications).

- Marshal Office of the Malopolska Region (Department of Regional Policy).
- Association of Metropolitan Krakow.
- Krakow City.
- Wieliczka Municipality.
- Road Management District in Wieliczka.
- Bochnia City.
- Bochnia District Governor's Office.
- Klaj Commune Office.
- Lesser Malopolska Railways.
- Private Carrier Minibuses "MAT-POL".
- The Management of Municipal Infrastructure and Transport in Krakow.
- Gdow Commune Office.
- Biskupice Commune Office.
- Skawina Municipality.
- MAN Trucks Company from Niepolomice Investment Zone.
- Woodward Polska Company from Niepolomice Investment Zone.

### **In Slovenia:**

- RS Ministrstvo za infrastrukturo / Ministry of Infrastructure of Republic of Slovenia.
- Mestna občina Ljubljana (MOL) / Municipality of Ljubljana.
- ZRC SAZU (Znanstveno raziskovalni center Slovenske akademije znanosti in umetnosti) / Research Centre of the Slovenian Academy of Sciences and Arts.
- Razvojni center Novo mesto d.o.o. / Development Centre Novo Mesto.
- BSC, Regionalna razvojna agencija Gorenjske, Poslovno podporni center, d.o.o., Kranj / BSC Regional Development Agency of Gorenjska.
- Institut Jožef Štefan / Institute Jozef Stefan.
- Slovenska kolesarska mreža / Slovenian Cycling Network.

- Občina Borovnica /Municipality of Borovnica.
- Razvojni center Murska Sobota / Development Centre Murska Sobota.

### **In Greece:**

- Technical Chamber of Greece - Department of Western Macedonia / Τεχνικό Επιμελητήριο Ελλάδος / Τμήμα Δυτικής Μακεδονίας.
- Waste Management Company of Western Macedonia (DIADYMA) S.A. / Διαχείριση Απορριμμάτων Δυτικής Μακεδονίας (ΔΙΑΔΥΜΑ) Α.Ε.
- Western Macedonia Development Company / Αναπτυξιακή Δυτικής Μακεδονίας (ANKO) Α.Ε.
- Chamber of Commerce and Industry of Kozani / Εμπορικό και Βιομηχανικό Επιμελητήριο (ΕΒΕ) Κοζάνης.
- Traffic Police of Kozani -/ Τροχαία Κοζάνης.
- Municipality of Kozani / Δήμος Κοζάνης – Διεύθυνση Τεχνικών Υπηρεσιών.
- Egnatia Motorway S.A. – Regional Department of Grevena / Εγνατία οδός Α.Ε. - Περιφερειακή Υπηρεσία Γρεβενών.
- Regional Association of Municipalities of Western Macedonia / Περιφερειακή Ένωση Δήμων Δυτικής Μακεδονίας (ΠΕΔ ΔΜ).
- Public Power Corporation (PPC) S.A.– Sector of Civil Engineer Works of the Lignite Centre of Western Macedonia / ΔΕΗ Α.Ε. Τομέας Έργων Πολιτικού Μηχανικού ΛΚΔΜ.
- Regional Federation of Disabled of Western Macedonia / Περιφερειακή Ομοσπονδία ΑμεΑ Δυτικής Μακεδονίας.
- Ειδική Υπηρεσία Διαχείρισης του Επιχειρησιακού Προγράμματος Περιφέρειας Δυτικής Μακεδονίας (ΕΥΔ ΕΠ/ΠΔΜ) / Managing Authority of the R.O.P. of Western Macedonia.

### **In Romania:**

- Dolj County Council.
- Gorj County Council.
- Mehedinti County Council.
- Olt County Council.
- Valcea County Council.

- Craiova City Hall.
- Bailesti City Hall.
- Caracal City Hall.
- Targu Jiu City Hall.
- Motru City Hall.
- Drobeta Turnu Severin City Hall.
- Orsova City Hall.
- Slatina City Hall.
- Bals City Hall.
- Ramnicu Valcea City Hall.
- Dragasani City Hall.
- Craiova Metropolitan Area.
- Management Authority for ROP.
- Mechanics Faculty, Transport Engineering Specialization.
- Airport of Craiova.
- Regional Direction for Road and Bridges Craiova.
- Transport Administration of Craiova (RAT).
- Railway administration Craiova (CFR).
- Dorothy – Urban Logistic Cluster.
- Softronic – transportation.
- Dumagas Transportation.
- SC Reloc SA.
- Ford Craiova.

**In United Kingdom:**

- City of Edinburgh Council.



- First Group (Regional Bus operator).
- Stagecoach Bus.
- Edinburgh Airport.
- Sustrans.
- SESplan.
- TRI Napier.
- Midlothian Council.
- Road Haulage Association.
- Fife Council.
- Falkirk Council.
- Scottish Borders Council.
- Transport for Edinburgh.
- Lothian Buses.
- Abellio/Scotrail.
- Rail Freight (David Spaven, Consultant).
- NHS Lothian.
- NHS Forth Valley.
- Transport Scotland.
- Clackmannanshire Council.