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REPORT ON IMPLEMENTATION OF PILOT ACTION IN SI: PERSONALISED TRAVEL PLANNING

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1. Executive Summary

In Slovenian municipality Ljutomer Development agency Sinergija implemented a pilot action which has been related to installation of bike shed, purchasing of e-bikes and development of personalized mobility plans. In the small city with a good potential of the cycling and with short daily travel routes, the content of the pilot was logical decision. The pilot was implemented to decrease the number of short car-driven distances and increase the cycling users among the employees. The pilot was divided in two different type of actions. Infrastructure measure (bike shed and e-bikes) and soft measure (personalized mobility planning). The pilot was implemented from March 2018 till November 2018. All employees (around 30) have been reached and integrated into the pilot implementation. In 6 months of monitoring phase the municipality has saved around 563,70 kg CO2 and 3.501 km made by car (single occupancy).

Most important lessons learned: the pilot action was quite easy to implement with middle implementation costs for municipalities. For this reason, it has high potential to overtake for other municipalities and public institutions.

The personalised mobility plan was a huge success as the employees improved their daily commuting from 10 to 20 % in the monitoring phase and save 94 kg CO2 and 584 km made by car (single occupancy).

2. The pilot action

Slovenia's pilot activity included both soft measures and hard, infrastructural measures. The soft action was carried out by the leading partner, Sinergija Development Agency, which tested the preparation of Personalized Mobility Plans for three selected employees at the Ljutomer Municipality. The latter carried out an infrastructural measure, namely the installation of a bike shed and the purchase of three electric bicycles with equipment (helmets and pumps).

Responsible persons for the execution of the pilot are the Sinergija Development Agency and the Ljutomer Municipality, which have identified the contacts of the person for control and communication during the pilot implementation.

The target group, which was included in the additional activity, are employees of the municipal administration of the municipality of Ljutomer. In soft measures, in the preparation of Personalized Mobility Plans, we covered three employees, for whom we prepared a Personalized mobility plan, in order to better achieve their personal goals. Each of these employees was selected because it represents a different group of daily migrants. They are divided into three groups, those with up to 3-5 km to the workplace, the second group up to 10-15 km to the workplace, and the last group that has to complete more than 30 km. All three people travel to work with a car. Their age is between 35 and 45. They were also selected because they showed the potential for changes in travel habits (e.g. shorter distances that could be made by bicycle and own engagement). Their general needs are as follows: better public transport, flexible working hours, shower and wardrobe, and above all need some encouragement, promotions and good arguments, why decide to change travel habits.

In the infrastructure measure, the target group was all employees of the municipal administration. With the bike shed, we wanted to encourage cycling to work, as about 80% of all employees have between 1 and 10 kilometres to the workplace, which is a good starting point for changes. Until now, the municipality did not have a similar facility, the bikes were parked by employees in front of the municipal building, in an open and unsuitable place.

Pilot activity started in March 2018. The Workplace mobility plan for employees was completed and prepared in the months of October and November 2017, in October 2017 we presented it to the employees, so that they were acquainted with the objectives and planned measures for the future.

In March and April 2018, we actively began to plan a pilot campaign, first with the first stakeholder meetings. In March, we also agreed to conduct the first interviews for the preparation of Personalized mobility plans, after which we also conducted them in April. On this basis, Personalized mobility plans were prepared in May 18, which we then tested in the summer months. In September 18, we obtained data that can serve us in reviewing the achieved goals.

Concerning the infrastructure measure, the construction of a bike shed and the purchase of e-bikes, we began with the discussion towards the end of 2017. The Municipality of Ljutomer collected the bids for the equipment and then agreed on the supplier in February 2018. The installation of the equipment was carried out in March, and in April we could already monitor the arrival of bicycles and the use of the bike shed and the use of electric bicycles for short business trips.

3. The aim of the pilot action

The aim of the bike shed installed and 3-bikes purchased is to foster the sustainable commuting within municipality employees. Although the installing of the bike sheds is from European point of view not an innovative investment, it is claimed that from regional aspects is rather innovative, especially due the reason that none of the regional municipalities have ever installed such bike sheds. The municipality Ljutomer is surrounded by other small municipalities which are connected to administrative unit. The distances between municipalities are easy to reach by bicycle; therefore, the municipality Ljutomer has decided to promote and enhance the cycling opportunities within and across the municipality's border. The instalment of the bike sheds will give the good example to other small or medium sized neighbouring municipalities as well, additionally also to capital city of Slovenia which does not poses such bike sheds. Bike sheds acts as an application of better solutions that meet new requirements in municipality and for existing needs. The investment is effective and, as a consequence, new, that "breaks into" the society (e.g. employees). Innovative aspects can be measured on an organisational level which will benefit from reduce travel costs, employees' motivation and improved health condition. From political level the municipality will benefit from region competitive advantage and financial input in development of municipality. Learning by doing or using approach will be transferred to other regions not on the national level but it will serve as a benchmark for all small municipalities beyond the country.

The Personalized mobility plan is introduced due to the methodology which is a cost-effective approach to address those people who both have the opportunity and the willingness to change, and uses innovative and compelling engagement techniques to support continued travel behaviour change. The travel advisor (in our case this is the plan developer) encourages the beneficiary to identify any barriers they have to using sustainable transport for their regular journeys and offers information and support exactly tailored to their needs. By identifying their own barriers and solutions, the beneficiary is in control of the situation and feels empowered to make the change: that's what makes it personal!

Another important aspect to be considered is developed SUMP for municipality Ljutomer, which was elaborated in 2012 and include also strategic pillar supporting 'Exploitation potential of cycling'. One of the objectives of this pillar is 'Ensuring conditions for safe bicycle parking in Ljutomer till 2025'. It was already mentioned above that the distances between core city and hinterland's cities/municipalities are rather short thus cycle connections from Ljutomer to villages/cities in its direct hinterland will be established by 2018, the main corridors in the direction of neighbouring municipal and regional centres until 2020. The pillar foresees safe infrastructure and safe cycle parking mostly in the near of important traffic generator in the city of Ljutomer. Safe and convenient bicycle parking will be provided gradually.

By the year 2017 will be provided for a 20 parking stands and one covered bicycle shed annually at key points in the municipality.

Ljutomer is a settlement and a municipality of short distances, which enable the inhabitants to walk on most of their routes within a domestic settlement on foot or by bicycle. The potential of walking and cycling in the past have not been sufficiently exploited by planners.

At the project level, the goal is quite ambitious, which means saving 800 t CO2 and 20% improving sustainable income. The municipality of Ljutomer with its 30 employees certainly cannot contribute significantly to this goal, but it can at the municipal level take care of its goals that it set out in the development of the Mobility Plan. In doing so, it wants to increase no. cyclists to the workplace by 5% by 2022. It was precisely through pilot activity that the municipality wanted to encourage cycling among its employees, thereby contributing to the reduction of CO2 emissions.

4. Implementation of the pilot action

Due to short distances within the municipality Ljutomer (having 11.000 inhabitants and only 4000 in the city) the municipal administration has decided to promote the cycling not only between inhabitants but also among administration employees. One of the reasons for cycling promotion is also the municipal strategic document SUMP which supports the cycling and the municipality follows the SUMP's objectives. Installation of bike shed is a logical measure though.

The Personalized mobility plan was an idea launched by the EU-based PTP-Cycle project, Personalized travel planning for cycling. The project supported personal cooperation with selected persons and personalized counselling for changes in mobility behaviour. Since this approach was only completed in Slovenia theoretically, we decided to test it in practice.

The planning stage for the construction of a bike shed was actually started with the overhaul of a possible location for the layout. For these purposes, we organized meetings with the remaining stakeholders and searched for common solutions. Since the city centre of Ljutomer is a cultural and monumental protected, it was necessary to check additional requirements and conditions of the Institute for the Protection of Cultural Heritage of Slovenia. Also, there were two options for the location among the proposals, which we also had to consider. Finally, we chose the location right next to the municipal building, where a charging station for electric vehicles was already installed, which perfectly rounded up the sensibility of the location.

During the planning process, we also came to the conclusion that the bike shed itself does not make sense as such, so we asked the Joint Secretariat for minor changes in the investment. On the basis of their confirmation, the municipality could purchase 3 electric bicycles.

The choice was followed by bidders for the installation of a bike shed and the supply of electric bicycles.

Since there was no need to obtain any documentation for the installation of a bike shed other documents, the installation itself was quite simple. However, some construction work had to be carried out, for example, mechanical and manual excavations, basement planning, gravel plowing, plastering and curbing, concrete casting, installation of bike shed.

In the preparation of Personalized mobility plans, we first had to prepare a draft plan or how it will look like a final document and define specific planning procedures. We also put emphasis on communication between the person and the developer/adviser, what kind of questions to ask and how to ask them. For these purposes we also prepared a questionnaire, which could be completed by the person from the beginning, so that the developer gets as much concrete inputs as possible for the preparation of the plan. They also conducted three interviews, which additionally highlighted issues, goals and needs.

On the basis of the responses from the questionnaire and interviews, the developer prepared three Personalized mobility plans and submitted them to employees for review. They have committed themselves to implement it and follow the objectives set out in the plan.

In April 2018, the Municipality of Ljutomer thus put into operation the bike shed for all employees. From that month, the number of parked bicycles at the bike shed started to be monitored. Monitoring was carried out by a person who was directly responsible for this work. The use of three electric bicycles was also monitored by the municipality. This was arranged through a book of rental vehicles entries that already exist for renting a car. Just electric bicycles served to perform shorter service routes.

The implementation of Personalised mobility plans started in June 18, as we were of opinion that it was easier to change travel habits in spring or summer, warm days. The monitoring and implementation period lasted 4 months. For these purposes, we prepared forms where people could select the vehicle's choice on a daily basis and what time it was.

The promotion of the pilot activity was carried out in parallel with the promotional campaign led by the leading partner. This campaign targeted employees directly and focused on changes in traffic behaviour. The campaign covered mainly soft measures that affect employees and allow discussion and communication. Thus, the leading partner prepared a thematic leaflet for employees on cycling, then prepared 3 different thematic posters, which the municipality put in the toilet facilities, to keep employees informed about the benefits of walking, cycling and traveling. During the summer months, the Lead Partner informed the employees via e-mail and sent three e-newsletters, also on various topics. For the purposes of disseminating information to wider surroundings, employees also received promotional t-shirts that they use at major events and thus disseminate information. As part of the increased capacity, the leading partner also carried out the training of employees, where he presented the planned measures and ranged them together.

5. Monitoring of the pilot action

5.1. E-bikes and bike shed

The pilot action is monitored via these key performance indicators (KPI):

The original KPIs were:

- Number of e-bike users (per month)
- Number of days in which are the bikes borrowed (per month) for commuting
- Number of days in which are the bikes borrowed (per month) for business trips
- Destinations and distances (km per month)

The KPIs that were used in practise:

- Number of parked bikes in storage (per month) or Number of e-bike users (per month) for home trips
- Distance (in km), done by e-bike for business trips

The monitoring phase started on April 18 and ended on September 18. The method of collecting the data was reservation book system (it is existing system for business trips, but only for the cars). The distance per kilometre is an average distance of the employees at the municipality. For the business trip the kilometres were collected by kilometre device meter on the e-bikes.

Here below are the data:

Sum. bikes	Number of parked bikes in storage, per month Number of parked bikes in storage per month						
	April	May	June	July	August	September	Total
	45	80	111	101	145	167	649

Basis for calculation	Average routes in km: 3 km
	CO_2 saving
	8% (2,4 person = 48 person/month)

EXISTING bikes	Number of EXISTING parked bikes in storage, average per month Number of parked bikes in storage per month						
	April	May	June	July	August	September	Total
	45	48	48	48	48	48	285

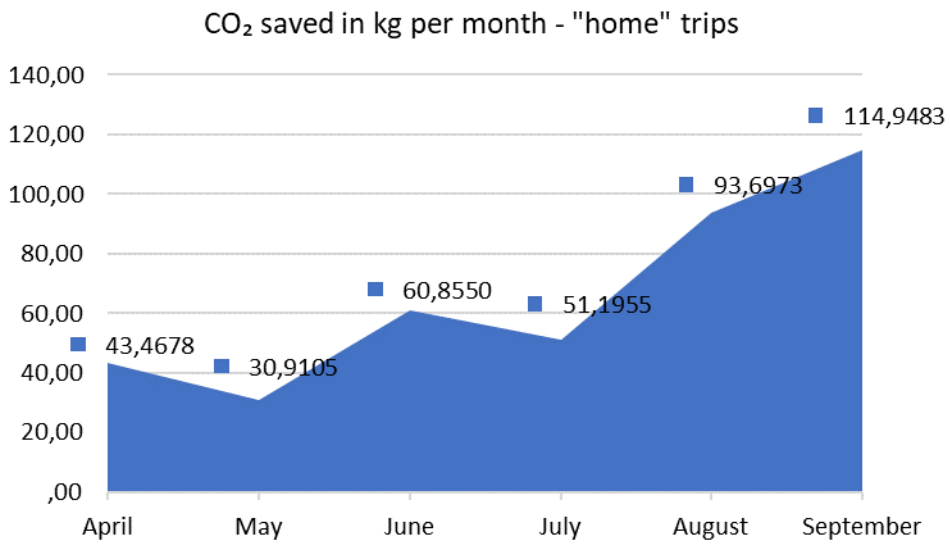
NEW bikes	Number of NEW parked bikes in storage, per month Number of parked bikes in storage per month						
	April	May	June	July	August	September	Total
	45	32	63	53	97	119	409

"km" reduction	Distance saved in km						
	April	May	June	July	August	September	Total
	270	192	378	318	582	714	2.454

Fuel reduction	Fuel saved in litres						
	April	May	June	July	August	September	Total
	17,6	12,5	24,6	20,7	37,8	46,4	159,5

CO_2 reduction	CO_2 saved in kg						
	April	May	June	July	August	September	Total
	43,5	30,9	60,9	51,2	93,7	114,9	395,1

€ saved	EUR saved						
	April	May	June	July	August	September	Total
	22,99	16,35	32,19	27,08	49,56	60,80	208,96



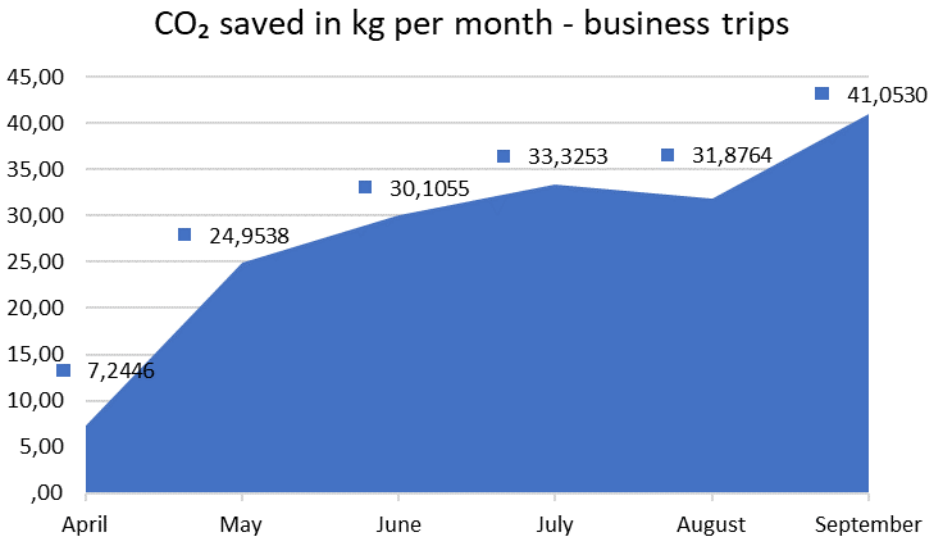
Additional indicator is Distance (in km), done by e-bikes for business trips:

	Distance (in km), done by e-bikes for business trips						
"km" reduction	April	May	June	July	August	September	Total
	45	155	187	207	198	255	1.047

	Fuel saved in litres						
Fuel reduction	April	May	June	July	August	September	Total
	2,9	10,1	12,2	13,5	12,9	16,6	68,1

	CO_2 saved in kg						
CO_2 reduction	April	May	June	July	August	September	Total
	7,2	25,0	30,1	33,3	31,9	41,1	168,6

	EUR saved						
€ saved	April	May	June	July	August	September	Total
	3,83	13,20	15,92	17,63	16,86	21,71	89,15



The costs of purchase of 3 e-bikes with the equipment (helmet and pumps) were 3.555,53 EUR excluding VAT. Costs of purchase and installation of bike shed was 9.089,97 EUR excluding VAT. The total costs were 15.427,51 EUR with VAT, the municipality covers the difference above 15.000 EUR with VAT.

This pilot action enabled the employees of the Municipality of Ljutomer to cycle 3.501 km. Considering this number of kilometres would be made by a car individually, we can claim that this pilot action in the period from April 2018 to September 2018 saved 563,70 kg of CO_2. The cost-benefit ratio is moderate, taking into account the investment and the CO_2 emissions savings.

5.2. Personalized mobility plans

The implementation of the plans stepped into the force in June 2018. All three plans were monitored by simple questionnaire/form for each employee. They had to mark with X (cross) on which day in the week they commute by sustainable mode and marked also the weather conditions (sunny, rainy, cloudy). The monitoring last 4 weeks per month.

So, the indicator was the switch from car to sustainable mode. The goals were different from employee to employee, depends on the commuting distance and infrastructure possibilities. 1st employee's distance to workplace is around 10 km, 2nd employee's distance is 3 km and of the 3rd employee around 60 km in one way. The 3rd employee carpool its co-worker which has 10,5 km to the workplace in one direction.

The goal of the 1st and 2nd employee was:

- Commuting by bike once per week

The goal of the 3rd employee was:

- Carpooling once per week

Here below are the outcomes of the monitoring (in summary style from the forms): the number 1 means 1 commuting day

1st employee:

	Monday	Tuesday	Wednesday	Thursday	Friday
Cycling - JUNE			4		
Cycling - JULY			4		
Cycling - AVGUST			4		
Cycling - SEPTEMBER			4		
Total number of sustainable routes			16		
Car	16	16		16	16

2nd employee:

	Monday	Tuesday	Wednesday	Thursday	Friday
Cycling - JUNE					4
Cycling - JULY					4
Cycling - AVGUST					4
Cycling - SEPTEMBER					4
Total number of sustainable routes					16
Car	16	16	16	16	

3rd employee:

	Monday	Tuesday	Wednesday	Thursday	Friday
Carpooling - JUNE			2		
Carpooling - JULY			2		
Carpooling - AVGUST			2		
Carpooling - SEPTEMBER			2		
Total number of sustainable routes			8		
Car	16	16		16	16

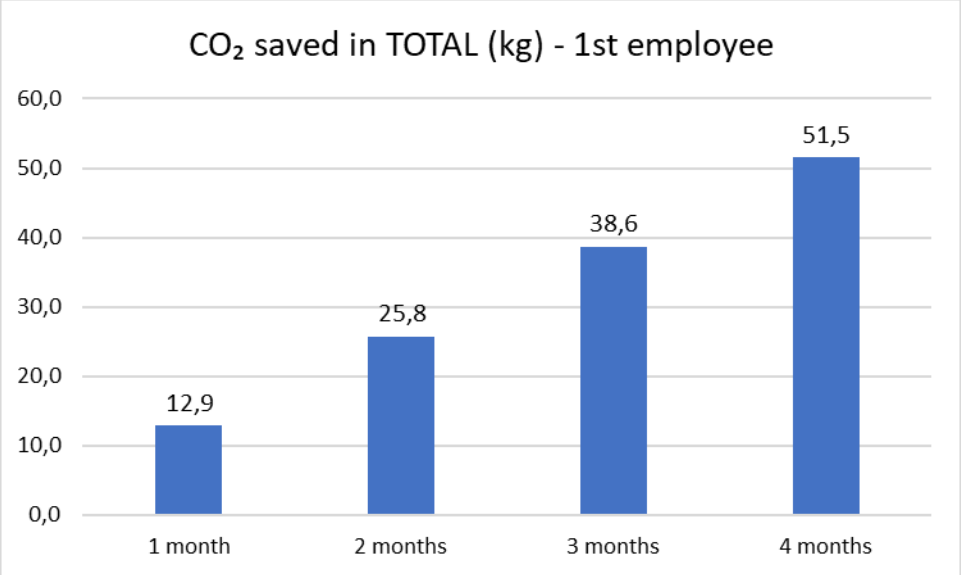
1st EMPLOYEE:	bike trip

CONDITIONS	
No. of bike trips/days:	1 per week = 16 per testing period
Distance (km):	10 km X 2 = 20 km

	Distance (in km), done by e-bikes for business trips				
"km" reduction	1 month	2 months	3 months	4 months	TOTAL
	80	80	80	80	320

	Fuel saved in litres				
Fuel reduction	1 month	2 months	3 months	4 months	TOTAL
	5,2	5,2	5,2	5,2	20,8

	CO_2 saved in kg in TOTAL				
CO_2 reduction	1 month	2 months	3 months	4 months	TOTAL
	12,9	25,8	38,6	51,5	51,5



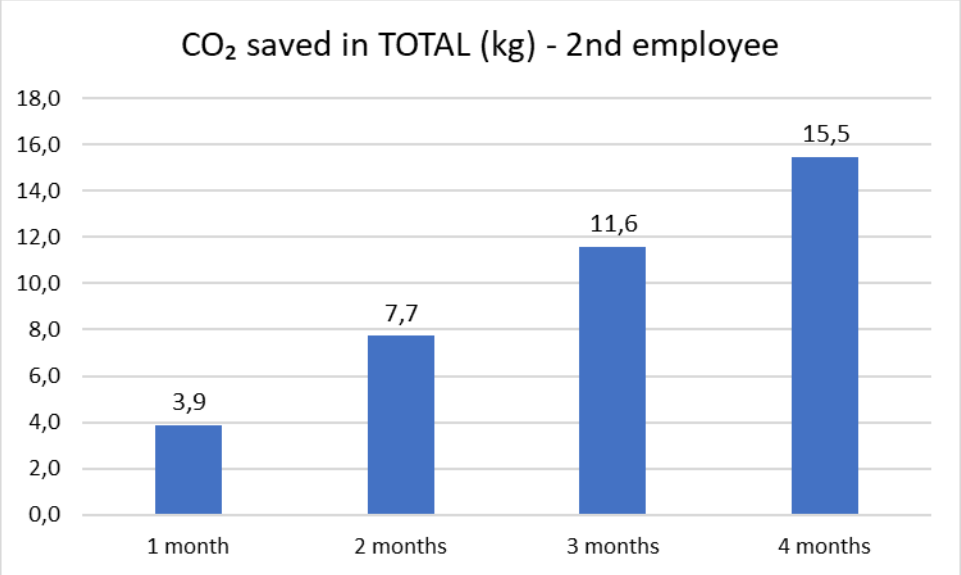
2nd EMPLOYEE:	bike trip

CONDITIONS		
No. of bike trips/days:		1 per week = 16 per testing period
Distance (km):		3 km X 2 = 6 km

"km" reduction	Distance (in km), done by e-bikes for business trips				
	1 month	2 months	3 months	4 months	TOTAL
	24	24	24	24	96

Fuel reduction	Fuel saved in litres				
	1 month	2 months	3 months	4 months	TOTAL
	1,6	1,6	1,6	1,6	6,2

CO_2 reduction	CO_2 saved in kg in TOTAL				
	1 month	2 months	3 months	4 months	TOTAL
	3,9	7,7	11,6	15,5	15,5



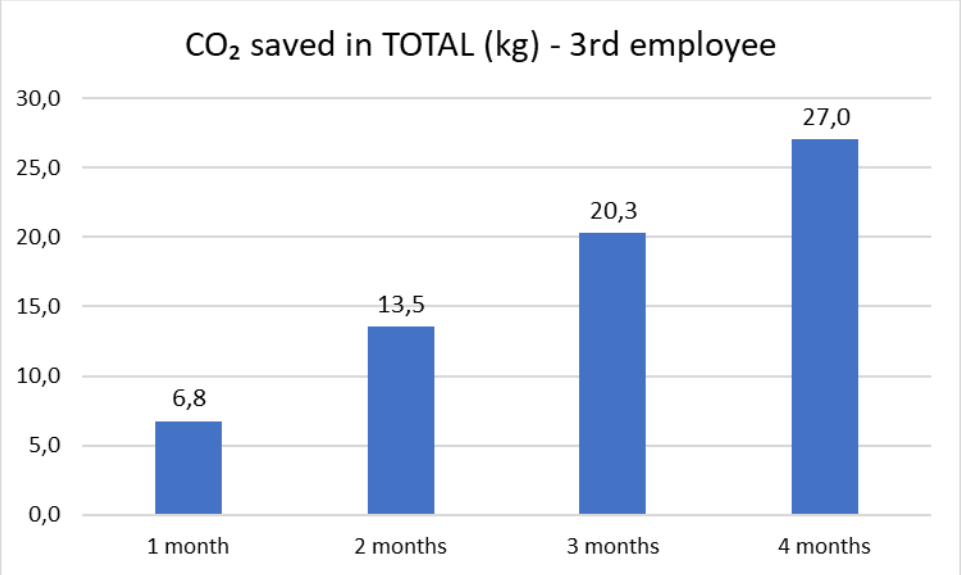
3rd EMPLOYEE:	Car pooling

CONDITIONS		
No. of bike trips/days:		1 per two weeks = 8 per testing period
Distance (km):		10,5 km X 2 = 21 km

"km" reduction	Distance (in km), done by e-bikes for business trips				
	1 month	2 months	3 months	4 months	TOTAL
	42	42	42	42	168

Fuel reduction	Fuel saved in litres				
	1 month	2 months	3 months	4 months	TOTAL
	2,7	2,7	2,7	2,7	10,9

CO_2 reduction	CO_2 saved in kg in TOTAL				
	1 month	2 months	3 months	4 months	TOTAL
	6,8	13,5	20,3	27,0	27,0



The costs of the development and implementation of the personalized mobility plans were 10.000 EUR with VAT. The cost covered the plan preparation, interviews with the employees, mid-term monitoring and evaluation of the monitoring.

This pilot action enabled the employees of the Municipality of Ljutomer to test the new approach in planning. It is personalized planning and is tailor made to the individual circumstances and needs for commuting. It is found out that the goals were reach for 100% for 1st and 2nd employee, for the 3rd employee the goal was reached for 50%. The first two employees have changed their commuting behaviour in favour to sustainable commuting for 20 % and the 3rd employee for 10%. Considering this number of kilometres would be made by a car individually, we can claim that this pilot action in the period from June 2018 to September 2018 saved 94 kg of CO2. The cost-benefit ratio is high as the money invested gave the great impact, taking into account the investment and the percentage of the improvements.

6. Conclusions

At the Ljutomer Municipality we tested two different pilot activities. The first concerned the installation of a bike shed and the purchase of 3 electric bicycles and it is of a more infrastructural nature, but the other activity was related to the soft measure, that is, the preparation of Personalized mobility plans that are individually tailored. Slovenian pilot activity is, in principle, easily feasible. It is also relatively affordable, with considerable impact and quick performance.

The first part of the pilot was presented already at the stage of preparation of the Workplace mobility plan and agreed with all employees. The bike shed and electric bicycles are a great acquisition of the municipality, as bicycles usage has been increasing from month to month. The frequency of cycling on the workplace has increased, as is the use of electric bicycles for the purposes of shorter business trips. Occasionally, the bike shed has faced with the lack of the space, which is confirmed by the fact that the employees showed interest in cycling.

In principle, the pilot is not innovative on a global or European scale, but in this environment, we can say that this is something new, something that the municipality definitely needed. For smaller municipalities

with small budgets, such infrastructure is a springboard for further investment in sustainable mobility as well as an incentive for employees.

The installation itself was fairly smooth, with no major problems, since the municipality quickly found the right place for the placement in the proximity of the municipal building. Currently, the bike shed works well, but if the need for capacity expansion is revealed, the municipality will have to finance it further.

In establishing Personalized mobility planning, experience is definitely interesting and we can say that the pilot is innovative. We used a bottom-up approach and taken into account the individual wishes, goals and needs of the employee. Since the approach has been presented so far only theoretically, it has been much more difficult to implement it in the practice. In the meantime, there was a lot of improvisation and preparation of new bases and templates for documents. The basic idea is to carry out consulting with each individual employee, analyse the current situation with him/her, set goals and monitor them. At the same time, we found that working with each one is very demanding, it requires a lot of time from the developer.

Experience shows that for better results, more individual consultations, more motivational workshops should be carried out, and for the start to find such employees who already show the readiness to change behaviour in traffic.

We also believe that personalized mobility plans would be easier to make in an environment that offers more options and choices of different means of transport, and that at the same time all transport systems work well. In environments where public transport is basically weak or is not presented, it is difficult to promise or realize in practice in spite of the strong desire of the employee. Therefore, we believe that the results of personalized personal plans tests are thus positive and successful.

SWOT matrix

Strengths	**Weaknesses**
▪ Low implemented costs for personalized mobility plan (only time should be invested) ▪ offers an opportunity for an individual challenge ▪ very easy to implement ▪ employees feel better because they are part of a larger story	▪ due to short employees' distances to the workplace the results could be better ▪ more interviews and mid-term meeting for encouraging employees should be occurred
Opportunities	**Threats**
▪ Can be implemented very easy in other municipalities and public institutions ▪ To engage more employees in personalized mobility planning	▪ After the project no push-pull effect will exist

7. Sources

SOURCES for CALCULATION:

FUEL: Statistical office of the Republic of Slovenia (https://www.stat.si/statweb/en) - According to statistics from 2014, the average number of kilometres travelled (annually) by motor vehicles with unleaded petrol is 10.235 km, while this figure for diesel-powered vehicles is 16.879 km. The same source also talks about average fuel consumption (l / 100 km), which is 6,7 l / 100km for vehicles with a petrol engine and 6,3 l / 100km with diesel engine.

CO_2: Covenant of Mayors: Technical annex to the SEAP template instructions document (THE EMISSION FACTORS) - https://www.eumayors.eu/IMG/pdf/technical_annex_en.pdf

€: Slovenian Ministry of Economic Development and Technology (http://www.mgrt.gov.si/en/) - FUEL PRICES in 2018 19st of June 2018: Super 95 - 1,342 €; diesel - 1,284 €