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Promotion & Dissemination Projects

Electric **C**ity **Tra**nsport – Ele.C.Tra

D.2.1. Report on Current mobility and network for Suceava, Romania

Project Co-funded by the Intelligent Energy Europe Programme of the European Union

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Work Package 2	ANTE-OPERAM ANALYSIS
Task:	Demand mobility flows; Infrastructural and service network
Scientific Coordinator:	Genoa
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Electric **C**ity **Tra**nsport – Ele.C.Tra.

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Abstract:

This document contents a summary about current demand flows, surveys results, infrastructural and transport services network for the city of Suceava, in consistence with the survey model and in order to highlight sustainable mobility issues and benefits.

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1. Introduction

In Romania, the policy in the transport field aims at permanently getting the national transport system in line with the principles of the Community Transport Principles defined in the White Paper of transport and with Romania's sustainable development requirements.

The White Paper on transport policies (published in 1992 and amended in 2006) defines a series of community and EU policies in view of launching/ continuing the process which can lead to a sustainable transport system and which is to be reached within 30 years. According to the principles stipulated in the European Sustainable Transport Strategy, *a sustainable transport strategy should face intense traffic and increased traffic congestion, noise and pollution and should support modes of transport which are less aggressive to the environment, while internationalizing social and environmental costs.*

The objectives considered in view of observing transport policies are as follows[1]:

- Undergoing a balanced transfer towards green modes of transport, in view of setting up sustainable mobility and transport system;
- Modernizing the European public passenger transport services framework in view of improving efficiency and high-performance.

In consideration of the national, regional and local strategic documents, the development of Public transportation should meet the requirements of the following documents:

- 2007-2013 and 2020, 2030 Sustainable Transport Strategy;
- 2007-2013 National Development Plan;
- 2011-2020 National Road Safety Strategy;
- Traffic Survey in Suceava Municipality;
- Suceava's 2009 – 2015 Local Sustainable Development Strategy.

2. Mobility and infrastructure in Suceava, Romania

2.1. Public transport

The main operator of the public transport activities in Suceava Municipality is the company Public Local Transport SA (SC TPL SA) – the concessionaire of the local public transport, which was transferred the right to use the buses procured by the municipality.

The vehicle fleet of SC TPL SA is made up of:

- 30 buses;
- 10 minibuses used for local transportation.

The overall length of the routes corresponding to public transport in 2013 is de 127 km.

[1] Communication for the European Council and Parliament regarding the Sustainable Development Strategy, Bruxelles, December 2005

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SC TPL SA provides 12 routes connecting all municipal quarters, in accordance with the needs and requests of the passengers. 400 trips are provided daily, between 0.00 and 24.00 hours. The time span for these trips is 4 minutes for route 4 and 45 minutes for route 30.

The map of Suceava's public transport is set out in the figure below:

The data provided by SC Transport Public Local SA Suceava (TPL) shows the interest of the company to enlarge the vehicle fleet, to build a repair and maintenance hall for the vehicle fleet, to implement a new system of ticket purchase and validation by means of automatic machines.

The local public transport development in Suceava Municipality is set out in the table below[2]:

Year	Vehicle fleet	No. of routes	No. of stations/ stops	No. of passengers
2005	7 trolley-buses ROCAR	3	28	4,720,184
	10 buses ROCAR (non euro)	3	32	
	7 minibuses VW – LT35 - 2001	4	17	
2012	30 buses IVECO – EURO 3	8	43	19.154.052
	10 minibuses VW – LT 35	4	17	

[2] SC TRANSPORT PUBLIC LOCAL SA Suceava

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Until 2005, 7 trolley-buses were used in the public transport but, because of their age, the lack of investments in new transport vehicles (trolley-buses) and because capital electric network repairs were needed for this type of transport, it was abandoned. The lack of investments in the wired network for the trolley-buses made this mode of transport inoperable in terms of cost-efficiency and passenger safety. In 2005, the electric trolley-bus network included 6640 meters of copper cable, 3300 meters in one direction and 3340 in the opposite direction.

The annual average usage coefficient of the vehicle fleet is 95%[3].

Local public transport[4] observes the following key principles:

- Continuity: it cannot be interrupted and it has to uninterruptedly satisfy public interests;
- General common interest, which has to prevail to the private interest;
- Social utility service;
- It is under local public administration management.

The local transport service is influenced by several factors:

- Increased urban area;
- Increased number of cars;
- Stagnating economic development in most of the areas, as well as reduced employment;
- Increased percentage of "poor" population (unemployed, retired etc.).

Due to these factors, trips are dimensioned according to social need, as the local transport has to meet the demand according to the interval between two trips and not according to the used or preset capacity, irregardless of time or day, working day or holiday.

The public transport timetable was approved for each route by Decision of the local council and in included in the annex to the service management assignment contract.

[3] Transport survey in Suceava Municipality, Public passenger transport – public transport routes
[4] Local public transport regulations in Suceava Municipality

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2.2. Private and commercial road transport

According to the records of the Community Driving License and Vehicle Registration Department, within the Suceava County Prefecture, in Suceava Municipality 39,169 vehicles were registered, out of which 28,258 by natural persons and 10,911 by legal persons, by the end of 2012.

The statistics of the private vehicle fleet is set out in the table below:

Type of vehicle	Overall number	Out of which natural persons
Cars	31295	26099
Minibuses	187	14
Buses	97	1
Vans and pick-up vans	4287	1003
Pick-up trucks	326	136
Middle-sized trucks	401	34
Fire engines	102	2
Lorries (heavy trailers)	185	5
Works powered cars	2	0
Auto tug-boat	2	0
Caravan cars	4	1
Special vehicle	148	20
Tractors	172	41
Motorcycles	365	311
Mopeds	54	6
Scooter	1	1
Total motor vehicles	**37628**	**27674**
Dolly-trailers	995	518
Special Dolly-trailers	76	60
Agricultural or forestry Dolly-trailers	1	0
Slow Dolly-trailers	3	0
Semi-trailers	466	6
TOTAL TRAILERS	**1541**	**584**
TOTAL VEHICLES	**39169**	**28258**

At present, 10,550-m bicycle track crossing the town is being set up.

2.3. Parking management

The main public parking in Suceava Municipality (on the public domain) numbers **823 parking spaces, out of which 2 underground parkings**:

Underground parking 1 - city center	**108 spaces**
Underground parking 2 - city center	55 spaces

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2.4. Transport infrastructure

Suceava's street network is radial, including 5 main directions (DN 2- towards Bucharest and Siret; DN 29 – towards Botoşani; DN 29A – towards Dorohoi; DN17 – towards Vatra Dornei).

As a result of extremely high motorization followed by dynamic and stationary traffic, changes occurred in the structure of the social-economic traffic-generating parameters, the traffic faces more and more difficulties. It was acknowledged that the existing traffic regulations are no longer adequate to the present needs.

Due to current and future road traffic needs, a smooth development of Suceava Municipality includes, as priority elements, providing the necessary elements for a correct sizing of the significant street network and of the main traffic devices, as well as elaborating the traffic details for some special-interest road junctions in view of fluidizing road traffic and enhancing traffic safety.

Following the extremely high level of motorization (approximately 360 vehicles per 1,000 inhabitants) and therefore of the 3 traffic categories: internal, entering and transit, the traffic is increasingly difficult.

Transiting and entering Suceava, as well internal traffic is mostly by road, which leads to crowded traffic on municipal streets.

Surveys on the street network configuration and on the routes used by vehicles to cross Suceava Municipality found that the transiting traffic mostly uses the street network crossing the central area (downtown).

The increased number of vehicles, increased mobility, more trips taken within the municipality, absence of parking lots, polluting transit traffic, are issues which determined the local administration, namely the specialized departments, to initiate an analysis to back up the need and the convenience of a traffic survey.

Based on Suceava's traffic survey, which shows the deficiencies related to the municipal road traffic, the elaboration of an action plan which to include programmes and projects aiming at reducing or stopping problems in connection with the street network, the parking lots and the local public transport was attempted.

Transportation needs:

- Changes made to turn 4th category streets into 3rd category streets;
- Rehabilitation of 3rd category streets infrastructure, their road systematization and arranging;
- Reinforcing the carriageway by casting an asphalt sheet appropriate to the intense road traffic in the area;
- Unitary carriageway and walkway along the main street;
- Coherent road systematization;
- Rehabilitation of access to and from secondary streets;
- Enlarging and modernizing streets to provide increased accessibility;
- Rehabilitation of streets, setting and systematizing crossroads;
- Measures to avoid crowded traffic and decongesting traffic in Suceava Municipality;

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- Introducing green light system on the main street so that it generates low traffic time and more safety for the traffic participants;
- Introducing one-way streets to fluidize traffic;
- Remaking road signs to fluidize traffic and to protect pedestrians upon crossing the street;
- Identifying locations/ areas for setting up bicycle lanes;
- Raising public awareness on the beneficial effects of cycling and on specific road regulations;
- Setting up bicycle route/ network between various urban places and encouraging spending time on this activity;

Parking lots needs:

- setting up parking lots in the main residential areas;
- setting up parking lots for heavy vehicles at the entrance into the municipality;
- building underground or/ and above ground parking lots which makes possible the release of the above ground space of the large number of parked cars and / or which transit the central area of the town;
- **The traffic survey in Suceava Municipality** is highly important to substantiate urban development and planning proposals and is the basis to optimize technical economic solutions for the road infrastructure and public transport investment projects.
- The traffic survey in Suceava Municipality proposes various solutions to decongest the traffic. One of these solutions is encouraging cycling, which is beneficial for the environment as well as for the road infrastructure.

2.5. Mobility

Suceava Local Action Plan was developed as a strategy to promote and implement electric vehicles and charging infrastructure in the city and it plans activities for the development of communication campaigns with citizens to initiate development of a market for electric vehicles and put into practice favourable legislative measures and mechanisms that can help overcome financial barriers which are in the way of implementing electric transportation.

Suceava Local Action Plan has as objectives:

1. Stimulate the use of EV by creating a charging infrastructure, installing charging points in public and private car parks;
2. Planning the implementation of a specific EV operation system;
3. Implementing electric vehicles in local public transport for at least 85% of the total capacity and incentives to use local public transport electrical means;
4. Promoting the use of EVs among public institutions by buying EVs for Suceava City Hall;
5. Introduction of electric transport in urban transport services by taxi in 15% of the total authorized transport means;
6. Promote legislative and financial measures favourable to the purchase and use of EVs in order to stimulate electric transport in the private sector;
7. Support public and private investments in sustainable energy to create EV charging facilities in the public sector from renewable energy sources;
8. Public information of citizens on environmental education and use of EVs, alternative transport means, e.g. roller skates, bicycles, electric bicycles.

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SEAP's energy efficiency indicators in mobility area are:

-21.325,2 t CO_2

- 19% of the impact = - 5,45% of the total

Mobility is a crucial sector for the municipality of Suceava which is set on the main way to Ukraine and Moldova. The action regarding mobility has to be developed through many different measures targeted to all the stakeholders.

Besides the infrastructural interventions which involve the construction of a city belt, the enlargement of the main streets adding lanes, the creation of bicycle paths and the optimisation of the public transport, **the main measure regards the promotion of electric vehicles; the switch to electricity to fuel the transport sector is due to many reasons mainly connected to the possibility of producing the power needed by renewable energies in a way that the transport in the city centre will be less pollutant and noising.** To enhance this change the municipality is going to provide the recharging network and to give a good example buying EV for its employees' trips, for the street cleaning, waste collection, etc and giving subsidies to those who decide to use EV (free parkings, cheap recharge, permission to enter in the restricted areas,…)

PROJECTS UNDERSTAKEN IN THE TRANSPORT SECTOR:

- "Accessible and ecologic transport for local community health" – CATCH (Clean Accessible Transport for Community Health) (2002 – September 2005);
- "Reduced pollution due to road traffic" – AlterEco (September 2000 – September 2002);
- "European towns for the third Millenium" – PLUME (November, 8th 2002 – May, 8th 2005);
- „ On-line information management on road traffic and transport";
- „Pollution level monitoring";
- "CIVITAS - SMILE – Ecologic alternatives for Europe's towns sustainable development" (February, 1st 2005-2009);
- "MIDAS – "Measures to Influence transport Demand to Achieve Sustainability" - March 2006 – February 2009;
- Project "EVUE – Electric means of transport in Europe's urban areas" (November, 24th 2009 – May, 24th 2010 – Phase 1; 19.-7.2010 – 2013 – Implementation phase);
- Streets, bridge and passage way rehabilitation, parks modernization and setting up public transport modular stations in Suceava Municipality (2010 - 2012);
- Rehabilitation of the central area (downtown) of Suceava Municipality, by means of setting up underground parking lots, rehabilitation of walkways and carriageways

Estimated medium-term actions (2013-2020)

Projects	Indicators
Inter-urban public transport system	4 % reduced urban road traffic; 12 % increased number of passengers using public transport; 2 % reduced CO_2 emissions; 0.5 % reduced unemployment.
Electro-mobility – electric vehicles for a „green" municipality	18 purchased electric vehicles 30 purchased charging points 1 charging infrastructure Approximately 60 specially-arranged parking spaces

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3. Survey results

In the project Ele.C.Tra - "Electric City Transport", for the European program IEE (Intelligent Energy Europe), SC RELIANS CORP SRL, in collaboration with the subcontractor GfK Romania, has conducted a survey in Suceava Municipality with a view to analyzing the movements and the main means of transport used by locals and tourists in the city of Suceava.

The survey was focused on mobility behaviours and needs by involving car, motorcycles and public transport users, during the whole working day, and tourists. The Survey was realized paying attention to specific characteristics of Suceava city and was organized according to the Survey Operative plan, which indicates methodology, hours and places.

The survey was conducted between 30 of September and 09 of October 2013.

3.1 Target

The target population was:

- Suceava residents, users of cars, motorcycles and public transport;
- Romanian and foreign tourists which are in the city with the visit purpose;
- Age quotas: maximum 10% under 16 y.o., 40% between 16-35 y.o., 40% between 36-55 y.o., 10% over 55 y.o.

Taking into consideration the size of the city, 86.282 inhabitants at present, 470 interviews were conducted.

Sample size:

	Proposed	Achieved
Residents	**405**	**456**
Romanian and Foreign Tourists	**45**	**14**

The challenge was to achieve the *Romanian and foreign tourists quota*. The reasons for such a low rate of interviews conducted with tourists is listed below:

1. *The hotel Zamca, Continental, Imperium, Sonnenhof* – were not accommodated tourists during this period, all persons were in the area for work, business or other purposes than visiting the city (e.g. wedding guests);
2. Hotels receptionists replied that this period is not an appropriate one for visiting Suceava, the most appropriate season being the summer;

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3. Royal Inn is an ethnographic museum and there were no tourists during the survey period, most of the museum visitors were students/ pupils from Suceava.
4. The 14 questionnaires with tourists were conducted in the Monastery of St. John in downtown Suceava.

3.2 Data collection

Data for the surveys was collected from direct interviews in the street**, face to face interviews conducted using TAWI (Tablet Assistant Web Interview) methodology.**

3.3 Places of interviews

Data collection for residents was done in various neighbourhoods of Suceava, to cover all areas:

a) City center;
b) Stefan cel Mare University;
c) Obcini area;
d) Burdujeni Area;
e) City Hall area;
f) Zamca area;
g) George Enescu area;

Data collection for tourists:

a. Monastery of St. John.

3.4 Questionnaire

Average questionnaire length: 20 minutes

Received from the Relians and improved by GfK Romania

3.5 Key findings – RESIDENTS

<u>Who they are and where they go?</u>

- The average age is around 35 years old;
- 42% being employed with personal yearly income under 20,000 EUR;
- They are residents from Suceava;

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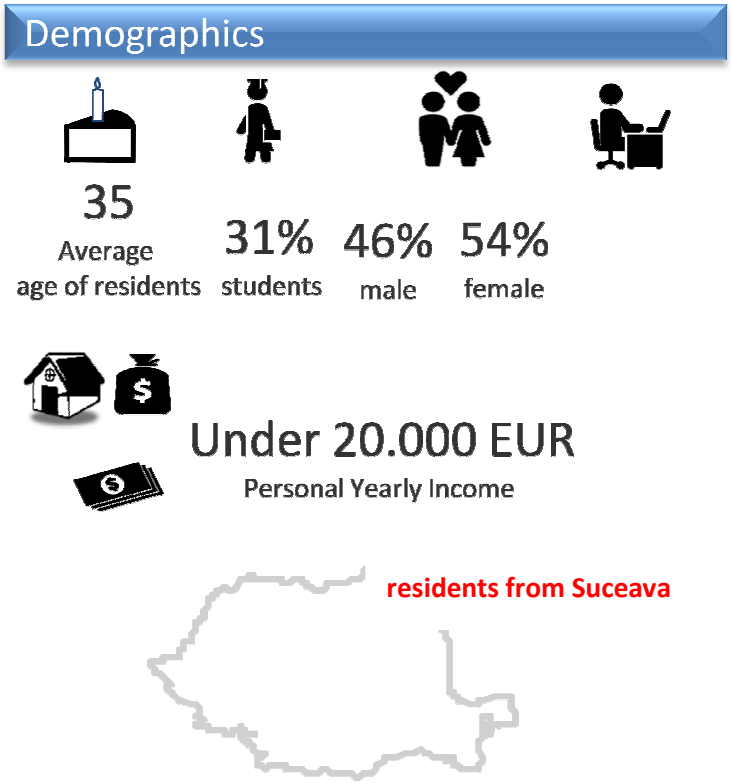

- Overall **more than half of the target population use the public transport and walking as a mean of transporting;**
- 60% of those who use the public transport they use it daily while 94% of those who use walking as a mean of mobility use this variant daily;
- **Almost all residents use the same mean of transporting no matter the season probably because they have limited options for transporting;**
- When thinking about most common trips that took longer than 5 minutes **the main purpose is the daily routine (work, shopping, school, visit).**

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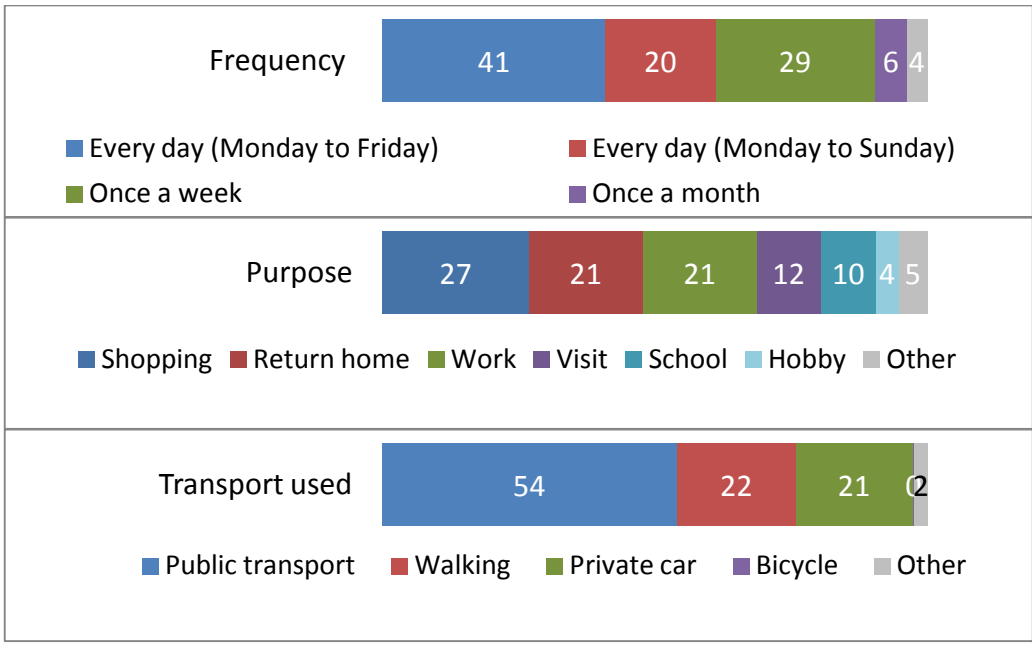
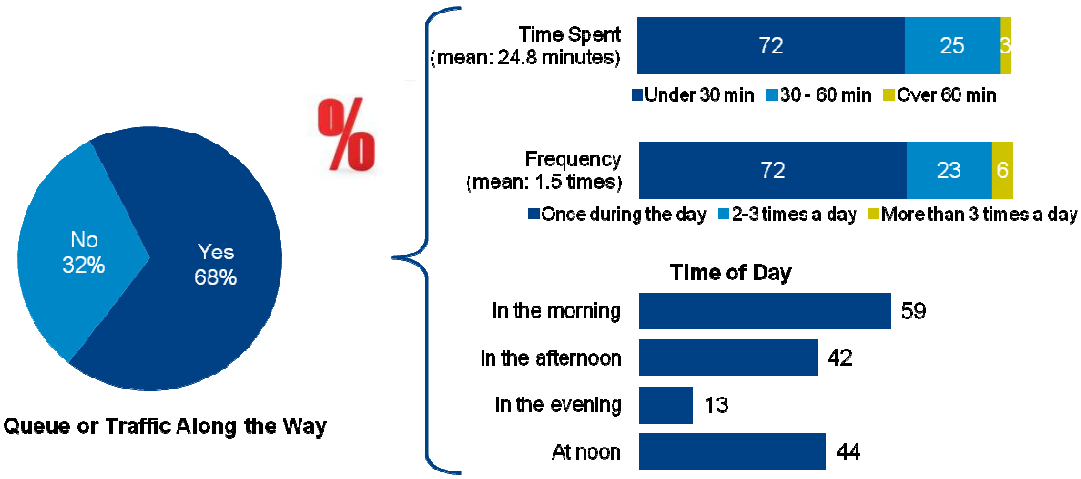


What they use?

- **The main disadvantage perceived when travelling in Suceava is the traffic.** 7 out of 10 residents meet queue along the way and spend on average 25 minutes in traffic at least once during the day, most often in the morning;



- Even if 4 out of 10 considered that the public transport is usually crowded **the quality price ratio for one ticket is considered by 61% of the target population as being correct.** The economic advantage and the lack of a car determine 8 out of 10 residents to use the public transport;

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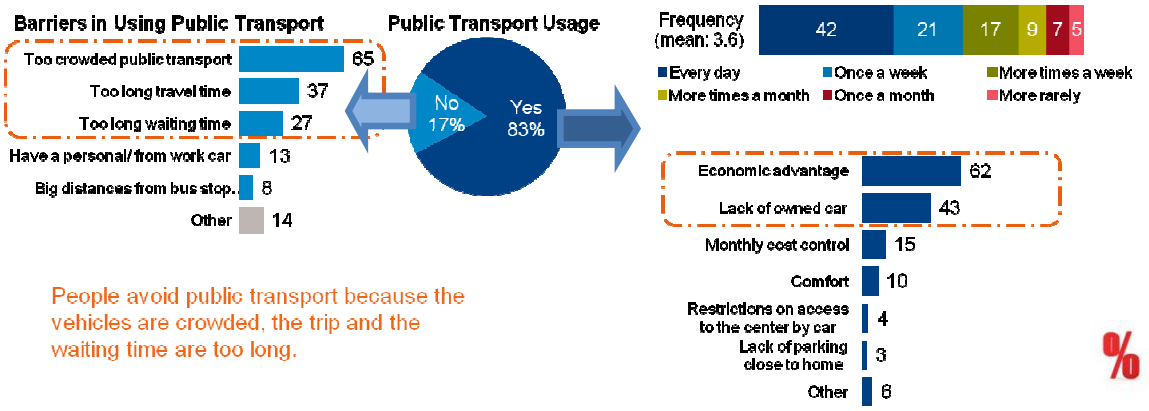
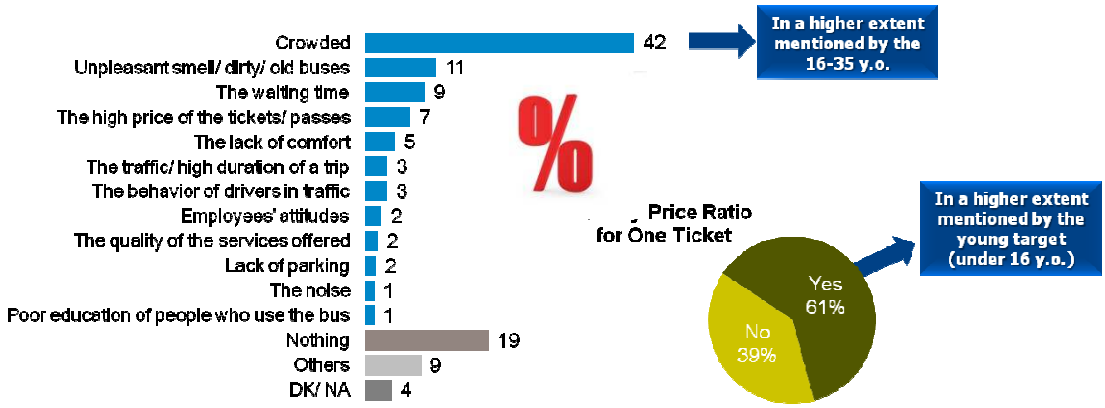


People avoid public transport because the vehicles are crowded, the trip and the waiting time are too long.

Surprising the quality price ratio for one ticket is considered by 6 out of 10 respondents to be the correct one, even if 4 out of 10 respondents mentioned that they disliked the fact that the buses are crowded.



- Taxi is not considered as an important mean of transporting as people use it only on special occasions, on average once a month;
- Around 3 out of 10 respondents possess a car or a bicycle. On average they drive 25 km by car and 5 km by bicycle. Motorcycle/ scooters have very low penetration as only 3% of the respondents possess such a vehicle.

Most frequent means of transporting are the public transport and the walking as around 6 out of 10 respondents mentioned it. The private car is used by 3 out of 10 residents

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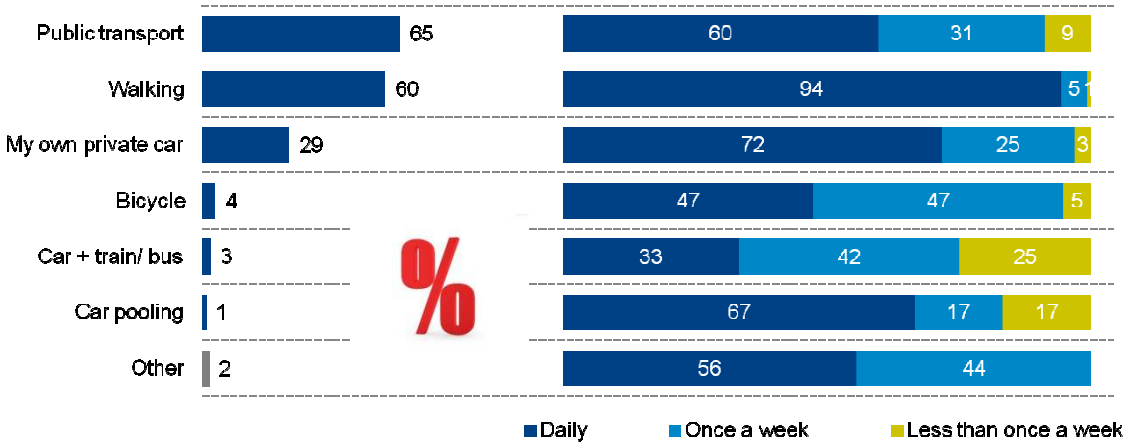
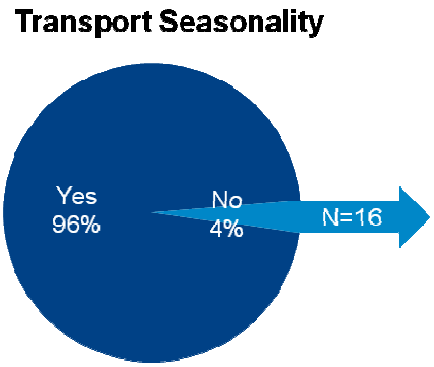


Almost all residents use the same mean of transporting no matter the season probably because they have limited options for transporting



Transportation Mean Used by Season	Counts
Public transport	9
My own private car	5
Walking	3
Car pooling	1
Other	2

Barriers Regarding Transport in Suceava in General (%) - Half of respondents mentioned as a main usage barrier for transport in general the traffic. The next barriers are the crowded buses and the lack of parking places.

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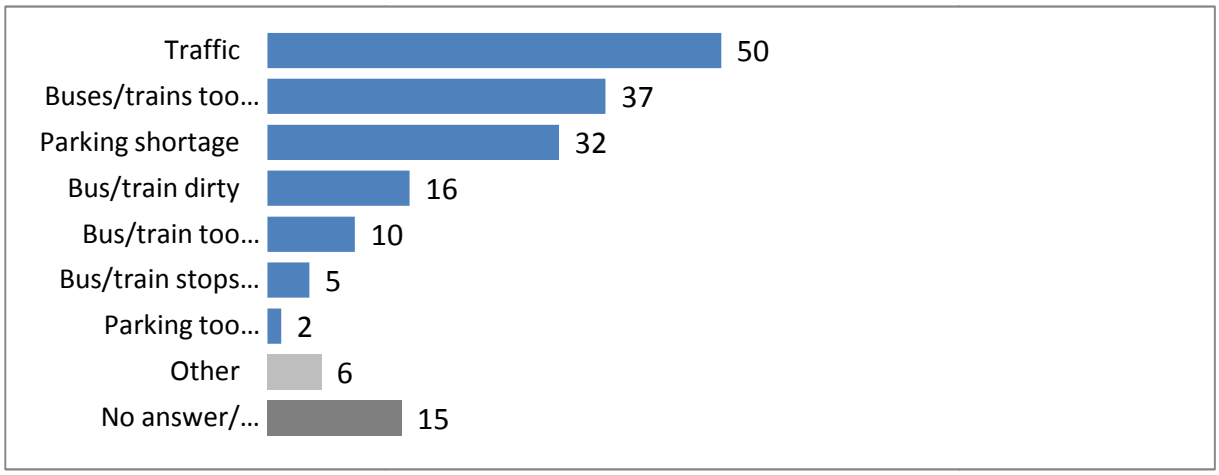
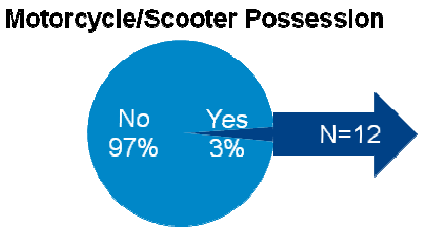
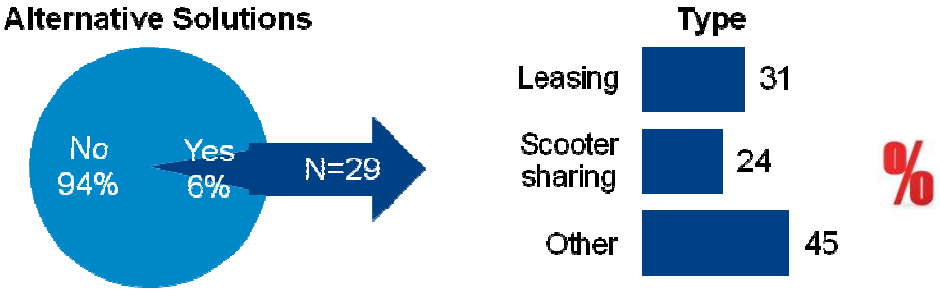


Motorcycle/Scooter Possession and Alternative Solutions - is rather low. 97% of the respondents did not have any of these types of vehicle



No. of Motorcycles/Scooters Possession	Counts
1	11
2	1

No. of KM Driven Daily	Counts
0	3
2	1
4	1
5	1
10	2
15	1
20	1
25	1
30	1



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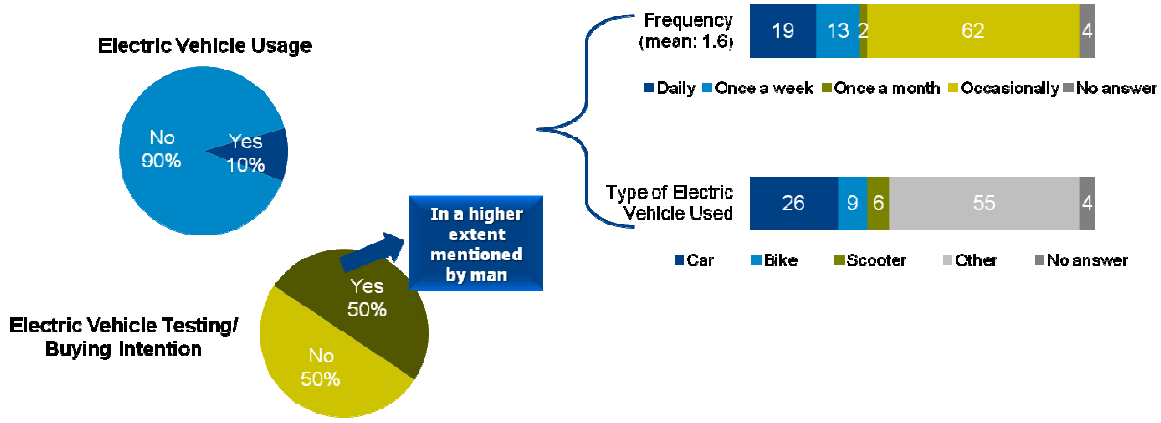
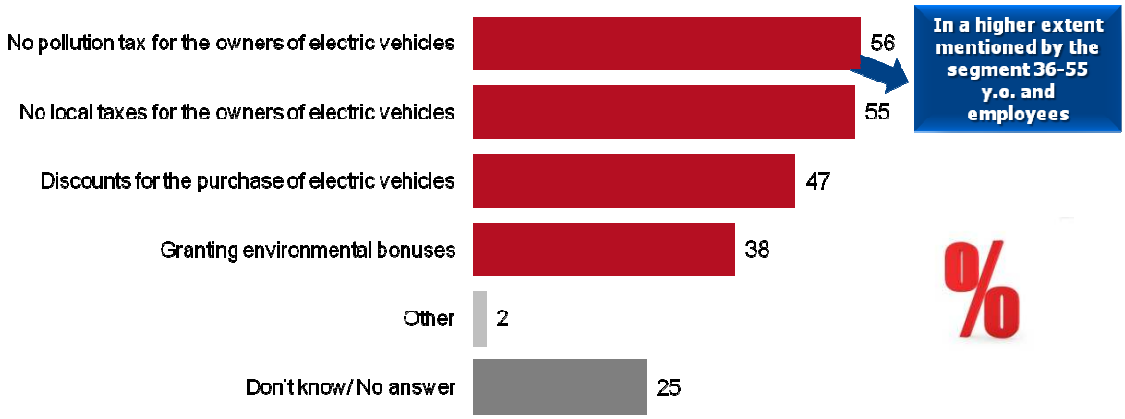
Perceptions about electric vehicle

- For more than half of respondents was generated a confusion as they associate the electric vehicle with the trolley. **4 out of 10 residents associate correctly the electric vehicle with a car, bike or a scooter.** *Therefore this data will be trated with caution as these results are influenced by this confusion;*
- The Romanians high affinity for ownership is confirmed as **42% of the respondents considered the complete ownership to be suitable for the use of an electric vehicle** while **33% don't know what to say probably because of the lack of information regarding this type of vehicle;**



- When it comes to **benefits of using electric vehicles, environmental protection (no carbons emissions) is the most present in respondents mind followed by lower noise;**
- **No pollution tax and no local taxes for the owners will stimulate the population to use an electric vehicle daily,** 6 out of 10 respondents mentioned that



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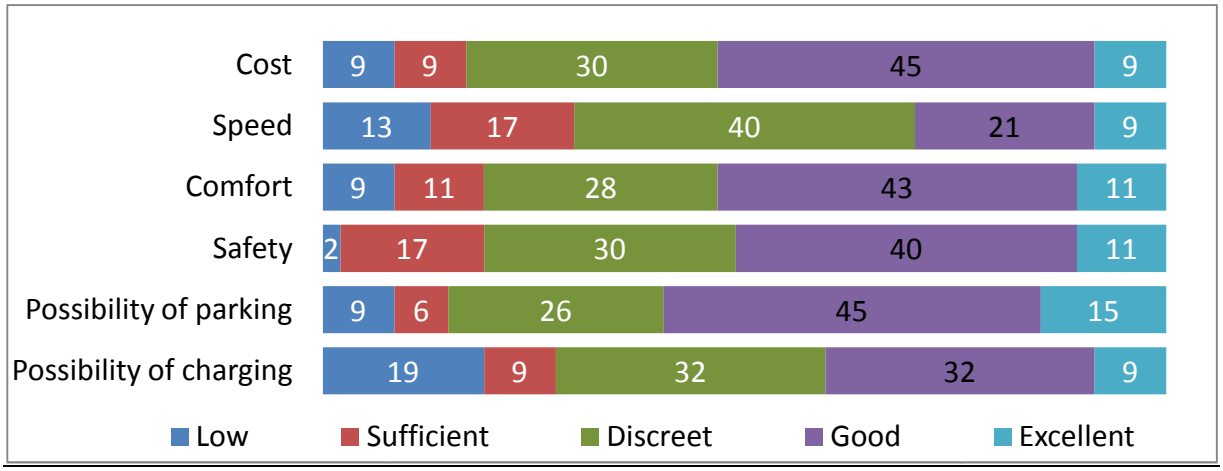
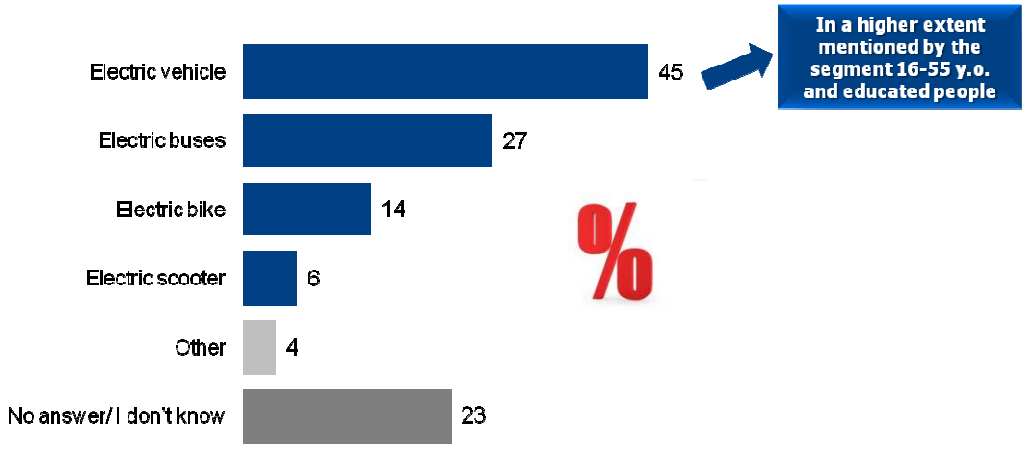
- Higher affinity for ownership than total sample as **53% of the respondents considered the complete ownership to be suitable for the use of an electric vehicle.** Car possessors see more clearly the ownership advantages.
- Beside environmental protection and lower noise, **the car owners are more aware of benefits from an electric system and pay attention more to the benefit of fuel cost.**



Electric Vehicle Characteristics Rates



Type of Electric Vehicle Needed

Barriers & Benefits in Using Electric Scooters/Cars/Bicycles

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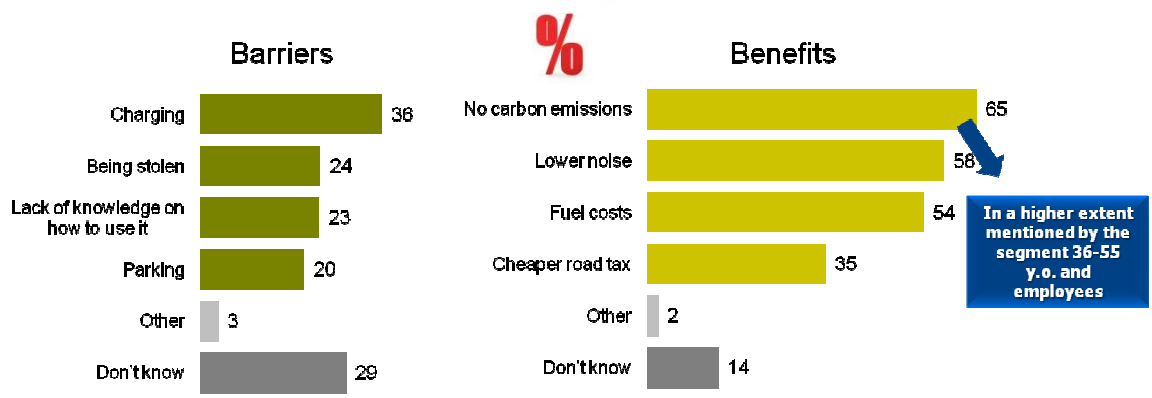
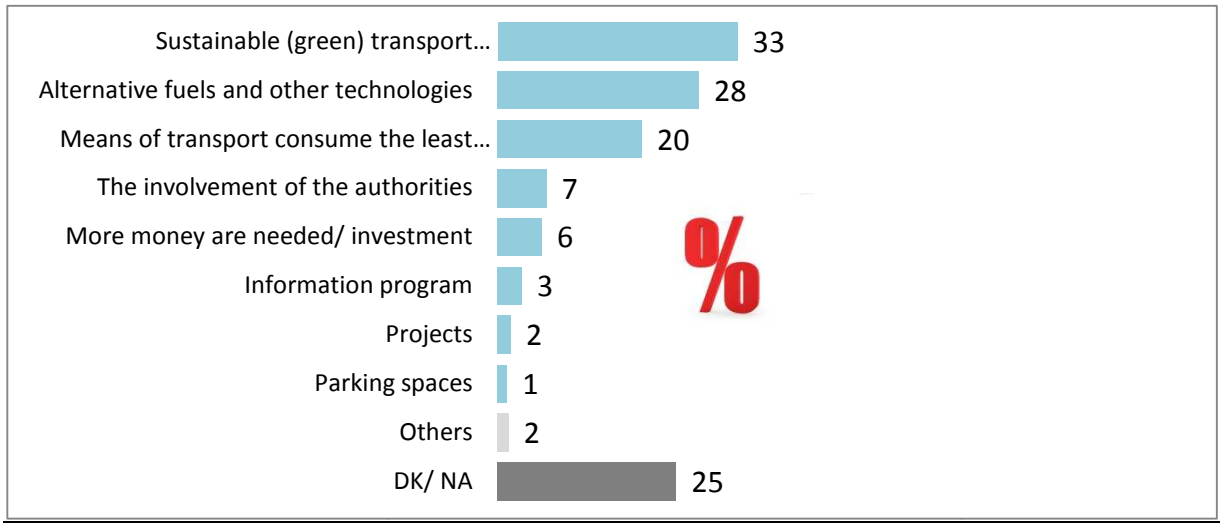


Advice for a Sustainable Mobility - Transport infrastructure registered the highest score when it comes to advices for a sustainable mobility. People who could provide an advice are almost in the same extent with those who did not know what to answer.



3.6 Key findings – TOURISTS

Who they are?

- The average age is around 42 years old;
- Most of them are occupated people, **84% being employed and self emplyed with personal yearly income under 20,000 EUR;**
- More than half of the tourists had the chance to do a trip longer than 5 minutes in Suceava using as a mean of transporting the personal car and the public transport;
- 4 out of 10 tourists who have described at least a first trip **meet queue along the traffic once a day. The average length of staying in traffic being of 16 minutes.**
- When thinking about alternative solution to car possession 9 out of 10 who thought about it mentioned car sharing and car rental;

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Perceptions about electric vehicle

- **Even if the usage rate of an electric car is low (only 1 out of 10 tourists use it) this type of vehicle has high potential as almost all non users considered that an electric car will fit best with the mobility needs and out of total almost all are interested in testing/ buying it;**
- **8 out of 10 respondents considered as a main barrier in using scooters/cars/bicycles the fact that could be stolen.** Other reasons mentioned are the lack of parking places and the charging which are mentioned in the same extent by 7 out of 10 respondents.
- Compared with residents, **the tourists are more informed about the benefits of an electric system as almost all of them mentioned all the advantages.**

4. Conclusions

The survey objective was to understand the willingness of citizens to the use of the electric scooter. The interviews revealed the following data:

a. Residents in Suceava have limited transportation means and they use public transport as main mean of mobility within the city;

b. For more than half of respondents was generated a confusion as they associate the electric vehicle with the trolley, therefore **public awareness campaign on electric vehicles is needed, particular focus should be on benefits of EV vs. traditional vehicles;**

c. Economic and fiscal incentives are needed to motivate residents in buying electric vehicles especially considering the fact the the Romanians high affinity for ownership is confirmed as 42% of the respondents considered the complete ownership to be suitable for the use of an electric vehicle *(No pollution tax and no local taxes for the owners will stimulate the population to use an electric vehicle daily, 6 out of 10 respondents mentioned that)*

d. Motorcycle/ scoter possession is rather low. 97% of the respondents did not have any of these types of vehicle; this could be due to the climate of Suceava (over 6 months of cold winter and heavy snow) that is a better fit for electric cars. Survey revealed the fact that the type of electric vehicle needed for Suceava is electric car (45%), bus (27%), bike (14%), while schooter was mentioned in a rather low percent (6%);

e. Suceava city has encounters the following barriers in using electric vehicles: no charging infrastructure, lack of knowledge regarding EV and lack of parking spaces, therefore investment in this area is needed.

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