SUITS

WP2 Contextualisation of Project cities
Subtitle

Deliverable No.:	2.1
Project Acronym:	SUITS
Full Title:	
Contextualisation of Project cities	
Grant Agreement No.:	690650
Workpackage/Measure No.:	2
Workpackage/ Measure Title:	
Capacity Building Requirements	
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Date:	14.09.2018
Status:	Final
Dissemination level:	Public

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EUROPEAN UNION

European Platform
on Sustainable Urban
Mobility Plans

Abstract

In order to assist cities with the implementation of their mobility plans, it is essential to analyze which factors influence their capacity to plan, develop and implement mobility measures. Various studies were carried out together with the cities involved in the project. In the first step a comprehensive characterisation and contextualisation survey was conducted to assess the socidemographic, economic, cultural and political context of the cities as well as their actual situation in terms of mobility and transport, their main activities and their limitations in this field. All cities showed needs, particularly in areas such as non-motorised transport, intermodality or electromobility, whereas the most urgent needs when considering policy priorities are related to non-motorised and public transport, urban logistics, mobility management and electromobility.

Based on the collected information, a capacity framework was developed (D2.2) and employed to perform the capacity assessment of the six partner cities and one follower city. A set of indicators was used with which the performance of individual cities can be measured. In total, twelve local organizations including Municipalities were interviewed in seven cities. The results indicated the areas on which each City Authority should focus in order to improve its capacity to implement mobility plans. Conclusions were based on both the performance and the importance that was attributed to each factor. The outcome of the assessment was then employed to describe challenges that usually appear during the planning and implementation of mobility measures. These challenges were identified using different qualitative analysis methods. During a workshop, the measures that each city (both partner and follower cities) intends to work on during the project were highlighted. Each mobility measure was associated with different challenges depending on the nature of the measure and the scale of the city. To address these challenges, an impact assessment framework was proposed and applied through close collaboration with cities and local agents. The result of the process was the set of specific targets for each city´s challenge and measures. This analysis will be employed as input during the following months in other working packages in order to materialize and count the impact of the proposed changes.

Project Partners

Organisation	Country	Abbreviation
VTM	Portugal	VTM
Ilmenau University of Technology	Germany	TUIL
Politecnico di Torino	Italy	POLITO

Document History

Date	Person	Action	Status
4/4/2017	Pirra Miriam	Contributions	Draft
28/4/2017	Marco Diana, Pirra Miriam	Revisions	Draft
4/5/2017	Marco Diana, Pirra Miriam	Revisions	Draft
20/03/2018	Sofia Kalakou	Contributions	Draft
28/03/2018	Sofia Kalakou	Contributions	Draft
17/04/2018	Sofia Kalakou, Ana Díaz	Contributions	Draft
28/05/2018	Sebastian Spundflasch, Sofia Kalakou, Ana Díaz	Contributions	Draft
29/05/2018	Sofia Kalakou	Revisions	Draft
30/05/2018	Andree Woodcock	Revisions	Draft
17/06/2018	Sofia Kalakou, Sebastian Spundflasch, Ana Díaz	Contributions	Draft
26/06/2018	Isabel Pimenta, Anastasia Founta, Sebastian Spundflasch	Revisions	Draft
27/06/2018	Sofia Kalakou, Sebastian Spundflasch, Ana Díaz	Revisions	Draft
14/09/2018	Sebastian Spundflasch, Ana Díaz	Revisions	Final

Status: Draft, Final, Approved, and Submitted (to European Commission).

Dissemination Level: PC = Project Coordinator, SC=Site Coordinator, TC=Technical Coordinator, EM=Evaluation Manager.

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Executive Summary

The aim of the SUITS project is to increase the capacity of small to medium local authorities to plan and implement sustainable mobility measures. This is to be achieved through two major levers. On one hand through the stimulation of an organisational change process in the local authorities the aim of which is to break down obsolete structures and working relationships and to create an environment that offers the necessary space for creative development and productive cooperation. On the other hand, the mobility departments should be provided with methods, tools and materials suitable to enhance their knowledge and technical capacity in specific areas e.g. use of open data and citizen engagement.

To understand how cities can be supported, it is important to identify and analyze the factors that influence their capacity to plan, develop and implement mobility measures. For this, a triangulation procedure was used, which contains quantitative and qualitative analysis methods. Different methods were applied to the same question in order to balance the strengths and weaknesses of the individual methods and to achieve a higher validity of the research results.

In the first step a comprehensive characterisation and contextualisation survey was conducted to assess the sociodemographic, economic, cultural and political context of the cities as well as their actual situation in terms of mobility and transport, their main activities and their limitations in this field.

The second step was a capacity assessment of all the cities. The Evaluation Framework of Task 2.2 was employed to collect information on the self-assessment of the cities through a set of indicators with which the performance of individual cities can be measured. In total, twelve local organizations including Municipalities were interviewed in 6 partner cities and one follower city. The analysis shows the relative strengths and weaknesses in the cities which helps to identify enablers and barriers for the operation of the cities with respect to the implementation of sustainable transport plans. The final outcome of this analysis was a set of indicators that can be used to assess the capacity of local authorities to implement sustainable mobility measures. Conclusions were based on both the performance and the importance that was attributed to each indicator.

In order to exploit the results of the capacity assessment, in another step, the challenges, that the cities face when planning and implementing mobility measures were identified using qualitative analysis methods. The most effective were workshops held with the project cities as well as the exchange of experiences between the academic partners assigned to each city.

In order to make capacity building relevant for the cities, the mobility measures that each city intends to implement during the course of the the project was borne in mind. This allowed the information extracted from research results and good practice examples to be made available to cities in order to increase their capacity immediately. At the same time, we could examine which information provides the greatest added value for cities and which concrete problems arise in the implementation of the measures. These findings form an important basis for the iterative development of support materials, which should ultimately be generic and suitable to support other small to medium cities in the development of sustainable mobility measures and services. From the experiences made through cooperation with the cities, good practice examples and recommendations for action may be created.

As an important result of the work with the cities, 15 generic challenges have been derived to reflect the major challenges which cities, regardless of size or environment of operation, may face when implementing sustainable mobility measures. As a final activity in WP2, cities were asked to link 3 of their measures to 3 challenges, where they wanted to concentrate. Although the results of the capacity assessment provided indications of the most crucial challenges for each city, this was based in the results from a very small sample. With organisational churn, and the need to involve other stakeholders and departments and gain buy in, it was important to let the cities make the final decision and discuss openly where issues around cooperation, activities, obstacles and challenges. Not everything can be supported in the frame of the project and for further cooperation on the measures, it must be clear what input the project will provide to each city and what the gain in knowledge should be. Concentrating on a few challenges per measure provides the necessary structure for this. Since the challenges are generic, the cities were also asked to adapt them to their local context and to formulate goals they wanted to achieve for each challenge within a measure.

The work presented in this work package not only depict the current state of the participating cities and designates the priorities they need to set in order to build their capacity for implementing sustainable transport. It also provides a method which can be used in other cities, and the list of 15 generic challenges we found in SUITS, which should have resonsnace with cities across EU. This deliverable will link the information obtained by the contextualization of the cities to the capacity assessment results and the material obtained through the collaboration with the cities ensuring that the targets set per city correspond to their needs and mobility priorities. This analysis will be employed as input for further analysis to be conducted in other working packages in order to materialize and count the impact of the proposed changes.

1. Introduction

The aim of SUITS is to increase the capacity of small to medium local authorities to implement sustainable transport measures. This is to be achieved through two major levers. On one hand through the stimulation of an organisational change process in the local authorities aiming to break down obsolete structures and working relationships and creating an environment that offers the necessary space for creative development and productive cooperation. On the other hand, the mobility departments should be provided with methods, tools and materials suitable to enhance their knowledge and their technical capacity in specific areas (as for example the use of open data and citizen engagement).

The prerequisite for supporting the capacity of cities to implement (sustainable) mobility measures is a clear understanding of what capacity actually is and how it is reflected in the planning and development of mobility measures. The very complex subject area and the numerous stakeholders involved in this process increase the complexity of exploring this field. In the SUITS project, a triangulation method was applied to understand gaps/challenges, enablers and barriers during the planning or implementation of a mobility measure as well as the requirements of cities and mobility planners in terms of support. This consisted of three interlinked areas: development of capacity indicators, contextualization of cities and a qualitative gap analysis.
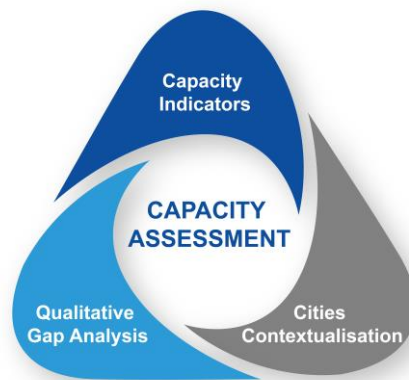
Figure 1: Triangulation of methods for capacity assessment

Section 2 presents a detailed account of the cities, providing information on sociodemographic, economic indicators, mobility and sustainability issues. Section 3 presents and discusses a set of challenges that many cities face while planning and implementing mobility plans. In Section 4 the methodological approach is presented consisting of 4 parts: capacity indicators framework, capacity assessment survey, results and impact assessment framework. The concrete results of the individual partner cities can be found in the Appendix I. Finally, conclusions are drawn in Section 5 where the information is summarized and the implications for the transfer of knowledge from larger to smaller cities and the formulation of training materials for the cities are discussed. The results of the cities are presented anonymously in the document.

2. City characterisation

The objective of this section is to provide a baseline assessment of each city regarding the existing situation in terms of mobility and transport, derived from the analysis of the surveys proposed to the city delegates. A comprehensive characterisation and contextualisation survey was conducted to collect the relevant data and assess the cities´ socio-economic, demographic, cultural and political context as well as their actual situation in terms of mobility and transport, their main activities and needs in this field. A general overview of the main relevant characteristics of the eight locations is provided, followed by the assessment of specific aspects related to sustainability of transport systems.

Three main approaches were taken into account. In the first one, survey respondents in each city were asked to provide a qualitative assessment on the level of action that best characterises the city on certain mobility topics. Mobility data collection practices and data needed are given especial emphasis. Furthermore, questions deriving from the Civitas´ SUMPs-Up project "Need assessment" were provided to the respondents in order to have an overview of the SUMP experience in the city considered. At the end, a synthetic profile of each was provided highlighting the priorities and needs in terms of capacity building and mobility planning.

2.1 Survey administration and field work

The survey questionnaire consisted of nine sections: contacts, sociodemographic data, passenger mobility data, car-related data, freight transport data, public transport data, active modes, SUMPs and mobility measures. It was completed by city delegates contacted by the Associated Partners (APs), that are part of the SUITS consortium who were supportive in the survey completion by helping with information collection and translations.

2.2 Sociodemographic and economy trends

Data related to the population of cities and their conurbations are presented in Table 1.

City	Inhabitants[a]	City extension (km^2)	Size of city[b]	Metropolitan area population[c]	Population trend[d]
City 1	792,054	134.63	Large	>1 million inh.	Stable
City 2	91,518	6.4	Medium	300,000 -1 million inh.	Growing
City 3	63,536	103.65	Medium	100,000 -300,000 inh.	Growing
City 4	2,617,175	1285.29	Metropolis	>1 million inh.	Stable
City 5	359,262	81.29	Large	300,000 -1 million inh	Growing
City 6	872,367	130.17	Large	>1 million inh.	Shrinking

| City 7 | 582,200 | 104.77 | Large | >1 million inh. | Growing |
| City 8 | 15,620 | 79 | Small | 20,000 – 100,000 inh. | Shrinking |

[a] Data from 2011 Census; [b] Options: Small city or town (< 20,000 inhabitants), Medium-sized city (20,000 - 100,000 inhabitants), City (100,000 - 300,000 inhabitants), Large city (300,000 - 1 million inhabitants), Metropolis (> 1 million inhabitants); [c] Options: < 20,000 inhabitants, 20,000 - 100,000 inhabitants, 100,000 - 300,000 inhabitants, 300,000 - 1 million inhabitants, >1 million inhabitants; [d] Options: Growing population, Stable population, Shrinking population

Table 1: Population characteristics of the cities

General economic data is shown in Table 2. The range is broad since the cities refer to different geographies, scales and economies.

City	GDP pro capita in PPS in €[1]	Employment rate trend
City 1	21,5	Growing
City 2	16,8	Shrinking
City 3	10,9	Growing
City 4	28,6	Shrinking
City 5	23,3	Growing
City 6	26,6	Stable
City 7	35,2	Growing
City 8	13,1	Stable

[1] Data from 2013 and referring to corresponding NUTS2 region (source https://en.wikipedia.org/wiki/List_of_European_regions_by_GDP); [2] Options: Growing employees, Stable employees, Shrinking employees

Table 2: Economics characteristics of the cities.

2.3   Assessments on aspects related to the transport offer

This section focuses on indicators related to the transport offers in the cities in terms of infrastructure, services and systems.

Passengers mobility

The focus is on answers to question: "*In your city, what levels of access do citizens have to…" followed by a list of 16 different modes where the possible answers are "Does not exist/Limited access/Good access*". Those 16 modes are listed in rows in Table 3.

In order to evaluate the offer in different cities, such classification of modes is too detailed. Therefore, we consolidated it by aggregating those categories in 4 different modes, namely public transport, car sharing, bike sharing and active modes, as shown in the first four columns

of Table 3 where the correspondences are marked with "x". Additionally, we are interested in reflecting opinions related to both multimodal trips and to the offer tailored to the needs of people with disabilities. In the former case, multimodal trips involve the use at least of a public transport, car sharing or bike sharing service, as shown in the penultimate column of Table 3. Finally, the last column of that table indicates those services that are typically implemented to serve the needs of mobility impaired people. We therefore come up with 6 different classes that are later used.

On the basis of such a classification, it is now possible to compare the offer of different cities. Table 4 shows for each city the number of available options in each of the 6 classes: for example, City 4 has 8 different kinds of public transport services out of the 10 listed in Table 3.

	Public Transport	Car Sharing	Bike Sharing	Active modes	Multimodality	Disability
Pedestrian ways				x		
Bike lanes				x		
Bike sharing			x		x	
Buses within the city	x					
Intercity buses	x					
School buses	x					
Trolley buses	x					
Bus rapid transit	x					
Trams/ light rail	x				x	
Metro/ subway	x					
Local trains	x					
Ferries	x					
Demand responsive transit	x					x
Car sharing services		x			x	
Taxi services/ UBER						x
Car pooling						
Total	10	1	1	2	3	2

Table 3: Consolidation of transport modes within 6 mode categories

Table 4 shows the aggregated results, using the tagging process presented in Table 3, for the question: "*In your city, what levels of access do citizens have to…*".

	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Public Transport (10)	7	5	4	8	5	6	6	4
Bike Sharing (1)	1	0	0	1	1	1	1	0
Car Sharing (1)	0	0	0	1	1	1	1	0
Active modes (2)	2	2	2	2	2	2	2	2
Multimodality[1] (3)	2	1	1	3	3	3	3	2
Disability[1] (1)	1	1	1	1	1	1	1	1
% Modal split[2]	31.9	71	63.5	65		43	42.3	49
	23.2	27	36.5 (all other modes)	25		23	26.2	4
	4	2 (both bike and walk)		1		4	5.6	23
	40.9			9		25	25.9	24

[1] In this case, 1 is given if at least one between 'Taxi services/ UBER' or 'Demand responsive transit' is available in the city; [2] The options are: private motor vehicle/ PT/ bike/ walk

Table 4: Assessment of technical indicators for passenger mobility

Table 4 shows, that especially in the smaller cities, the main mode of transport is private motor vehicles. Additionally, there are no sharing offers for bicycles or cars and multimodality is less pronounced than in the larger cities. Due to their smaller size, it could be thought that active modes would be more present and developed in the small medium cities, but this is not always true.

Car-related transport

This section shows the results of the assessment of car-related activities that were operated by the cities with the aim of reducing car traffic in the city, improving the traffic flows and increasing traffic safety.

Car-Related Aspects	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Setting up carpool services: encouraging car owners to invite people who are making the same trip to share a vehicle.	0	0	0	0	2	2	3	0
Setting up car sharing service: a car rental scheme for people who only occasionally need a vehicle	0	0	0	1	1	4	4	0
Traffic calming zones with speed limit 10, 20, or 30 km/h	4	1	3	3	3	3	4	4
Traffic light coordination	4	0	3	2	-	4	4	0

(Automatic) detection and sanction of speeding	3	0	3	3	-	4	4	4
Permanent or temporal access restrictions in the whole city or in parts of it	3	0	1	4	3	4	0	2
On-street electric vehicle charging points to stimulate e-mobility	0	0	0	1	3	3	4	0
Ensure free flowing traffic by low speed driving on main streets	3	0	1	0	3	3	3	2
Rerouting by real time traffic information on main streets	1	0	1	0	-	0	4	4
Price differentiation for on-street parking on the basis of duration of stay	0	2	1	4	-	4	4	4
Preferential parking fees or reserved spaces for different target groups (i.e. residents, commuters, carpoolers, people with disabilities, …)	2	1	3	4	-	4	4	4
Car parking fees are differentiated according to propulsion (electric, hybrid…).	0	0	0	0	-	0	4	0
The number of on-street parking spaces has been reduced and replaced with off-street places where possible (underground parking facilities).	1	0	1	2	-	4	3	0
The total number of car spaces (both on-street and underground parking facilities) have been reduced in the city centre in favour of pedestrian.	0	-	0	3	-	3	3	1
Providing Park + Ride facilities	0	0	0	2	3	4	3	0
Providing Park + Bike facilities	0	0	0	1	3	0	2	0
A parking guiding system around the city centre exists with real time information on free parking spaces	3	0	2	1	3	4	2	0

"-": information not available
0: not applicable
1: We have done this sporadically or ad-hoc. We have some anecdotal information. Very little performance. We act on a fire fighting. Fire principle: we take action if necessary, as long as necessary and only when necessary.
2: We are implementing this and/or have done this a couple of times or at a small number of sites. We have information related to some areas. Some performance.
3: We have implemented this and have done this regularly or at many sites. We have good information. Rather strong performance. There are indeed structural initiatives, but there is still room for improvement.
4: We have implemented this, regularly reviewing it in a systematic way. We work in a systematic and innovative way. Strong performance. In this area we score excellent.

Table 5: Assessment of measures on car-related aspects

Table 6 provide the results of the assessment on car-related indicators.

Indicator	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Private vehicles/ 1000 inh. (year)	431 (2016)	652 (2011)	262 (2016)	611 (2015)		619 (2015)	471 (2016)	397 (2015)
Private Vehicle possession trend (past 5 years)		↓	↑	↓		↓	=	↓
Car Sharing (CS)available	No	No	No	Yes	Yes	Yes	Yes	No
# of CS providers				2	1	4	4	One operator from

								Summer 2017
# cars CS/ 1000 inh.				0.38		1.15	1.89	
Car-pooling available	No	No	No	Yes	Yes	Yes	Yes	No
Level of Car-pooling coverage[1]				1	2	1	1	

[1] The answers come from the question "Is car-pooling covering a significant share of systematic mobility, in your opinion? Give a mark ranging from 1 (not at all significant) to 5 (extremely significant)"

Table 6: Assessment on car-related aspects

Public transport

The following Table 7 provides the results of the assessment of the cities´ activities in the field of public transport with the aim of increasing its attractiveness to use it and efficiency

Public Transport Measures	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Improving the density and extent of the PT network	4	0	4	1	-	2	4	1
Actions to increase frequency	4	0	3	1	-	2	4	1
Actions to improve comfort (stops, stations, vehicles)	4	1	3	2	-	2	3	1
Actions to improve security (e.g. camera surveillance)	3	0	3	2	-	3	3	1
Actions to improve passengers' information	4	3	3	3	-	4	4	2
Actions to improve ticketing systems	4	0	3/4	3	-	2	3	3
Actions to implement ITS	4	0	2	3	-	4	3	2
Development of DRT / shared taxi services covering less dense areas of the city if needed	1	2	0	0	-	2	3	0
Inter-city connections on main streets	2	0	0	2	-	4	3	2/3
Actions to take into account the importance of a green PT-fleet	2	0	2	3	-	2	3	0
Actions to increase commercial speed and regularity (right of way, dedicated lanes)	4	0	2	2	-	3	4	0
Actions to give priority to PT (PT lanes, detection by PT on traffic lights)	1	0	3	2	-	3	4	0
High building density around public transport stations: ensuring that urban centres remain lively	3	0	2	2	-	2	4	0
Parking standards in new buildings related to public transport services (Parking + PT Interfaces?)	2	0	0	1	-	1	3	0
Actions to improve safety	4	1	3	2	-	2	4	2
Actions to improve reliability	4	0	3	2	-	2	3	2
Actions to minimise travel disruption to public	4	1	3	2	-	2	3	0

Table 7: Assessment of actions in the field of public transport

Table 8 provides some numerical indicators useful to evaluate the public transport offer in each city.

Indicator	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
km of PT lines	1486	22	157	4865	-	5500	-	-
km local trains	373	-	-	872	-	500	-	-
km in the city	1113	22	157	2119	-	1400	-	-
km in the city/ 1000 inh.	1.4	0.2	2.5	0.8	-	1.6	-	-
Average age of fleet (years)	11~12	9,8	6~7	12	-	8	-	50%-10 -20
		-		-		-	-	
% Propulsion system of fleet[1]	84.6	100	100	92	-	68	80	100
	16	0	0/	0.4		30	0	0
	0	0	0[2]	7.6		2	0	0
	1.4	0	0	0		0	20	0
Single ticket price/100 km city PT	0.13	4.47	0.32	0.07	-	0.11	-	-
Ticket offer[3]	5	3	1	3	-	6	6	1
Concessionary fares categories[4]	6	5	7	4	-	7	5	3

[1] The options are: Conventional propulsion systems (petrol, diesel)/ Alternative propulsion systems (natural gas, LPG)/ Electric propulsion systems/ Hybrid propulsion systems; [2] Comment: "Busses with Electric propulsion system are envisaged for acquisition in the near future"; [3] Max number of options: 9, [4] Max number of options: 7

Table 8: Public transport indicators evaluated in the city.

Active modes

This section shows the assessment of the activities that were carried out by the cities in order to increase the attractiveness of walking and cycling (Table 9).

Active Mode Aspects	City 1	City 2	City 3	City 4	City 5	City 6	City 8	City 7
Analysing and improving the density, extent, continuity and accessibility to disabled people of the pedestrian network	4	1	2	1	2	3	2	3
Making road crossings safer for pedestrians	4	2	2	1	3	3	2	4
Reallocation of road space to walking paths and strolling zones	4	1	2	1	3	3	3	2
Indication of destinations including walking times	3	0	1	1	3	3	1	2
Ensuring safe routes to school (e.g. map with safe routes and dangerous points)	4	1	1	1	1	2	1	4
Distribution of pedestrian maps	4	0	1	1	1	1	1	2
Luggage and home delivery services	4	0	1	0	2	0	2	3
Analysing and improving the density, extent and continuity of the cycling network	1	0	2	2	2	3	2	3
Creating opportunities for shortcuts (e.g. to allow cyclist to ride in one-way roads in both directions)	2	0	2	1	2	2	2	4
Making road crossings safer for cyclists	2	0	2	1	2	2	3	4
Reallocation of road space to cycling lanes and tracks	4	0	2	1	1	3	3	3
Ensuring good connection with cross-border cycling networks (interregional,)	1	0	1	1	2	3	2	1
Setting up cycle rental services public transport	3	0	1	1	1	1	3	4
Setting up public bicycle/bike sharing systems	2	0	1	0	2	4	0	4
Providing parking areas and facilities for bikes	4	1	1	2	2	3	3	3
Realisation of secure and accessible bike parks at intermodal points and PT stations	4	0	1	2	3	3	0	3
Possibility to take the bike on tram, bus, underground railway, train without decreasing the quality of PT service	4	0	0	3	2	1	0	3

0: not applicable
1: We have done this sporadically or ad-hoc. We have some anecdotal information. Very little performance. We act on a fire fighting. Fire principle: we take action if necessary, as long as necessary and only when necessary.
2: We are implementing this and/or have done this a couple of times or at a small number of sites. We have information related to some areas. Some performance.
3: We have implemented this and have done this regularly or at many sites. We have good information. Rather strong performance. There are indeed structural initiatives, but there is still room for improvement.
4: We have implemented this, regularly reviewing it in a systematic way. We work in a systematic and innovative way. Strong performance. In this area we score excellent.

Table 9: Assessment on activities to increase attractiveness of walking and cycling

In Table 10 indicators referring to active modes are proposed and computed according to the data provided in each city.

Indicator	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
km bike lanes	123	0.35	15	241	44	180	180	18.363
km bike lanes/ km^2 city extension	0.91	0.05	0.14	0.19	0.54	1.38	1.73	0.23
km bike lanes/ 1000 inh.	0.16	0.00	0.24	0.09	0.12	0.21	0.31	1.18
Parking spot availability[1]	4	2	3	2	3	1	4	3
Bike Sharing available	Yes	No	Yes	No	Yes	Yes	Yes	No
# bike BS/ 1000 inh.	3.47		0.94		0.14	1.15	0.77	
pedestrian area (km2)/ city extension (km2)		0.00	0.10	0.00		3.00		
pedestrian area (km2) /1000 inh.		0.00	0.16	0.00		0.45		
pedestrian length (km) /1000 inh.		0.02	0.71	0.01		0.02		1.18

[1] The answers come from the question: "Is there a good availability of parking spots for bikes in your city, in your opinion? Give a mark ranging from 1 (very Fair availability) to 5 (very good availability)"

Table 10: Active modes indicators evaluated in the city.

Freight transport

This section shows the results of the assessment on the area of freight transport (Table 11). The cities were asked for their activities in this field that typically were carried out in order to improve the distribution of goods. The importance of the regulation of freight transport is emphasized, highlighting the cities 4 and 6, which are in the advanced stages of implementation in all categories (delivery, restriction, weight and size).

Freight Related Aspects	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Night distribution available	2	0	3	0	-	0	2	2
Regulation of freight transport based on Delivery Hours	4	3	2	4	-	3	4	4
Regulation of freight transport based on Freight Restriction	2	0	3	4	-	3	3	1
Regulation of freight transport based on Weight	2	0	3	4	-	3	0	1
Regulation of freight transport based on Size of Vehicle	0	0	3	4	-	3	3	1
Regulation of freight transport based on Type of Fuel	0	0	0	4	-	3	0	0
Promoting round deliveries instead of parallel deliveries to reduce travel distances	0	0/3	1	1	-	3	1	1
Setting up `consolidation centres'	1	0	0	1	-	2	2	0

Solutions and standards aiming to maximize loading the vehicles and avoid empty journeys	0	0	0	2	-	1	0	1
Using of equipment for non-motorized freight transport (walking and cycling-trolley, cargo bikes)	1	0	0	0	-	4	3	1
Use of cycling couriers	2	0	-	0	-	4	3	0
"Last mile" policy in the center	1	0	-	4	-	4	3	0

"-": information not available
0: not applicable
1: We have done this sporadically or ad-hoc. We have some anecdotal information. Very little performance. We act on a fire fighting. Fire principle: we take action if necessary, as long as necessary and only when necessary.
2: We are implementing this and/or have done this a couple of times or at a small number of sites. We have information related to some areas. Some performance.
3: We have implemented this and have done this regularly or at many sites. We have good information. Rather strong performance. There are indeed structural initiatives, but there is still room for improvement.
4: We have implemented this, regularly reviewing it in a systematic way. We work in a systematic and innovative way. Strong performance. In this area we score excellent.

Table 11: Assessment on activities in the area of Freight Transport

2.4 Needs, collection and use of mobility data

Information on the use of and need for certain mobility data by the cities is explored in the following sections.

Passengers mobility

Table 12 presents the types of passenger mobility data used in the city, the means through which it is collected and the data the city would be interested in.

City	Data collection methods	Additional data collection efforts	Data needed
City 1	Traffic counts (e.g. magnetic loops, radars, …), data from public transport companies	-	Most of the data related to metropolitan mobility, freight mobility and vehicle occupation in order to be able to identify possible improvements. Information about how big corporations organise mobility, for instance peer-to-peer old style where employees share the car.
City 2	Traffic counts (e.g. magnetic loops, radars, …), GPS, Bluetooth for vehicles/ passengers monitoring, data from public transport companies	-	Number, Origin and destination of passenger trips could help to determine our parking and PT policy; Freight transport data could support the development of designated parking spaces and corresponding policy (freight routes, timetables etc.); Pedestrian and bicycle flows on main routes; Passenger satisfaction data for all modes of transport (infrastructure, services)
City 3	Crowdsourcing, Traffic counts (e.g. magnetic loops, radars, …), Data from public transport companies	-	Information related to pedestrian and bike mobility in the city. Information regarding percentages of persons travelling by bus, bike, etc.
City 4	Online telephone or personal surveys, traffic counts (e.g. magnetic loops, radars, …), GPS, Bluetooth for vehicles/ passengers monitoring, data from public transport companies	FCD (Floating Car Data)	-
City 5		-	-

City			
City 6	Online telephone or personal surveys, traffic counts (e.g. magnetic loops, radars, …), data from public transport companies	-	We are working on collecting information about the passengers loads on PT
City 7	Online telephone or personal surveys, traffic counts (e.g. magnetic loops, radars, …), GPS, Bluetooth for vehicles/ passengers monitoring, data from public transport companies	Floating car data from 700 taxis.	-
City 8	Online telephone or personal surveys, traffic counts (e.g. magnetic loops, radars, …), data from public transport companies	-	Movement data from mobile phone operators.

Table 12: Data collection and needs on passenger mobility

Car-related transport

Table 13 shows information specifically related to shortfalls in car related dated

City	Data needed
City 1	Most of the data related to metropolitan mobility, freight mobility and vehicle occupation in order to be able to identify possible improvements. Information about how big corporations organise mobility, for instance peer-to-peer old style where employees share the car.
City 2	Car ownership density Distribution of cars against their propulsion system Age of vehicle fleet Signage, road surface conditions (estimation of maintenance needs or revision)
City 3	Number of foreign cars arriving in City 3 plus number of hours parked in the city
City 4	-
City 5	-
City 6	-
City 7	-
City 8	Mobile phone operators data (the car movement could be identifies having path of mobile phone).

Table 13: Data needs for car-related aspects

Freight transport

Table 14 summarises information related to the collection of freight data.

City	Data collection on freight transport aspects	Data needed
City 1	-	It's important to be able to identify logistic vehicle, as magnetic loops don't make difference between a public bus and a truck
City 2	-	Freight traffic flows and their distribution on the network Freight fleet (size, propulsion system) Freight traffic peak hours
City 3	Crowdsourcing, traffic counts (e.g. magnetic loops, radars, …)	Number of foreign trucks transiting the city
City 4		O/D fright traffic flows, freight distribution survey

City 5	-	-
City 6	Online telephone or personal surveys	We would like to have data from the supply chain and from the retailers (i.e. all the passages lying behind the freight delivery)
City 7	Traffic counts (e.g. magnetic loops, radars, …)	-
City 8	Online telephone or personal surveys, Crowdsourcing, Traffic counts (e.g. magnetic loops, radars, …)	Data from retail shops which is not available because of confidentiality and commercial reasons

Table 14: Data collection and needs on freight transport

Public transport

Table 15 presents other kinds of data on public transport mobility that each city would be interested in.

City	Data collection on public transport aspects	Data needed
City 1	Traffic counts (e.g. magnetic loops, radars, …), data from public transport companies	Surveys are useful, nevertheless the use of new technologies to have a large sample will help to reduce cost and increase dataset and frequency.
City 2	Data from public transport companies	Percentage/Number of passengers avoiding validating or purchasing tickets; Ridership figures (across time periods in a day); Passengers Satisfaction Survey results; On-filed data on PT stops and vehicles (maintenance etc.) by passenger environment surveys
City 3	Crowdsourcing, traffic counts (e.g. magnetic loops, radars, …), GPS, Bluetooth for vehicles/ passengers monitoring, data from public transport companies	Number of personal vehicles in the AIDA area, number of personal vehicles in the AIDA area in traffic / intervals (peak hours, normal, evening), number of people who travel by personal car, number of people travelling by bike, number of people who are Stationary / do not travel by public transport
City 4	Online telephone or personal surveys, traffic counts (e.g. magnetic loops, radars, …), GPS, Bluetooth for vehicles/ passengers monitoring, data from public transport companies	Passengers data (Demand)
City 5	-	-
City 6	Online telephone or personal surveys, traffic counts (e.g. magnetic loops, radars, …), GPS, Bluetooth for vehicles/ passengers monitoring	Piemonte region promote a law requiring the use of an integrated card, called BIP, on all means of transport. This will be mandatory from May 2017; thus, it will be possible to access all data from all transport companies at regional level. These data will be collected and managed by a centre certificated by the Region itself, that is 5T (SUITS partner).
City 7	Traffic counts (e.g. magnetic loops, radars, …), GPS, Bluetooth for vehicles/ passengers monitoring, data from public transport companies	-
City 8	Online telephone or personal surveys, traffic counts (e.g. magnetic loops, radars, …), data from public transport companies	Mobile phone operators.

Table 15: Data collection and needs on public transport

Active modes

Table 16 presents the other kinds of data on public transport mobility the city would be interested in.

City	Data collection on active mode aspects	Additional data collection efforts	Data needed
City 1	Traffic counts (Pneumatic tubes, piezoelectric, inductive loops…)	-	As we used magnetic loops is almost impossible to identity in a bike lane (2-ways) if the bike comes in or get out of that area, it will be interesting to O-D matrix, identify type of bike, speed and social aspects regarding cyclist (gender, age...)
City 2	-	-	Pedestrian and bicycle flows on main routes; Passenger satisfaction data for all modes of transport (infrastructure, services)
City 3	Traffic counts (Pneumatic tubes, piezoelectric, inductive loops…)	-	-
City 4	-	-	bicycle travels (km), pedestrian travels (km)
City 5	Online telephone or personal surveys, GPS, Bluetooth for monitoring, Traffic counts (Pneumatic tubes, piezo-electric, inductive loops…)	Active People Survey - Sport England	-
City 6	-	-	We would like to know the demand and the accidents numerosity.
City 7	GPS, Bluetooth for monitoring, traffic counts (Pneumatic tubes, piezo-electric, inductive loops…)	Yearly survey of transport behaviour starts in 2017 (by PT Company SSB	-
City 8	Online telephone or personal surveys, Crowdsourcing, Traffic counts (Pneumatic tubes, piezoelectric, inductive loops…)	-	-

Table 16: Active modes data collection

The assessment of the mobility collection activities and the need for further data showed that most of the cities already collect a lot of mobility data, primary traffic counting data through different conventional sensor technologies like induction loops or radar. In individual cases, innovative technologies such as Bluetooth are also used for traffic counting. In addition, online, telephone or personal surveys are conducted on the various types of mobility in different cities. In the area of public transport, almost every city uses data from local transport providers.

In the area of passenger transport and public transport, data on passenger trips would be of particular interest. Details about origin and destination of trips would be very useful for mobility planning. A city already collects movement data in cooperation with a mobile phone operator.

In addition, data on pedestrian and bicycle flows would be very interesting when it comes to expanding the most frequented routes in a targeted manner.

Freight data is therefore a very important issue, but in this area the fewest data is available in all cities. Of particular interest here would be data on freight traffic flows, also prepared for specific vehicle classes.

2.5   Sustainable Urban Mobility Plan (SUMP) of the cities

The SUMP experience of the cities was evaluated in a specific section of the survey, with questions being derived from the "Need assessment" of the Civitas SUMPs-Up in order to have comparable results.

City 1 has transport plans for other policy areas in place (e.g. cycling, public transport) and wants to change its silo-planning to a more integrated SUMP planning approach (with a SUMP as an ultimate goal). It needs information about the relation of measures to other policy fields and how to use their planning documents for more strategic planning. The city is currently elaborating a SUMP with substantial state support.

City 2 has already applied measures but not systematically and needs information on how to concretely form measures and use them more strategically to achieve synergies. It is currently developing a SUMP with the assistance of external consultants and receives substantial support from the state. The technical field and the implementation of measures for this city need to be improved in all the transport areas under analysis. The city is mainly concerned with policies for **non-motorized transport, urban traffic safety and road transport**.

City 3 already has an integrated SUMP planning approach and a SUMP under implementation which is endorsed by the Mayor. The city received little support at a national level for the development of the SUMP and it developed the SUMP itself with some; contribution from external consultants. It mainly needs support for **non-motorized transport, urban logistics and mobility management**. City 3 would benefit from the provision of support related to planning techniques for the areas of intermodality, urban traffic safety and mobility management. Support is also expected in the selection of measures in the areas of non-motorized transport, intermodality, urban logistics and mobility management. Support in the technical field and the implementation of measures is also required in the public transport sector, non-motorized transport, intemodality, road transport and urban logistics.City 4 is at the same state as City 1 but they are currently implementing a SUMP as well, parts of which were conducted by consultants.

City 5 wants to change the common practice in the transport planning of the city and move towards a more integrated SUMP planning approach. They are currently developing their SUMP with little support from the state. **Public transport, non-motorized transport and road transport** are the priorities for City 5 the requirements of which concentrate on the financing sector. All the mobility areas would benefit from contributions in the financing and procurement issues. In addition, the public transport sector and intermodality are two areas where techniques related to planning, measure selection, analysis and implementation of measures would be an added value. The city needs information about the relationship between their mobility measures and other policy fields and on how to use their planning documents for more strategic planning.

City 6 already has an integrated SUMP planning approach and a SUMP which they are currently evaluating and reviewing. The city developed its SUMP with some state support and parts of its development were conducted by external consultants. The city is oriented into policies for **public transport, urban logistics and mobility management** and would benefit from assistance in the planning process of all transport areas except public transport.

City 7 has already developed and integrated a traffic development concept into its planning approach which is similar to a SUMP. It was developed with no support from the state and with no external assistance. It sets **non-motorized transport, urban logistics and electromobility as policy priorities** and sees potential in the provision of joint support in several sectors. Planning issues could be reinforced in the area of intermodality. Measures could be selected in the areas non-motorized transport and urban logistics. Financial issues could be better tackled in intermodality, ITS and electromobility are concerned while technical issues of urban logistics and electromobility can be treated in better ways.

City 8 is not yet familiar with sustainable urban transport and needs basic information on how to start SUMP-related policy development. A SUMP has been adopted by the local parliament with substantial support by the state and all the work has been developed by external consultants. The city´s priorities are in the areas of **public transport, non-motorized transport and mobility management**. It also reported the need to receive support in the planning phase of urban traffic safety, road transport, urban logistics, Intelligent Transport Systems and shared mobility. Additionally, the selection of measures for the areas of public transport, non-motorized transport, intermodality, mobility management, electromobility and automated transport would benefit from suggestions.

Sectorial plans and programmes

The following Table 17 presents the situation in each city in relation to sectoral plans.

	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Pedestrian plan	✓		✓	✓				✓
Bicycle plan	✓		✓	✓	✓	✓	✓	✓
Public transport operation plan	✓		✓	✓			✓	
Infrastructural development plan (road, rail, parking)	✓		✓	✓	✓		✓	
ITS (Intelligent Transportation Systems) development plan	✓			✓			✓	
Parking areas management program	✓		✓	✓			✓	
Traffic safety program	✓			✓				
Traffic environment program	✓			✓			✓	

Table 17: State of the sectoral plans in the cities

From this it can be seen that Cities 1 and 4 have a comprehensive set of plans in line with the SUMP approach they are adopting

Status and support needed for different mobility fields

Information was collected on the status of certain mobility areas in order to identify the aspects where most support is needed. The following tables present the responses provided in the survey.

Table 18 shows the results of the assessment of activites carried out by the project cities in typical mobility areas.

	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Public transport	2	0	2	1	1/2	0	2	1
Non-motorised transport	2	1	1	1	1/2	1	2	1
Intermodality	2	0	1	1	1/2	1	2	1
Urban traffic safety	2	1	1	1/2	1/2	1	2	1
Road transport (including parking)	1	1	2	1	1/2	1	2	1
Urban logistics	1	1	2	0	1/2	1	2	0
Mobility management	2	1	1	1/2	1/2	1	2	0
Intelligent Transport Systems (ITS)	2	1	0	1/2	1/2	1	2	0
Electric mobility and clean fuels	0	1	0	1	1/2	1	2	0
Shared mobility	0	0	0	1/2	1/2	1	2	0
Automation in car traffic and public transport	0	1	0	0	2	1	1	0

(0 if 'There is no plan to implement measures',1 if 'We have not implemented measures, but plan to', 2 if 'Yes, we have implemented measures', 1/2 if cities already implement measures, but plan further measures on this subject)

Table 18: Assessment of activities in typical mobility areas

Table 19 show the support needs of the cities, to increase their capacity to plan and implement mobility measures, in typical mobility areas.

	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Public transport	F	T	T	F T	P S F T	0	0	S
Non-motorised transport	F	T	S T	F	F	P	S	S
Intermodality	S F	T	P S T	S F	P S F T	P	P F	S
Urban traffic safety	0	T	P S	F	F	P	0	P
Road transport (including parking)	0	T	T	F	F	P	0	P
Urban logistics	0	T	S T	P S	F	P	S T	P

Mobility management	0	T	P S	F	F	P	F	S
Intelligent Transport Systems (ITS)	P S F T	T	0	0	F	P	F	P
Electric mobility and clean fuels	P S F T	T	0	S	F	P	F T	S
Shared mobility	P S F T	T	0	0	F	P	0	P
Automation in car traffic and public transport	P S F T	T	0	P S	F	P	0	S

(0 if 'No support needed', P if 'We need support in planning techniques', S if 'We need support in selecting measures', F if 'We need support in financing and procurement issues, T if 'We need support in the technical field and implementation of measures').

Table 19: Support needs in typical mobility areas

Table 20 summarizes the assessment of the support needs and displays the 3 main areas for each city in which most support is desired.

	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Public transport				✓	✓	✓		✓
Non-motorised transport		✓	✓				✓	
Intermodality								
Urban traffic safety	✓	✓						
Road transport (including		✓			✓			
Urban logistics	✓		✓	✓		✓		
Mobility management			✓			✓		✓
Intelligent Transport								✓
Electric mobility and clean fuels	✓		✓				✓	
Shared mobility								
Automation in car traffic and public								

(Green cells indicate the 3 areas in each city where most support is needed).

Table 20: Support needs in different mobility areas

Support needs for specific SUMP tools and procedures

Table 21 oultines the specific areas in which cities need support for the development and implementation of their SUMP

	City 1	City 2	City 3	City 4	City 5	City 6	City 7	City 8
Guidance how to start the SUMP process in order to get the political support	T F	T			F	T		F
Methods in order to identify know-how and skills within the administration	T F	F			F	T		T
Approaches for the analyses of resources and responsibilities within the administration	T F	F	F	F	F	T		F
Tools for the set-up of a project management for SUMP development	T F	T		F	F	T		F
Methods for problem analyses	T F	T	F		T	T		T
Methodologies to develop forecasts and scenarios	T F	T	F		T	T		T
Approaches to build visions	T F	F	F		F	T		F
Approaches to set quantifiable targets	T F	F	F		F	T		F
Techniques to engaging institutional stakeholders	T F	F	F		F	T		F
Guidance how to interact with citizens and to develop an engagement plan	T F	T	F	F	F	T		T
Guidance to develop a monitoring and evaluation plan (including indicators, processes)	T F	T	F		F	T		T
Guidance how to develop an implementation plan (so called Action Plan)	T F	T	F	F	F	T		F
Methods for selecting integrated sets of measures	T F	T	F		F	T		F
Procedures for data acquisition and management	T F	T	F		T	T		T
Support on decision for transport modelling	T F	T	F		T	T		F
Guidance for the integrated appraisal of measures (CBA, MCA)	T F	T	F	F	T	T		F
Guidance how to evaluate progress in SUMP implementation	T F	F	F	F	F	T		F
Guidance for the identification of different sources for financing the implementation of measures	T F	T	F	T F	F	T		F
Procurement of sustainable services and products	T F	T	F	F	F	T		F

(blank indicated 'No support needed', T if 'We need additional tools', F if 'We would only use the tools if they are for free').

Table 21: Support needs for SUMP tools and procedures in the cities

2.6   City Profiles

In this section, a profile is proposed for each city in order to highlight the good practices at mobility level and to identify the fields in which support and ameliorations are required.

City 1

City 1 is a city of around 790.000 inhabitants. It is characterised by a stable population and a growing economic rate. The indicators analysis shows a good trend in most of the fields. In respect to financing and safety and security had fair and excellent performances respectively. The modal split shows the city is attentive to sustainable mobility, with 45% of trips achieved by active transport modes. In more detail, the majority of trips are done by walking (40,9%) while a rather low number of them includes the use of private vehicles (31,9%). The PT offer is rather wide in the city (1,4 km / 1000 inhabitants) and accounts for 23,2% of trips. Moreover, the road fleet is rather young (average age is 6-7 years) with a good percentage of alternative propulsion systems (17,4%). A good offer of bike sharing is present (3,47 bikes / 1000 inhabitants) but car sharing system is not available. Different kinds of data are currently acquired to analyze the passenger mobility and interest in shown in other areas. The city is implementing, veauating and revising its SUMP. Sectoral plans are available for all considered topics and specific mobility measures have been already implemented. The three areas where support is needed are: urban traffic safety, urban logistics and electric mobility and clean fuels.

City 2

City 2 is a medium-sized city. It is characterised by a growing population and a shrinking employment rate. The indicators evaluated show a not so high level of development in the aspects analysed in the "Evaluation indicators" section. However, these results are based on a low response rate to many of the questions with City 2 being one of the smallest in SUITS, in terms of both the number of inhabitants (91.518 according to 2011 census) and the extension (6,4 km2). This explainsthe reduced mobility offer together with a different level of involvement at city level. Obviously, the evaluation provided will take into account all these aspects.

As expected, private vehicles are the most used mode (71%), while active modes affect only 2% of trips. The low extension of bike lanes and pedestrian area are elements that may influence these values, while, despite a not so wide total number of lines, PT is used in 27% of travels. Data are collected to increase knowledge of passenger mobility but little information is currently collected on other topics, but interest in them is high. For example, the car-related aspect analysis shows that information is needed on car ownership density, propulsion system and age of vehicles, while fleet composition, traffic flows and their distribution on the network is needed to inform freight transport. Moreover, active modes data is needed on pedestrian and bicycle flows on main routes and passenger satisfaction on infrastructure and services. The city does not have a SUMP or any specific mobility plans, but they are going to implement them. In this endeavour support in the technical field and implementation of measures is needed. The main focus would be on the following three mobility policy areas: non-motorised transport, urban traffic safety and road transport (including parking).

City 3

City 3 is a medium sized city with a growing population and a growing employment rate. The city has a good offer of public transport, while it lacks an offer of car-sharing and bike-sharing, as is expected of a city of this size. Moreover, private motor vehicle is the main mode used by a great percentage of population (63,5%). According to the answers analysed in the survey", environment, innovation and multimodality are topics not so well developed in the city. However, a high interest in improvement and application of mobility measures was found in almost all aspects i. For example, electric propulsion system vehicles are going to be part of the PT road fleet in the near future. A good level of data acquisition is declared in almost all domains together with a great interest in other data currently not available. The move towards sustainable planning in the city is demonstrated by the level of the SUMP cycle, with the SUMP endorsed by the mayor and being implemented with the help of consultants. Moreover, sectoral plans are available for almost all the eight aspects investigated[1] and suitable measures have been implemented. According to the survey, non-motorised transport, urban logistics and mobility management are the three main areas where support, mainly in the technical field and in the implementation of the measure, is needed.

City 4

City 4 is a metropolis with more than 2.6 million inhabitants, with a stable population and a shrinking employment rate. The city has a good assessment in almost all the aspects considered, expect for innovation and multimodality. This is, in a certain way, confirmed looking at the modal split, where the private vehicles reach 65%. Public transport is also rather common (25% of trips) and includes different modes for a rather convenient fare (0,07 is the ratio of the price of a single ticket over 100 km of PT). 8% of vehicles belonging to the road PT fleet are electric or have alternative propulsion systems. Active modes are used only by 10% of users, probably because of the lack of the availability of bike lanes (0,09 km / 1000 inhabitants), a low parking spot availability and proportionally small pedestrian areas. A car-sharing system is offered in the city, but the fleet size is not so high compared to other cities and the population (0,38 cars/1000 inhabitants). Data are mainly collected to analyze passenger mobility and public transport, while O/D freight traffic flows, freight distribution survey, bicycle and pedestrian travelled distances would be needed. City 4 does not have a SUMP implemented, but they are elaborating it. Sectoral plans are available for all the aspects evaluated and they are planning to implement proper measures in almost all of them. The three mobility policy areas where most support is needed in this city, according to the survey respondents, are public transport, urban logistics, electric mobility and clean fuels.

City 5

City 5 is a large city characterised by a growing population trend and a high number of young people (37% of inhabitants are less than 25 years old). The "Evaluation indicators" section highlights an overall good trend for all the city assessment indicators with a higher efficiency in the management and stakeholder engagement. A rather multimodal attitude is seen in the

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[1] According to question SU_4 of the survey, section '8_SUMP', the sectoral plans are: Pedestrian plan, Bicycle plan, Public transport operation plan, Infrastructural development plan (road, rail, parking), ITS (Intelligent Transportation Systems) development plan, Parking areas management programme, Traffic safety programme, Traffic environment programme

city thanks to a good PT offer and the availability of bike sharing and car sharing systems. No information on the use and on the need of mobility data can be inferred by the survey since these responses are missing. The city does not have a SUMP point of view, but one is beingprepared. The investigation of the status of certain policy areas shows that measures are planned or have already been implemented for all the areas proposed. The main support is needed for financing and procurement issues while the three main mobility policy areas where some help is asked are public transport, non-motorised transport and road transport.

City 6

City 6 is a large city (around 870.000 inhabitants) and with a shrinking population (37,9% of people in the range > 55 years old). The overall trends derived from the "Evaluation indicators" section show good results under all the aspects analysed, with better performances for equity and multimodality. Both bike-sharing and car-sharing are present (1,15 bike/ 1000 inhabitants and 1,15 cars/ 1000 inhabitants), while a high car ownership is observed (619 cars / 1000 inhabitants). The modal split shows that the majority of trips are made by private vehicles (43%), similar values for PT and walking (23% and 25% respectively) and low numbers for bicycling (only 4%). However, this last result contrasts with the rather good offer of bike lanes (0,21 km / 1000 inhabitants). A wide public transport offer is available (1,6 km PT in the city / 1000 inhabitants), with an old bus fleet (11-12 years on average), but a good use of alternative propulsion systems. In fact, 30% of PT road fleet is powered by natural gas, while 2% by electric sources. Data are usually acquired to gain information about passenger mobility mainly in public transport and, in a lower measure, to analyse freight transport. Some information would be required on active modes in the future. The city has a SUMP that is currently under revision. Not so many sectoral plans are available, but they are going to implement measures in different mobility policies. Assistance is needed in planning techniques. The city would ask for support in these three main areas: public transport, urban logistics and mobility management.

City 7

City 7 is a large city with more than 580.000 inhabitants. It has a growing population, with 47% between 25 and 54 years of age. It obtained good marks in all the mobility aspects analysed in both the "Evaluation indicators" and in the "Technical indicators" section. 42,3% of trips are made by private vehicles, while almost similar values are found for PT and walk (26,2% and 25,9% respectively). The bike is used in 5.6% of trips, thanks to a wide bike lane offer (0,31 km / 1000 inhabitants) and a satisfying number of parking spots availabile. Moreover, a wide offer of modes is available, including car-sharing (1,89 vehicles/1000 inhabitants), bike-sharing (0,77 bikes / 1000 inhabitants) and car-pooling systems. Data on passenger mobility are available in various standards, including floating car data from 700 taxis. Different measures have been implemented for different mobility-related aspects, while the three areas where most support is needed are non-motorised transport, urban logistics and electric mobility and clean fuels.

City 8

City 8 is a small town of around 15,000 inhabitants. It is characterised by a shrinking population with 39.4% of people older than 55 years old. Despite being a small town compared to the others, good results are found in the activity levels of self-evaluation on key aspects related to

SUMPs implementation. The fields where the city performs better are in road transport and for active modes of transport, while the public transport offer is less wide. The modal share highlights this since PT accounts for only 4% of trips, while bike and walk hold similar parts (23% and 24% respectively). The rather wide diffusion of bike lanes (18,363 km), being 1,18 km each 1000 inhabitants, together with the site dimension, are elements which may influence on these statistics. However, rather unexpectedly for such a small city, only 49% of trips are made by private motor vehicles. This is decreasing with the number of private vehicles per 1000 dropping from 553 in 2011 to 397 in 2015. Different sources of data, such as surveys, crowdsourcing and traffic counts, are used to understand the different aspects of mobility. Future interest focuses on the mobile phone data, which could be used to analyse movement of passengers and vehicles. The city is not yet familiar with sustainable urban transport and needs basic information on how to start SUMP-related policy development. Moreover, sectoral plans are available only in the active modes domains, and they are planning to implement specific measures in urban traffic safety, road transport and intermodality. The main mobility policies areas where support is needed are: PT, non-motorised transport, mobility management and ITS.

3. Challenges Arising in Mobility Planning

The capacity assessment in SUITS follows a triangulation approach, which contains quantitative and qualitative analysis methods. Within a qualitative approach a high focus on gaps and challenges, enablers and barriers that influence the development process of transport measures is made. As one of the main aims of SUITS project is the creation of methods, tools and materials to enhance knowledge in specific areas with a high importance for sustainable mobility development e.g. use of open data and citizen engagement, it was important to identify the areas that have great potential for knowledge enhancement. A gap is simply the result of a challenge that a city is not able to successfully cope with. Working with the project cities it became obvious that the identified gaps can be assigned to specific challenges that ultimately all cities face in the development of mobility measures. It makes no difference whether the city is a large, medium-sized or a small city, the identified challenges to a certain extent are the same for every city in the development process of transport measures. Some cities face certain challenges more effectively than others, but still have difficulties with other challenges. Overall, larger cities are usually better situated than smaller ones, which is partly to the larger number of staff, which makes it possible to build up a wide range of knowledge and expertise.

In sum, 15 challenges are identified and explained in this chapter. Each explanation contains information and findings from working with the cities that make clear which gaps, enablers and barriers are addressed during their operations. Of course, the challenges are not independent of each other, there are overlaps and parallels, but nevertheless they are clearly distinguishable. They are to be understood as the lowest common denominator and reflect the most important challenges that all cities have to deal with in the context of mobility planning. The identified challenges must be seen as a template that is valid for every transport measure to be developed. Even if, depending on the measure, individual challenges can have a higher or lower importance in particular cases.

3.1 Methodological Approach

The following challenges were derived, inter alia, from the results collected in 3 workshops that took place at SUITS project meetings together with the cities involved in the project. Within each project meeting a so-called City Partners Morning was organized, the goal of which was to recognize and understand the challenges, capacity gaps as well as enablers and barriers that occur in the context of mobility planning. The overall objective was to provide a clearer understanding of how cities could and should be supported with the training material to be developed in the SUITS project. The main focus here is on the subject-specific knowledge. It was important to take a qualitative approach in order to access the tacit and experiential knowledge, which is very difficult to obtain through questionnaires.

The following workshops were conducted:

- **1. Workshop at Kalamaria**

  Aim of the workshop was to strength the collaboration between the project partners and the cities. It focused on the expectations of the cities, their wishes and worries. In addition, initial requirements were made as to how the cities can be supported.

- **2. Workshop at Turin**

  The aim was to assess information/knowledge interest of the cities when adapting measures (Good Practice) to their local conditions. The focus was on occurring problems, challenges and needed information.

- **3. Workshop at Alba Iulia**

  The workshop focused on the measures taken by the cities. Each city partner provided a status update on current activities and achievements. In addition, together with the cities, the challenges derived from previous work were rated in terms of importance for the ongoing measures. The cities were asked to choose 3 challenges for each measure. This allowed a somewhat closer focus for further cooperation with the cities.
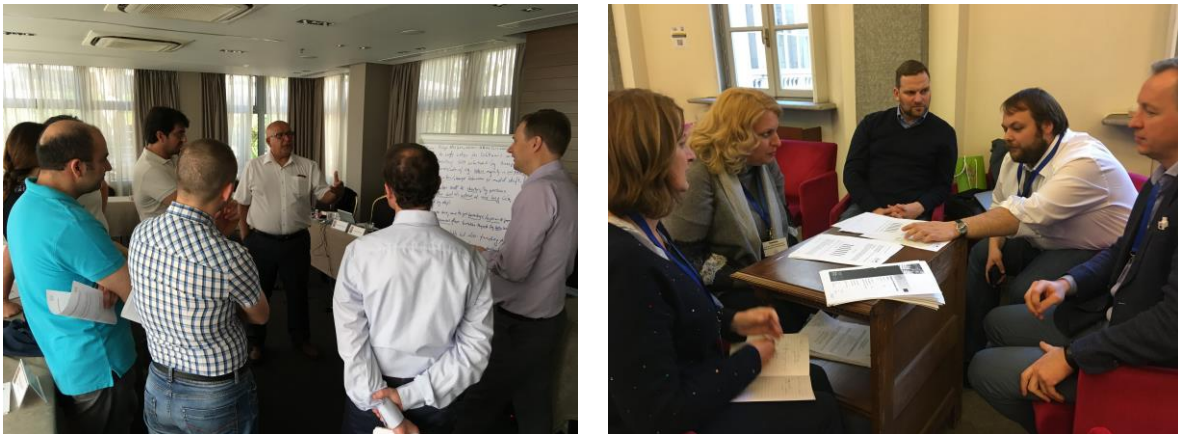

Figure 2: City Partners Morning Workshop in City 2 (left) and City 6 (right)

Furthermore, interviews with the city delegates were conducted and the experiences of theassigned academic partners were considered, whose task in the first project phase was to build up a relation of trust with the cities and to work with them to understand their processes, needs and capacity gaps.

3.2 Cities' challenges in mobility planning

This section introduces and describes the challenges that were derived in WP2. The challenges will provide the structure for creating the support materials in the project. These will be developed in an iterative process, in cooperation with the cities. The challenges will be further detailed in the course of the project. Each city will focus on different challenges within the planning and implementation of each of the measures they intend to carry out in the framework of the project. The findings then are intended to contribute directly to the creation of the training materials. The depth of the analysis of each challenge depends on its nature and the requirements entailed in it.

Challenge 1: Institutional cooperation

Intensive cooperation between local and regional authorities and decision-makers who are directly and indirectly involved in the development of sustainable mobility measures is an important prerequisite for the successful implementation of a measure.

A key success factor is the willingness of the various municipal departments to commit to the project. This concerns on one hand the cooperation between the different departments within the city administration, which are working on the subject of transport/mobility like urban planning, civil engineering, traffic planning, traffic engineering and on the other hand, it needs inter-sectoral cooperation with other policy areas such as health, work or environment. This is a complex process that requires a lot of work and commitment from all those involved, especially at the beginning of a project. However, once the ground has been prepared for cooperation, this can make a major contribution to increasing the effectiveness and quality of the measures implemented. Challenging tasks of the cooperation are:

- The development of a joint vision
- Bundling competencies
- The recognition and exploitation of synergy effects
- The allocation of capacities
- The definition of roles and responsibilities

The different departments usually have a different focus, different goals and sometimes different philosophies. But especially in the development and implementation of sustainable mobility measures, tasks and responsibilities overlap and must be shared among these departments. A major challenge is therefore the development of a common understanding of the contents and objectives of measures and services to be developed. Usually there is one department that initiates a project. The ensuing challenge is to get the other departments to participate. Compromises must be made; other departments must be encouraged to take part actively and to anchor the cause on their priority agenda.

The lack of a common vision and a common motivation often leads to a situation where measures are implemented either partly or differently than originally intended. Other departments do not participate actively if they don´t believe in the measure or have other ideas about it. In some cases, personal sensitivities of individuals can also become a major obstacle. The proper strategy and the communication between departments as well as a mutual understanding of each other's interests, skills and knowledge plays an important role in the development- and implementation process of measures. To address this issue Stuttgart has set up for example a high-level steering committee in which problems are discussed, common goals are developed and concrete projects are initiated.

Especially in larger cities with correspondingly larger administrations, individual departments are often unaware of the knowledge and skills of the other departments. In some cases, there are also discrepancies about which tasks fall in whose area of responsibility. This seems to be less of a problem in smaller cities, partly because of the smaller size of the administrations, the departments know each other very well and are aware of each other's tasks and abilities.

In addition, inter-municipal cooperation is playing an increasingly important role, since mobility offers do not end at the city borders and joint services can greatly increase efficiency. As a result of the cooperation between Council of Europe (CoE), the United Nations Development

Programme (UNDP) and the Local Government Initiative (LGI) of the Open Society, an interesting toolkit on inter-municipal cooperation has been developed[2].

Challenge 2: Interaction and cooperation with business partners

Stakeholder involvement is an important issue for the development of sustainable measures. The results of numerous research projects and practical experiences confirm that the involvement of stakeholders should be conducted as intensively and as early as possible in the planning and implementation process of measures.

The term stakeholder refers to a rather heterogeneous group of people who are involved and affected by the development of mobility measures in the narrower and broader sense. Stakeholders typically come from the fields of politics, business and the public (for the present challenge, the focus is on stakeholders from the business sector, e.g. transport operators, sharing service providers, energy suppliers, retailers or business associations). Stakeholders from politics and the public are considered by separate challenges.

The interaction and cooperation with business partners has become an increasingly important aspect in recent years, especially with regard to new mobility schemes like sharing services, offered by private providers. The main challenge in this field is to obtain and share passenger mobility data, combine new offers with existing services and adapt them to the local characteristics. On the city site, conditions must be created that make it attractive for providers to offer their services in the city. Especially in smaller cities there is often a problem with lack of profitability with, for example, sharing services. The overarching objective therefore is to make services very attractive and useful to citizens. In some cases, it may also make sense for the city to support the settlement financially or by making locations and rooms available. However, finding solutions that satisfy everyone is a big challenge and planners and business partners have to work closely together. They need to understand each other's interests, define common goals and if necessary, find compromises. The project cities are aware that the involvement of business stakeholders and entering into partnerships has become increasingly important in recent years. Nevertheless, cooperation seems to be not always easy in practice due to the following reasons:

- On the part of the business partners there is a lack of willingness to compromise and to push their own interests into the background for the sake of sustainability
- The goals and requirements of different stakeholders are not always easy to identify and in addition they are often very complex and contradictory
- The information/data/experience exchange between the actors involved in the development process is often very poor

The cooperation with business partners is an important challenge that SUITS will cope with; on the one hand through the knowledge that will be provided by the Guidelines for Developing Bankable Projects created in the project and on the other hand this topic will play a role in the organizational change process.

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[2] Guideline and toolkit for inter-municipal cooperation:
http://www.municipal-cooperation.org/images/4/4c/IMC_Toolkit_Manual.pdf

Government/Authorities	Businesses/Operators	Communities/Local Neighbourhoods
European Unions	National Business Associations	National Environmental NGO´s
Ministry of Transport	Major Employers	Motorist Associations
Other National Ministries	Regional and National Businesses	Trade Unions
Regional Government	Private Financiers	Media
Local Authorities	Local Business Associations	Local Community Organisations
Neighbouring Cities	Town Centre Retailers	Local Interest Groups
Local Transport Authorities	Small Businesses	Transport Users
Politicians	Transport Operator/Providers	Citizens
Partnership Bodies	Transport Consultants	Visitors
Project Managers		Disabled People
Professional Staff		Landowners

Table 22: Examples of typical stakeholders in the transport sector[3]

Challenge 3: Citizen participation

The goal of citizen participation is to actively involve users in the development process of measures and strategies. This makes it possible to take problems, framework conditions and user requirements into account in the development process. It helps cities to understand the views of those affected and to assess the mood of the population. Measures and services can thus be better adapted to the conditions of use and the users. This will have a positive effect on later acceptance of certain measures.

Working with the project cities has made it clear that most of the cities are aware of the importance of involving citizens into planning and implementation processes. Nevertheless, there is still a big lack in the participation of citizens since it is not easy to decide when participation is really necessary and to which extent. The associated effort is often spared, because:

- there is a lack of experience and knowledge of participation methods,
- the resulting effort and the potential benefit is difficult to estimate in advance,
- projects are often complex, problems and requirements of individual citizens are sometimes contradictory and difficult to take into account,
- citizens who take part in participation processes do not sufficiently reflect the overall opinion and
- citizens usually only look at the individual measures and mostly only at those that affect them personally (usually they don't see projects in the big picture).

A large amount of information is already available on this subject area, but it seems difficult for cities to operationalise this knowledge and to allocate time and space for this in their planning processes. Questions that remain are for example:

- Which form of participation suits a particular project?
- How to conduct an effective and efficient dialogue with citizens in view of the respective project?
- How are the results processed and how are they taken into account for planning?

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[3] Successful transport decision-making: A project management and stakeholder engagement handbook http://civitas.eu/sites/default/files/guidemapshandbook_web.pdf

- How can we raise public awareness and make the people feel part of the measure?
- How can we bring together different perspectives and find compromises?

The work with the cities made clear, that a major challenge is to involve citizens in the development process of measures from the outset, to gain an understanding of the reasons for measures and to create a sense of participation. However, this process is associated with a high effort, which often exceed the capacities of s-m-cities in particular. Awareness raising campaigns are a proven-effective tool which however is very difficult to implement successfully without the necessary knowledge. The mass media also play an important role in informing citizens. The content of the communication of the measures can make a major contribution to their success and failure. Positive news from the mass media has a great influence on the acceptance of measures. Influencing or convincing the mass media is a difficult undertaking but has great potential. In this respect there is also still a lack in use of social media channels.

Citizens can also exert a certain amount of pressure on political decision –making bodies. It is therefore good to reach groups of people who have a political voice or will be heard by politicians. Involving citizens becomes very challenging, especially when sustainable measures are associated with a certain loss of comfort for certain groups of people or when it becomes necessary to break down unfavourable mobility behaviour patterns of people.

The potential for involving citizens is great, as the cities have already recognised, but the effort required is also high. There is a need for a better understanding of benefits and concrete methods of citizen participation. Furthermore, citizen participation must become a philosophy that cities operate on different levels and different channels.

Challenge 4: Use of innovative technologies and data collection methods

Information and communications technology (ICT) is seen as one of the biggest enablers towards mobility planning. Everyone is talking about Smart Cities, ICT and Open Data. However, data collection by means of innovative technologies and the use of this data for mobility planning is still a big challenge for cities and mobility planners. Many mobility departments lack detailed knowledge of which technologies exist on the market and which data can be collected, how this data can be visualised and how it can be used for mobility planning.

The work with the project cities demonstrated that there is a great interest in the use of innovative technologies and data collection methods. But the full potential seems to be far from being fully exploited. Reasons for this are a lack of technical knowledge on the part of the mobility planners, a non-transparent market, high prices and the question of cost-benefit ratio that is, in many cases, difficult to justify to decision makers.

New technologies for data collection are constantly coming onto the market and it's hard to keep track of what data is really needed and which technologies are suitable for own purposes. However, it is not always necessary to collect own data; often the data is available at other bodies or institutions. It is advisable to enter into partnerships for the exchange of data. For example, Rome´s municipality cooperates with the local Traffic Management centre to obtain important data for mobility planning. Turin cooperates with phone operators and uses mobile data to understand traffic flows. Valencia provides a whole range of data on their webpage, including traffic data.

However, cities are usually well positioned if there are employees in the departments with the necessary interest and expertise on this topic. The size of the city usually matters in the composition and expertise level of the employees, namely larger cities with larger mobility departments are more likely to have specialized staff or outsource their mobility planning to external consultancies. The smaller the city, the smaller the departments and the lower the likelihood that there is someone with the necessary expertise and capacity on this topic. In the smaller cities it is usually more difficult to get support from politics or support in the form of financial resources for those kinds of undertakings.

The interest of the cities in this topic is great, but it is a big challenge for many mobility planners to familiarize with technologies, tools and methods for the effective and efficient collection and evaluation of data. It is also a matter of looking across other departments and institutions to see who is already collecting certain data, or who might still be interested in certain data. Multiple use of the data and the exploitation of synergy effects is particularly important. In addition to the better understanding of the technical possibilities for the collection of mobility data, another challenge is the application of this data for the systematic planning and evaluation of mobility measures.

Challenge 5: Application of research knowledge and adaption of Good Practice examples

Numerous projects on the subject of sustainable mobility have generated numerous findings and research knowledge, which is available in large volumes of guidelines on the various subject areas. While working with the project cities it became clear, that a major challenge for all cities is to put this knowledge into practice. Often the guidelines are not read at all, because they are very extensive, the knowledge contained is difficult to put into practice and the findings are mostly available in the English language. Especially in small mobility departments, a lack of language skills often represents a huge barrier. Good practice examples of measures implemented and tested in other cities are an important information source for mobility planners. But it is not always easy to adapt well these examples to the local conditions firstly, because they are often described only very general and many detailed questions remain open and secondly, because estimating the success of the transfer of measure among cities is a big challenge. Good practices are not a panacea. What proves to be a good practice in one city does not necessarily mean that it will succeed under different conditions.

In addition, small and medium-sized cities often lack the time to build knowledge and expertise in certain subject areas due to the low personnel capacity. This missing expertise, as well as technical studies or economic studies, must be purchased at great expense from external consultants, what does not always lead to the desired success.

In this case, the challenge for the mobility planners is the identification, understanding and application of relevant research knowledge and findings. The adaptation of good practice examples to the conditions of a specific city, requires a precise understanding of the factors that must be taken into account when trying to adapt measures to a specific context.

Challenge 6: Understanding political interests and affecting political decisions

A strong political backing is the prerequisite for the successful implementation of a measure. No matter how well planned a measure is, without political support it will not be implemented. Getting political support is one of the greatest challenges for cities, as it depends on many factors, e.g.:

- Decisions are sometimes unstable, not always transparent and are heavily dependent on the current priority agenda

- Decisions are usually strongly influenced by short-term political interests, so measures must come at the right time

- Lobbying for specific interest groups is a factor that is difficult to calculate

- Decision makers, e. g. city councillors, often lack a holistic information basis for making decisions

- In case of innovative ideas, for which there is little experience, politics often give little space to simply try things out

- The development and implementation of new policies (at national level), which are necessary for the implementation of certain measures, usually take a long time and lead to considerable delays in the project

However, it is also important to understand the situation of the decision-makers. The city council's decision-makers usually are not mobility experts. In some cases, decisions have to be made without a long lead time, on the basis of extensive information material which is sometimes not easy to access. Complex measures in particular are difficult to grasp in their entire scope. A potential that should not be underestimated is therefore the preparation of the information materials for decision makers in a user-friendly way.

So, the major challenge for mobility planners is to understand political interests and to take them into account in the planning process. This includes understanding of political moods and goals as well as involving political decision-makers into planning and development processes. On the other hand, however, it is also a question of influencing political decisions, at least to a certain extent, for example by preparing information material for the decision-making process in the city council.

Challenge 7: Understanding and applying innovative financing methods

One of the first questions cities ask themselves when developing mobility measures is: How much does it cost and will it get paid for? The topic of financing ultimately determines whether a measure is implemented or not. Through the collaboration with the cities, it became clear that it is a big challenge for the LA´s is to identify funding sources and use innovative financing methods for their undertakings. This implies the capacity to identify, evaluate, adapt and apply alternative/innovative financing methods for projects for which there is no funding available or urban funds are insufficient. In addition, there are the following problems:

- Smaller cities, especially in structurally weak areas, often lack financial resources. In larger cities the acquisition of financial means (assuming political willingness) seems to be less problematic

- Mobility departments often face difficulties in obtaining funding that covers the entire life cycle of projects (in particular maintenance costs)

- Especially in smaller cities there is a lack of expertise in applying for funding, especially for EU funds

Mostly there is only little awareness of innovative or alternative financing options. Knowledge is lacking for the application of innovative financing methods that go beyond the pure acquisition of municipal or federal funds. While these methods are widespread in many other areas, there are only a few examples in the transport sector.

Financing is one of the most important issues in mobility planning, but at the same time it is also the area with most conservative action. The reasons given by the cities for this were that on the one hand there is not enough time to build the necessary expertise and on the other hand there is not enough space to try things out.

Challenge 8: Innovative Procurement

Procurement is becoming increasingly important in the development of innovative sustainable mobility measures. The EU's Procurement reform enables goods and services to be procured in a sustainable manner. While the lowest price criterion has been the most important award criterion to date, criteria such as life cycle costs, pollution reduction, energy consumption or external transport costs are playing an increasingly important role today. When contracts are awarded, bids can also be awarded that may not have the lowest price but are the most sustainable. This also encourages bidders to pay more attention to the issue of sustainability. During the analysis of the cities in the project, it became clear that the potential of procurement reform is far from being exhausted, particularly in the small to medium-sized cities. Mobility planners have to collaborate with the procurement departments to exploit the full potentials. Within the SUITS project a guideline on the topic will be developed, which addresses the challenges in this area and supports the cities developing an awareness of the potentials of innovative procurement as well as the necessary creativity in the preparation of tenders.

The challenge is to increase sustainability in the procurement of products and services of a local authority. This should be achieved through the sensitisation of the procurement departments to sustainability aspects and to opportunities arising from the procurement reform. Sustainability criteria and requirements should play an important role in the procurement process, which should ultimately also encourage service providers to focus more strongly on the issue of sustainability.

Challenge 9: Understanding legal and regulatory framework

As mobility measures can directly or indirectly affect different policy areas, a lot of legal and regulatory frameworks have to be considered. Some of these regulations also may change over time. The challenge is to further develop strategies and skills, to identify and understand the legal and regulatory framework conditions that affects the planning and implementation of a particular measure.

Challenge 10: Systematic staff deployment and development

In recent years, the field of mobility planning has become increasingly broad, complex and difficult to penetrate. Although an incredibly large pool of knowledge and experience has been published and is available, mobility departments often lack the capacity to develop their

technical know-how and the expertise needed to plan and implement sustainable mobility measures. This becomes particularly difficult when innovative modes of transport come into play and citizens, business partners, politicians and the media must be actively involved in the development. Mobility planners, especially in smaller cities, usually have a traffic planning background, with a high focus on infrastructure, motorized traffic and planning procedures. In addition, in smaller cities, the mobility departments are very small and often only one person is responsible for mobility planning. Therefore, projects that require expertise in innovative subject areas are often outsourced. Outsourcing per se is not necessarily wrong. Departments cannot know everything by themselves and it is better to involve experts. All the project cities use to rely on some external agencies for certain tasks related to mobility issues. However, the mobility planner must also have a basic understanding of the subject areas. Cities must look at their long-term vision and consider the direction in which they want to develop their staff, especially in view of the demands that innovative and sustainable development of mobility offers entail. It is necessary to consider which areas of expertise should be developed within the department. However, some cities report a high fluctuation in personnel, which makes planning and long-term knowledge development difficult.

Another problem that was mentioned by few cities is that long-term staff in the departments is often not very open-minded towards innovative ideas. During the workshops some cities reported that they face this issue as there are usually difficulties in achieving technical expertise and knowledge exchange among personnel. There is a need of new talents, fresh ideas and motivation. For most cities, the complete rethinking towards sustainable mobility is only possible through a "generations change" in the staff of the mobility departments. There is a high demand for new talents, mainly for their fresh ideas and for their deep motivations in ameliorating the urban planning and in solving mobility problems. It is a great challenge to coordinate the requirements of the measure to be implemented with the capacity of the actual staff. In which direction should the personal be further developed? What expertise will be needed in the department, what is to be subcontracted externally?

Challenge 11: Estimating the feasibility and acceptance of measures

When planning and implementing innovative transport solutions or services, for which there is little experience in terms of feasibility and acceptance, it is recommended to carry out tests in advance, e.g. with a small group of users. Especially with measures the success of which depends on a large extent on the acceptance of the citizens, it is particularly important to recognize problems, sources of error and optimization potentials before the final implementation. In addition, it can be very difficult to obtain the necessary political support for innovative measures for which there is a lack of experience and a high degree of uncertainty.

Nevertheless cities, especially small ones, often lack the necessary space, experiences and capacity to simply try things out beforehand as it is costly and staff-demanding. While trials of innovative measures in a scaled version seems to be a common practice in big cities, the smaller cities in particular lack the necessary knowledge and capacity for such initiatives. Trials in a closed system beforehand allow to gain a better understanding for upcoming problems and to make predictions for workability and acceptance.

The main challenge is on the selection and application of effective and efficient methods that enable tests under comparatively real conditions in order to identify problems and potentials

for improvement in advance. The involvement of stakeholders during feasibility study is essential for success.

Challenge 12: Project management and monitoring

Project management is an important factor that has a decisive influence on the implementation of measures. Inadequate project management can be a big barrier and may lead to serious delays or even the failure of the project. Although the importance of project management is clear to the cities, there seems to be still great potential for improvements in many departments. During the planning phase, the biggest problem seems to be an over-ambitious planning in combination with a lack of experience on innovative topics which leads to unrealistic plans. Another major challenge is on the monitoring and the early detection of problems and deviations.

Challenge 13: Sustainability thinking

Sustainable mobility is a key word that has certainly been noticed by any mobility planner in recent years. During the research conducted in this part of SUITS it became clear, that the topic of sustainability is present in the minds of mobility planners but there is a rather abstract understanding of what sustainability actually means and which its potential is in the field of mobility. Sustainability is usually associated with the issue of turning away from fossil fuels, sharing offers and mobility behaviour with a focus on public transport. However, the concept is much broader and the question of how sustainability can be achieved in measures cannot be answered in a general way. Planners must develop a basic understanding of the principles, and critically review their strategies and measures in this respect.

The author Antoine de Saint-Exupery once said: If you want to build a ship, don't drum up people to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea.[4]

The situation with the mobility departments is similar here as it plays an important role to sensitize planners and stakeholders to the issues of sustainability. Simply providing information materials and examples of known problems and actions taken by other cities, will not necessarily lead to the expected behaviour change. The topic of sustainability with its various facets must be understood and needs to imprint the philosophy of the mobility department. Fundamental sustainability principles are for example the reservation of natural resources, the minimization of environmental impacts, social equity, ensuring the ability to evolve, pursuing a long-term vision among others. The fundamental understanding of these principles is therefore particularly important when it comes to developing learning organisations that are innovative and not only adapt measures but also break new ground.

Challenge 14: Enhancement of knowledge management / knowledge transfer

Knowledge Management and Knowledge transfer are very challenging tasks. But they can make a significant contribution to improving the capacity of a mobility department. Especially as the planning and implementation of mobility measures depends to a large extent on experience. The challenge is therefore an exchange of experience and knowledge within the department and between the various departments. This contains the exchange of explicit or

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[4] Cite of Antoine de Saint-Exupery
 https://www.brainyquote.com/quotes/antoine_de_saintexupery_121261

tacit knowledge between the employees as well as the documentation of findings and experiences into a knowledge management system. This is particularly important, especially as some cities report a high fluctuation in personnel. In addition, relevant literature should be taken into account. The realization of Knowledge Management involves numerous sub-challenges, like:

- Knowing and using the technological possibilities to support this process
- Motivating employees to actively participate in the maintenance of the knowledge management system
- The data and findings must be documented in such a way that they can be easily found and used
- Data protection issues needs to be considered

Challenge 15: Identification and utilization of synergy effects

Synergy effects between measures are a very important issue in the context of sustainable mobility planning especially as the aim is to develop holistic solutions. The SUMP Guideline[5] refers several times to the identification and consideration of synergy effects. In practice, however, this represents a major challenge for the cities. The fields of activity are sometimes very complex and there are many dependencies. Synergies can be positive, when various measures contribute to the same objective and enhance each other, but negative synergies can also occur, if measures torpedo each other or work in opposite directions. The challenge is to identify these synergies, to exploit multiplier effects and to eliminate mutually distracting effects.

3.3 Summary of the challenges and importance rating

The following table gives an overview of the identified challenges and a short description for each.

Challenge area	Challenge description
1. Institutional cooperation	The challenge illustrates the need to improve the cooperation between local and regional authorities and decision-makers who are directly and indirectly involved in the development of sustainable mobility measures. The aim is to motivate the various municipal departments to participate and to commit to projects.
2. Interaction and cooperation with business partners	The interaction and cooperation with business partners has become an increasingly important aspect in recent years, especially with regard to new mobility services, like sharing services offered by private providers. The main challenge is to combine new offers with existing services, to adapt them to the local characteristics and make them attractive to citizens. For this, close cooperation with business partners is a key factor. Conditions must be created that make it attractive for providers to offer the services in the city.

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[5] Guideline for developing and implementing a SUMP http://www.eltis.org/sites/default/files/guidelines-developing-and-implementing-a-sump_final_web_jan2014b.pdf

3. Citizen participation	The challenge is to increase the capacity to identify and actively involve citizens in the development process of measures and strategies. This requires a precise understanding of benefits and concrete methods of citizen participation. Citizens need to be informed about measures, goals and backgrounds in order to engage with the measures.
4. Use of innovative technologies and data collection methods	The challenge for the cities and the mobility departments is to raise awareness of technologies, tools and methods for the effective and efficient collection and evaluation of data and it´s use for the planning, implementation and evaluation of mobility measures. It is also a matter of looking across other departments to see who is already collecting certain data, or who might still be interested in certain data. Multiple use of the data and the exploitation of synergy effects is particularly important.
5. Application of research knowledge and adaption of Good Practice examples	The challenge is about a greater application of research findings and knowledge. It is also about a better understanding of the transferability of good practice examples. The identification and understanding of contextual factors that are relevant to the success or failure of measures is challenging and that must be taken into account when trying to adapt measures to the specific conditions of a city.
6. Understanding political interests and affecting political decisions	No matter how well planned a measure may be, without political backing, it will not be implemented. The challenge is to increase the capacity to assess political moods and to affect political bodies through evidence and argument.
7. Understanding and applying innovative financing methods	The challenge is to increase the ability to identify funding sources and to use innovative financing methods. This implies the capacity to identify, evaluate, adapt and apply alternative/innovative financing methods for projects for which there is no funding available or urban funds are insufficient.
8. Innovative procurement	Increasing sustainability in the procurement of products and services. The challenge is to integrate sustainability criteria and requirements into the procurement process and to sensitize procurement departments to sustainability aspects and to opportunities arising from the procurement reform.
9. Understanding legal and regulatory framework	As many policy areas are directly or indirectly affected by the development of mobility measures, various legal and regulatory frameworks have to be considered. Some of these regulations also may change over time. The challenge is to further develop strategies and skills, to access the legal framework conditions and to take them into account for planning and implementation of measures.

10. Systematic staff deployment and – development	In recent years, the field of mobility planning has become increasingly broad, complex and difficult to penetrate. Although an incredibly large pool of knowledge and experience has been published and is available, mobility planners often lack the capacity to develop their own technical know-how and build the expertise in different areas, needed to implement sustainable mobility measures. A major challenge for local authorities is to prepare their staff for the requirements of the long-term strategy of the departments, to broad their knowledge and to distribute the staff among the various projects, ideally in such a way that synergy effects between the projects can be exploited.
11. Estimating the feasibility and acceptance of measures	It is particularly difficult to obtain the necessary political support for innovative measures for which there is a lack of experience and a high degree of uncertainty in terms of feasibility and acceptance. A big challenge therefore is to use methods to try out innovative measures in a scaled version, in a closed system beforehand in order to gain a better understanding for upcoming problems and to be able to make predictions for workability and acceptance.
12. Sustainability Thinking	An important challenge for mobility planners is the internalisation and consideration of sustainability principles. The fundamental understanding and application of sustainable principles is particularly important when it comes to developing learning organisations that are innovative and not only adapt measures but also break new ground. The challenge is to encourage sustainable thinking as the base for the creative process in the development of mobility measures.
13. Effective project management and monitoring	Effective and efficient project management forms the basis for successful projects. The challenge is to critically backlight and optimize project management and monitoring processes in this respect.
14. Knowledge management / knowledge transfer	The challenge is to enhance and establish a sustainable process for knowledge management / knowledge transfer. The aim is to apply and try out established methods in order to learn from own experiences and from those of others. It is about to apply these findings to new projects and to transmit them to new employees. This is one of the biggest challenges on the way to becoming a learning organisation.
15. Identification and utilization of synergy effects	The challenge is to take into account connections and dependencies between measures. This is about the identification of measures that could influence or could be critical among other measures.

Table 23: Summary of the identified mobility planning challenges

In the 18 month workshop, the cities were asked to prioritise the challenges with regard to the measures they are working on in the SUITS project. The aim was to identify which aspects represent the greatest challenges for the development of the individual measures. The cities were asked to assess the importance of each challenge for each of the measures they are

working on in the frame of the project. The importance for each measure was evaluated on a scale from 1 to 10 (1 = low importance, 10 = high importance). In total, the importance of the challenges was evaluated for 27 measures. Table 24 shows, the average of the importance rating. A detailed list of the importance rating for each measure can be found in Appendix II. In addition, the cities were asked to select 3 challenges per measure on which they would like to concentrate particularly in the planning and implementation of the measures and in which they would like intensive cooperation with the project. This number is displayed in the right colum of Table 24.

The results show that most of the scores are close to each other and all of the challenges seem to be more or less important. Of course this depends to some extent also on the kind of measure. The importance rating made that coping with plotical decision makers and the promotion of a stustainability thinking, as well as effective project management and knowledge transfer are the biggest challenges for the cities. The number of choices for the project measures made clear that citizen participation, as well as the interaction and cooperation with business partners, represent the challenges many cities would like to face in the frame of the project.

	Challenges	Avarage results of the importance rating	Number of times the challenge has been chosen by cities for their actions.
1	Institutional cooperation	6,5	3
2	Interaction and cooperation with business partners	6,0	8
3	Citizen participation	6,5	14
4	Use of innovative technologies and data collection methods	6,2	6
5	Application of research knowledge and adaption of Good Practice examples	6,2	2
6	Understanding political interests and affecting political decisions	7,1	4
7	Understanding and applying innovative financing methods	5,1	5
8	Innovative procurement	4,2	4
9	Understanding legal and regulatory framework	5,5	1
10	Estimating the feasibility and acceptance of measures	6,2	5
11	Sustainability Thinking	7,0	4
12	Effective project management and monitoring	6,6	1
13	Systematic staff deployment and –development	6,0	0
14	Knowledge management / knowledge transfer	6,6	2
15	Identification and utilization of synergy effects	Later added, not part of the rating	

Table 24: Importance Rating of the challenges for the cities mobility measures

3.4   Peculiarities of small-to-medium cities in mobility planning

The qualitative analysis allowed to draw some conclusions on the differences among small-medium and large cities. Overall, as expected, larger cities are usually better situated than smaller ones, which is mainly due to the larger number of staff, which makes it possible to build up a wide range of knowledge. In small cities there is usually a very small, sometimes no mobility department and no mobility planner. The tasks that arise in the context of mobility are, for example, taken over by the city planner. However, the lack of knowledge leads to the fact that small cities have to outsource many issues to external consulting companies. However, in some regions financial resources may be sparse. A possible collaboration among cities belonging to the same region could bring benefits to all the entities involved. Smaller cities could gain from the experience of bigger cities and the practices that have been successfully implemented. In addition, transfer of experts could assist smaller cities with the development and execution of their plans, and bigger cities could exploit this opportunity to increase their interurban intermodality. The analysis demonstrated that small cities need support for more fundamental issues. A big focus must therefore be on the knowledge transfer. What seems simple for larger cities might be perceived as a big challenge for smaller cities. For example, looking at the results of the contextualization survey it became obvious, that the smaller cities request help in fundamental issues of mobility like road transport, active modes or public transport, while the larger cities where all these aspects are rather well developed would focus their attention on more "innovative" issues like electromobility, ITS or urban logistics.

Taking the identified requirements of the cities into account, the knowledge to be provided must be easily accessible and quickly graspable. Especially planners in smaller cities usually do not read extensive scientific reports with research findings. The most important source of information are Good Practice examples from other cities. The examples must be prepared in a way that they are quick and easy to grasp in essence, but detailed information can also be called up if required. The good practice examples available for example on Eltis or Civitas are only used by a few planners and, if so, for inspiration. There is a lack of important information elements which make operationalization difficult. Within the framework of SUITS, this topic will be further investigated and a kind of framework will be developed together with the cities, which reflects the information interest of the cities in dealing with examples of good practice. The developed challenges already contain many of these points.

4. Capacity Indicators Assessment

4.1 Capacity Indicators Framework

Generally, indicators can measure the inputs, the processes, the outputs and the outcomes of an organization. To assess the capacity of local authorities to plan and implement sustainable mobility measures, a set of indicators was developed intending to encapsulate the whole of the areas that determine the capacity of LAs to execute their plans. For this, specific qualities of indicators have been identified in the literature, such as relevance, completeness, availability, measurability, reliability, familiarity, non-redundancy and independence (D1.4 – Project Evaluation Plan), and drove the design process of this Capacity assessment framework.

The indicators should:

- be valid in objective, reliable in measurement, well-defined, sensitive to change, clearly defined, easily understood, controllable, measurable, independent (CIVITAS framework).
- capture organizational and behavioural changes as well as material and technical changes.
- reflect an understanding of the change strategy for capacity development.
- be valuable to transport planners in order to enhance the achievement of successful changes and pave the path to improvements in performance.
- be understandable by all the stakeholders involved
- allow a standardized measurement of change in order to compare performance in time periods
- provide a reference framework for guiding all stakeholders toward the same goals.

Based on the retrieved information, the background knowledge and the individual experience, a set of indicators was generated. The purpose of this outcome is to deduct information on the relationships among internal and external work attributes, as well as technical, political and financial capacities. Our principles while forming the indicators of the LA capacity framework followed the afore-mentioned qualities and aimed at delineating the operation and the behaviour of the organization in terms of inputs, processes, outputs and outcomes.

The indicators aim to reveal possible inefficiencies in all the elements that form the capacity, their possible sources as well as their importance. They describe at best the range of activities that will lead to efficient and successful development and implementation of sustainable transport plans. The participating city partners played a key role in verifying the soundness, validity and contribution of the indicators presented in this framework.

The capacity assessment based on a throught analysis of the current operations of the institution considering 4 main categories (organizational, political, legal and societal) and 4 sub-categories (communicational, financial, managerial and technical) related to the environment in which the authority exists and operates.

Categories

Organizational ⬚: Institutional relationships within and between the organizations involved in a Plan, including the distribution of competencies among them, identification of the involved stakeholders and decision-makers and degree of independence in relation to national sectorial frameworks.

Political 🏛 : National agenda's commitment and engagement level regarding planning and implementation of measures. Coordination between national and local agendas, both in policies and funds distribution.

Legal ⚖ : Regulatory and legal framework perceived as a key element to decision-making processes. Division of legal power between organizations to plan and to implement measures. Organizational level of independence from national legal framework to regulate local processes and procedures.

Societal 👥: Public awareness. Plan's social evaluation. Projects' success indicators related to the level of public participation. Degree of final-users' acceptance.

Sub-Categories

Communicational 💬 : Information transfer among actors: channels, techniques, frequency. Engagement driven attitude. Process' participation management (internal and external/ public). Acceptance focused strategy.

Financial 🪙: Materialist indicator. Associated with budget's restrictions issues. Funding as enabler or barrier to overall plans' expenditure. Independence touchstone. Boost to technical and managerial improvement.

Managerial ✳ : Project's overall planning and coordination. Strategies and methodologies applied to ensure that requirements are met, goals are achieved on time, budget is respected and quality standards are checked, all in an efficient way.

Technical ✖: Practical aspects related to the provision of data, logistics procedures, material, tools and communication platforms.

Information about these aspects and the respective behavior of each LA and transport planning authority towards them will be collected through the use of a set of defined indicators. A clear and intuitive format is employed for the evaluation of the current capacity level when dealing with policy making and implementing. Behavioural, business and financial issues that appear in the forthcoming working packages are also included in the assessment framework.

Figure 3 gives an overview of the assessment categories and the associated indicators.

Organizational	💬	🪙	✺	⚒
Cooperation/ Coordenation				
Cooperation		✓	✓	
Decision-makers	✓	✓	✓	✓
Operational autonomy		✓	✓	
Financial autonomy		✓	✓	
Inter-departmental cooperation			✓	
Process				
Implementation rate			✓	✓
Monitoring			✓	
Punctuality			✓	✓
Organization's budget		✓	✓	
Progress Control			✓	
Risk awareness			✓	
Adaptability/ Contingency plans			✓	
Process learning			✓	
Financial Resources				
Financial sources		✓	✓	
Innovative Financing - Understanding		✓	✓	
Innovative Financing - Identification		✓	✓	
Innovative Financing - Training		✓	✓	✓
Innovative Financing - Use		✓	✓	✓
Innovative Financing and local economy		✓		
Innovative business model		✓	✓	
Technical/ Data Resources				
Logistical resources		✓	✓	✓
Communication resources		✓	✓	✓
Technological resources		✓	✓	✓
Use of new technologies				✓
Data availability				✓
Data collection				✓
Data analysis			✓	✓
Data sharing			✓	✓

Human Resources	💬	🪙	✺	⚒
Staff's commitment	✓		✓	
Realistic goals and priorities			✓	
Participatory management	✓		✓	
Effective delegation	✓		✓	
Team's trust in processes/ tools			✓	✓
Early engagement			✓	
Team's dimension		✓	✓	✓
Team's skills			✓	✓
Support tools/ techniques/ personnel		✓	✓	✓

Working Environment	💬	🪙	✺	⚒
Regular assessment/ self-assessment			✓	
Staff's needs	✓		✓	
Continuous learning			✓	
Turnover rate			✓	

Political	💬	🪙	✺	⚒
Political commitment			✓	
Coordinated institutional agendas	✓		✓	
Coordination/ cooperation between sectors	✓		✓	
Continuity			✓	
Financing		✓		

Legal	💬	🪙	✺	⚒
Legal and regulatory framework			✓	
Legal power delegation			✓	
Understanding of applied legal framework	✓		✓	
Procurement decision criterions			✓	

Societal	💬	🪙	✺	⚒
Public awareness	✓			
Public/ social participation	✓			
Public acceptance	✓			
Media reaction	✓			

Figure 3: Overview of the Capacity Assessment Indicators

4.2   Capacity Assessment Survey

The developed framework can be applied to cities of any size and location. The application of relies on the responses that were obtained during the interviews conducted to several local organizations from the Local Agents. These interviews aimed at reflecting the view of the organization on the capacity of the cities to implement their plans. In total, twelve local organizations including Municipalities were interviewed in six partner cities and one follower city. The results designated weaknesses and strengths of the cities. More specifically, enablers and barriers for the operation of the cities were identified in respect to the implementation of plans.

Table 25 shows an extract of the survey. The questionnaire contains a brief descriptions of all indicators and what each is intended to collect. Then it asks how the participants assess the performance of the respective city for each indicator. The example shown is about the degree

of cooperation between departments within the administration. In this case, participants were asked to rate the level of cooperation by using the attributes high, medum, low or insignificant.

Indicator O1	Cooperation	
Category	Organizational	
Sub-categories	Financing/ Management	
Definition	Expresses the level of collaboration among LA and the involved organizations that participate in all stages of planning and implementation of the Plan (financing, procurement of products and services, PPP)	
Context and Relevance	Assesses the model and level of cooperation between LA and the other participant organizations.	
Assessment	High, Medium, Low, Insignificant	
Importance		(0 – 100)

Table 25: Sample from the Capacity Indicators Assessment Survey

The inclusion of an importance factor to each indicator is of added value to the framework since it permits the evaluation of the impact of the level of operation of the city regarding each factor. To evaluate the importance of the individual indicators the respondents were asked to distribute in sum 100 points for all indicators. This score reflects how the interviewee perceives the indicators' level of contribution to the final capacity of the LA/ organization to develop and implement sustainable transport plans.

4.3   Results of the Capacity Assessment

The assessment was presented individually to each city, illustrating their strengths and weaknesses in certain areas. For each category, spider graphs were created, allowing the cities an easy assessment of the performance on each indicator. In some cases, several institutions responded to a city's request, so the different perspectives can also be easily compared. Moreover, the performance of different cities can be compared quite well in this way. Figure 4 presents the results for a city in the category Legal Aspects, where different respondents made their assessment. The inner circles indicate low scores and outer circles high scores. Hence, the city´s operations are satisfactory when assessing procurement decisions related to minimum prices but it needs improvements in the rest of the areas., e.g. in procurement decisions or legal power delegation.
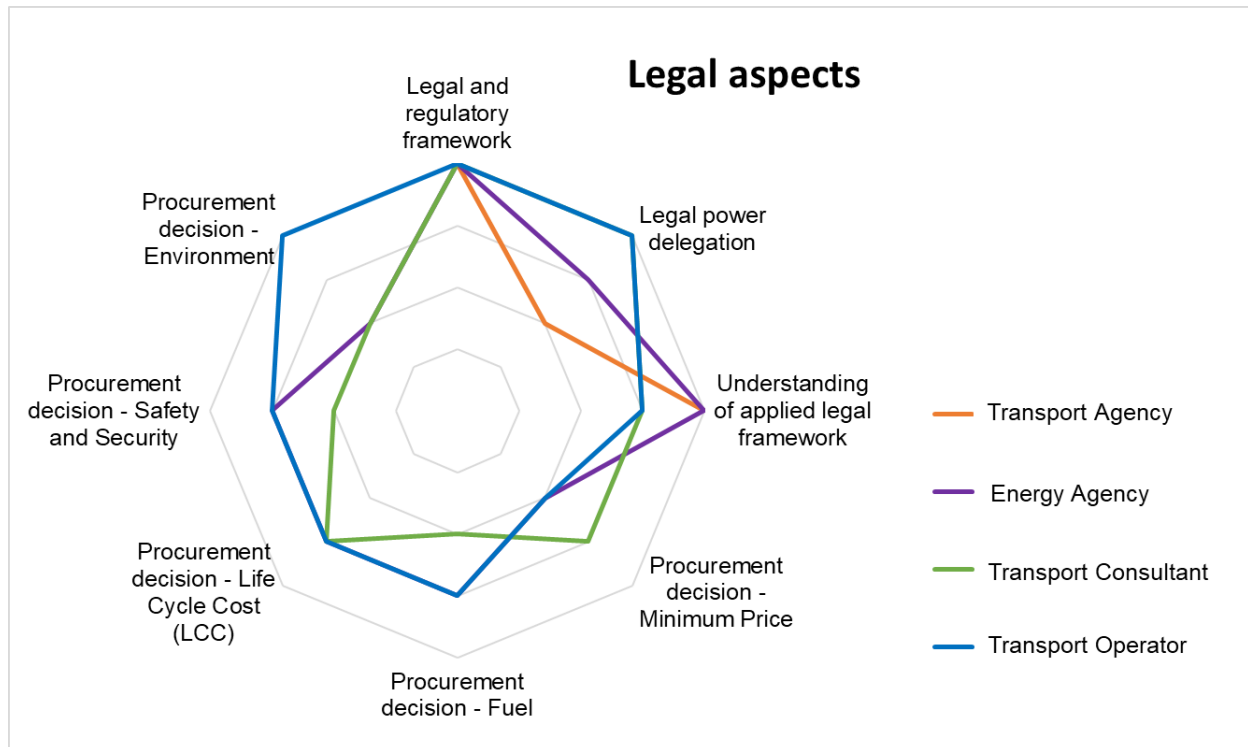
Figure 4: Capacity Indicator Assessment on Legal Aspects

The next step of the interpretation brings two aspects together to derive the need for action. On the one hand the assessment score, shown in the previous example and the importance attributed to each of the indicators by the respondents (see Chapter 4.2).

From the comparison of these two values, the need for improvement is derived. For example, there are indicators in which the cities have a poor performance, but have assigned a high importance to this indicator. In this case, an improvement is particularly important.

The following 4 results are possible:

- High assessment level – High Importance (HH)
- High assessment level – Low importance (HL)
- Low assessment level – High Importance (LH)
- Low assessment level – Low importance (LL)

The indicators that fall into the HH and HL areas comprise the set of strengths of the city while the LH and LL areas encompass the weaknesses of the city. More specifically, the indicators of the HH area can be considered as the opportunities of the city, the enablers that enhance its operation as far as the implementation of their plans is concerned and the indicators of the LH area entail the threats/barriers of the city that do not favour the implementation of plans.

Due to the different scales used for the assessment of the indicators, two types of graphs are produced, one for the indicators revealing the frequency with which an action was performed (always, most of the times, sometimes, almost never, never) and one for those indicators that revealed the level of the action (High, Medium, Low, Insignificant). As an example, Figure 5 illustrates the result of the analysis for a specific city. The LH areas are highlighted with a red-coloured framework because they encompass the indicators that are considered as important but they were attributed a low score during the assessment. We deduce that this is an area in

which attention should be paid so that capacity improvements are achieved. These are the barriers in the city´s operation.
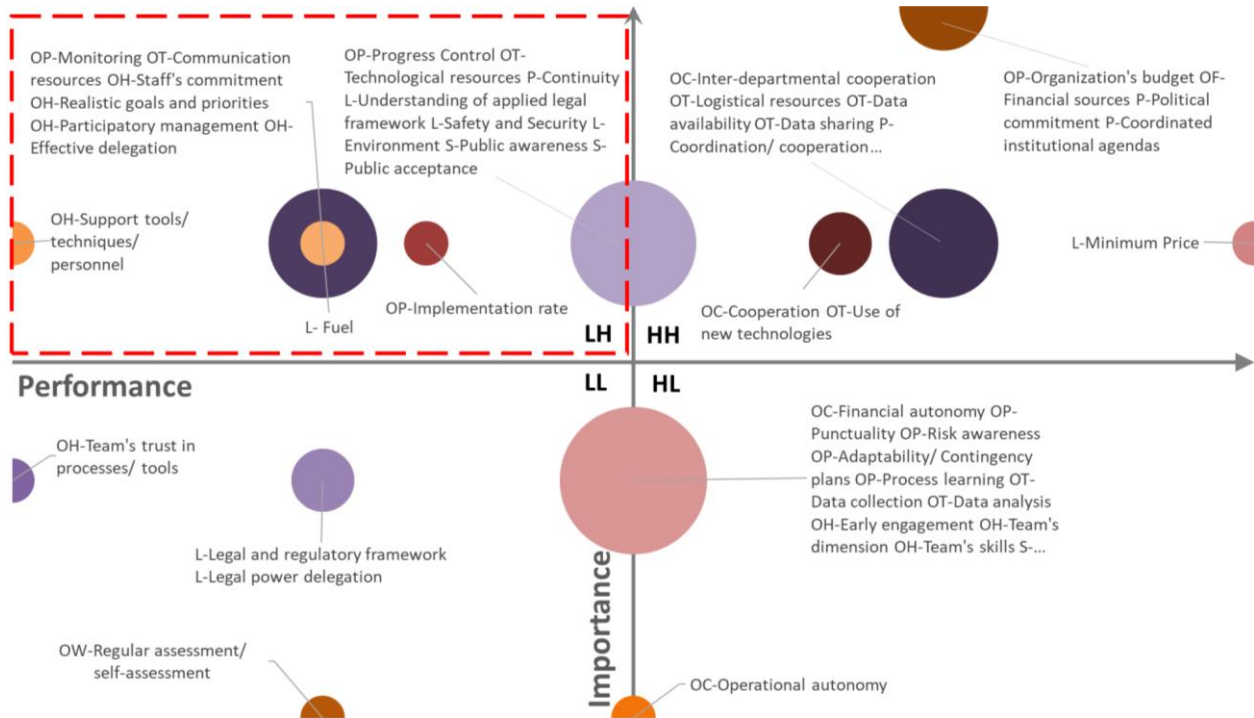

Figure 5: Example for the assessment of frequency-related indicators

In the case of this city, we observe that there is a considerable group of indicators in the HH area that implies a satisfactory state of operation from the perspective of the Municipality for the completion of its plans. Few aspects are characterized by low importance and low performance and some aspects of all the categories are at a medium performance level and are less important.

The final product of this analysis was a set of indicators that each City Authority should focus on in order to improve its capacity to implement plans ("Areas for interventions"). Conclusions were based on both the performance and the importance that was attributed to each factor. A detailed overview of the results for each city and the recommendations derived from them can be found in the Appendix I.

Aggregation of the results

The following graphs summarize the aggregate results obtained by all the respondent cities. Blue, yellow and brown areas demonstrate the indicators for which improvements are expected in order to enhance the capacity of cities to implement mobility plans. Innovative financing and training are two areas where the Authorities can intervene so that they improve their operations.

Figure 6 show the results of the level-related indicators. Among the frequency indicators (Figure 7), there are aspects that are dependent on the organization and, hence, are more controllable than others such as regular self-assessment, staff´s needs, participatory management, support tools/techniques and personnel, team´s dimension and continuous learning, coordination and cooperation among sectors, staff´s commitment, data analysis, data

collection and early engagement. Others aspects such as financial autonomy, political commitment, continuity, data availability, public acceptance are more difficult to be managed and reach a satisfactory rate of performance. This is mainly observed due to the impact of the external factors that are linked to the operation of a Local Authority and the interdependencies among all the entities. For example, it is easier to control, during a certain period of time, the internal human resources, their expertise and the organization of the work to be delivered than guaranteeing political continuity and financial inputs that mainly depend on the priorities each political entity sets during its governance period.
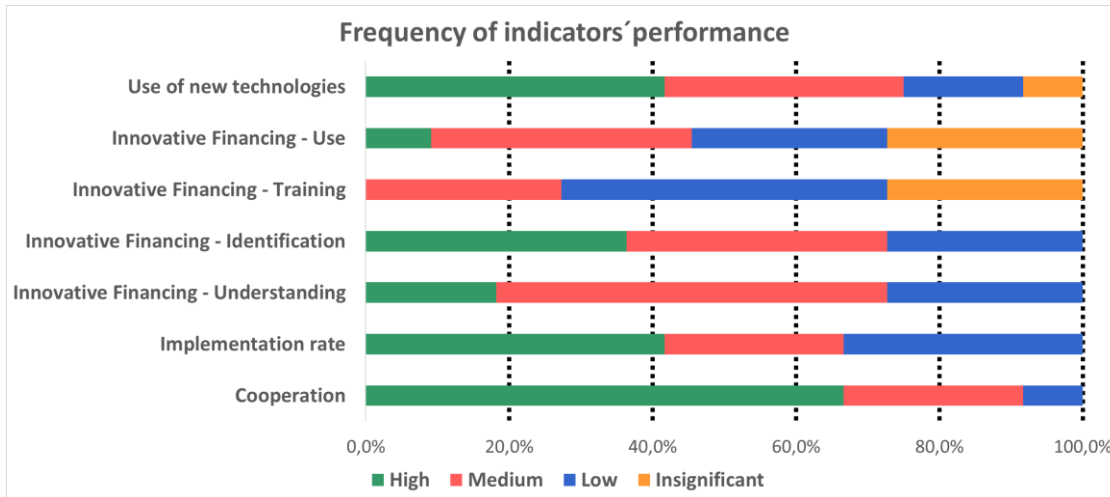
Figure 6: Global levels of level-related indicators
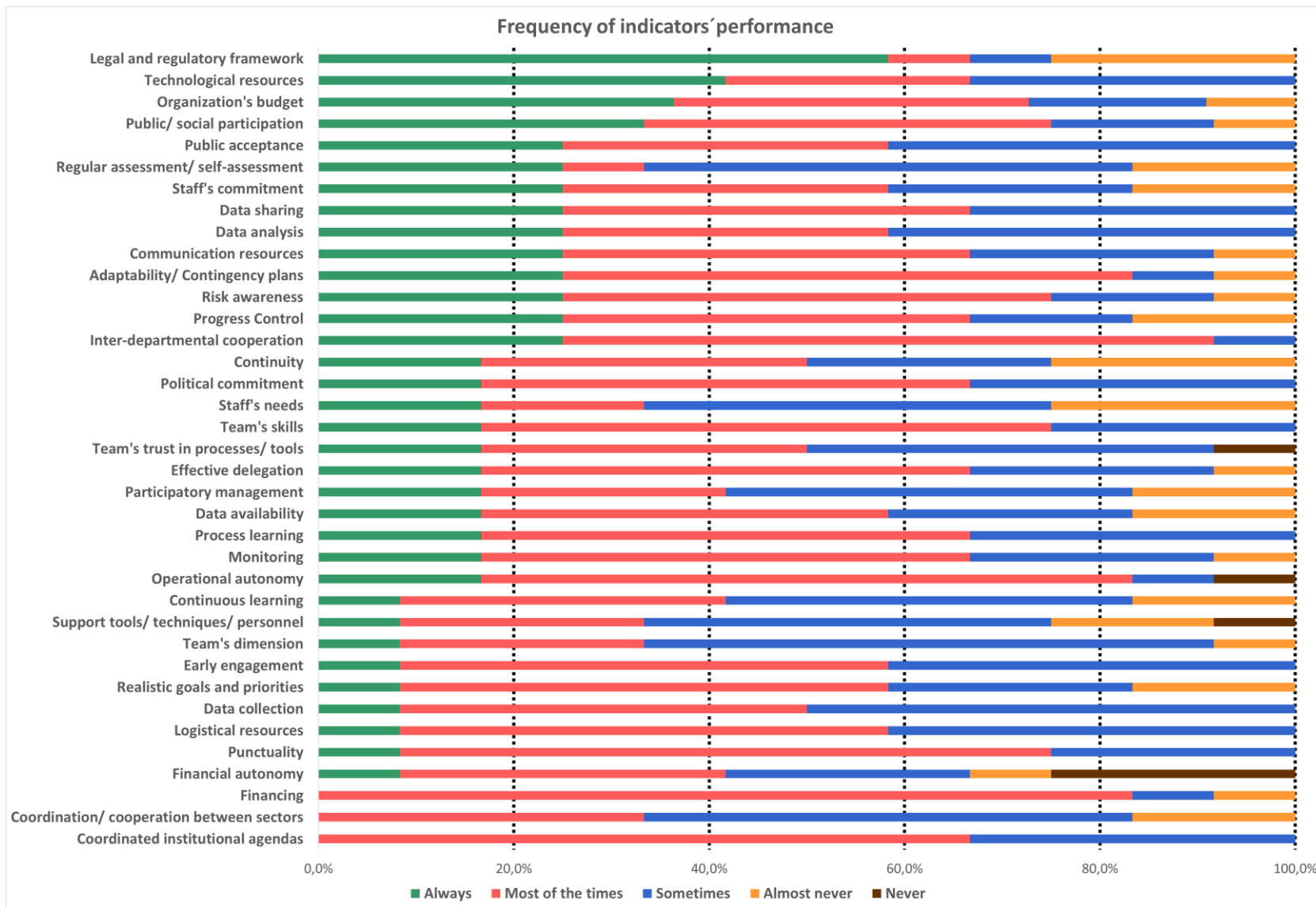
Figure 7: Global levels of frequency-related indicators

Table 26 shows a summary of the areas where each city needs to focus on and take actions so that it improves the indicators that are considered to be important and which received a low score in the evaluation. The results concern the self-evaluation of the cities, namely each city scores are unique and reflect the reality of each case.

Some indicators appear with higher frequency and demonstrate a common need for improvement among the cities. These are:

- Monitoring
- Innovative financing
- Innovative training
- Regular self-assessment
- Staff´s needs
- Coordination cooperation between sectors
- Legal and regulatory framework
- Legal power delegation
- Understanding of applied framework

As some of these indicators are internal aspects of the Authority, it is suggested that it is easier to receive interventions. These aspects will be taken further into account in the future work to be developed in the SUITS project.

	City 6	City 1	City 4	City 2	City 3	City 7	City 5
Cooperation/ Coordenation							
Cooperation							
Decision-makers							
Operational autonomy							x
Financial autonomy		x			x		x
Inter-departmental cooperation					x		
Process							
Implementation rate					x		x
Monitoring	x		x		x		x
Punctuality			x		x		x
Organization's budget			x				
Progress Control	x			x	x		
Risk awareness				x	x		
Adaptability/ Contingency plans							x
Process learning				x			x
Financial Resources							
Financial sources			x				x
Innovative Financing - Understanding					x	x	x
Innovative Financing - Identification		x					x
Innovative Financing - Training				x	x	x	x
Innovative Financing - Use				x	x	x	x
Innovative Financing and local economy							
Innovative business model							
Technical/ Data Resources							
Logistical resources							x
Communication resources	x						x
Technological resources							x
Use of new technologies						x	
Data availability			x		x		x
Data collection							x
Data analysis							x
Data sharing					x		x
Human Resources							
Staff's commitment	x		x				
Realistic goals and priorities	x						
Participatory management	x	x		x			
Effective delegation	x						
Team's trust in processes/ tools			x				
Early engagement							
Team's dimension			x	x			
Team's skills							
Support tools/ techniques/ personnel	x		x	x	x		
Working Environment							
Regular assessment/ self-assessment		x	x	x			x
Staff's needs		x	x	x			x
Continuous learning		x			x		x
Turnover rate						x	x
Political							
Political commitment			x	x			x
Coordinated institutional agendas			x				x
Coordination/ cooperation between sectors		x	x	x	x		x
Continuity	x		x	x			
Financing				x			x
Legal							
Legal and regulatory framework	x			x		x	x
Legal power delegation	x		x	x			x
Understanding of applied legal framework	x	x	x	x			
Procurement decision criterions							
Procurement decision - Minimum Price							
Procurement decision - Fuel	x	x		x	x		
Procurement decision - Life Cycle Cost (LCC)		x		x			
Procurement decision - Safety and Security		x			x		
Procurement decision - Environment					x		
Societal							
Public awareness	x						
Public/ social participation				x	x		
Public acceptance	x		x				
Media reaction							

Table 26: Important indicators to enhance

4.4   Impact Assessment Framework

Each mobility measure is expected to be associated with different challenges, as presented in chapter 3.2, depending on the nature of the measure and the scale of the city. To address these challenges, an impact assessment framework is proposed based on the proposal of the NISTO project (2015). The aim of this framework is the monitoring of targets set by the cities to improve their capacity. Therefore, the overall objective of this framework is the association of mobility measures to challenges and capacity indicators in order to set smart targets for each city that will contribute to the achievement of capacity change at the end of the project.

This framework aims at joining all the parts of the assessment into a common analysis. It consists of 6 distinct areas (NISTO, 2015 – Figure 8) that constitute the steps of an analysis. The colours of the steps represent the type of the partner of the project that plays the major role in it. Blue-coloured steps depend on the cities´ decisions, green-coloured steps are mainly connected to partners that perform the analysis and red-coloured steps present the final stage which is the presentation of the impact from the respective partners.
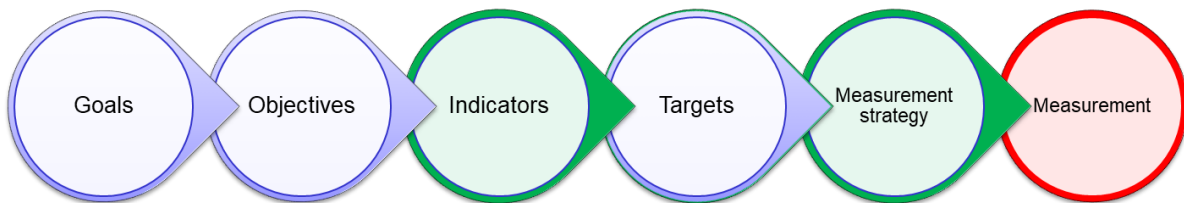
Figure 8: Impact assessment framework (NISTO project, 2015)

The concept behind this framework lies on the association of mobility measures and respective challenges to the results of the capacity assessment. The goals set are the mobility measures that are decided by the cities to be implemented. The objectives are the challenges that are chosen by the cities out of the "Challenges" as priorities to be tackled in respect to each mobility measure. The indicators section corresponds to the indicators that are associated with the chosen challenges and were identified as areas for interventions during the capacity assessment. This step is followed by the targets which the cities set so that they can improve the indicators that were designated as important in the analysis. After the targets are set, a measurement strategy is set for each of them so that we are able to count the impact of the target. Finally, the measurement is the quantified change observed in specific indicators and reflects the different between the current state and the application of an intervention that aims at increasing the capacity of the city. The measurement strategy and the measurement are steps that will take place later in the project, in WP6 Organisational Change and WP7 Evaluation. Figure 9 and Figure 10 illustrate the content of the steps of the impact assessment framework and the relation of the steps to tasks of the project respectively.
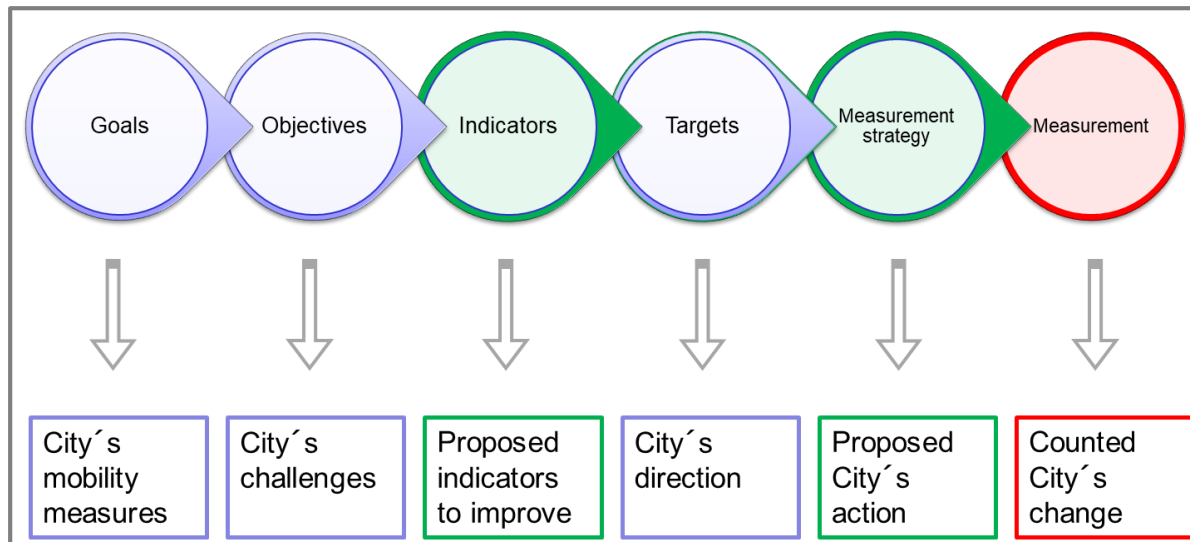
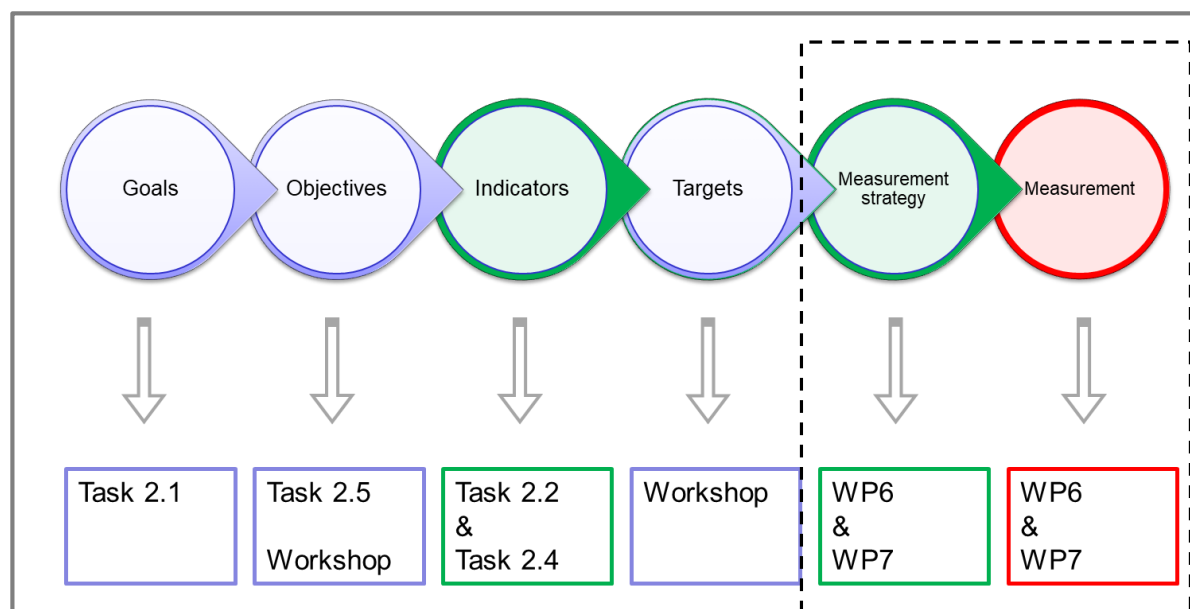Figure 9: Impact assessment actions

Figure 10: Relation of impact assessment to SUITS structure and workflow

4.5   Mobility measures and city targets

In this part, the focus of the cities on each of their mobility measures is addressed. Through close collaboration with city partners and local agents, the results of the capacity assessment and the priorities set by the city partners are matched. In this way, through the collaboration of all the project partners, specific targets were set for each city. This outcome will feed the work of the following tasks of the project and will allow the measurement of changes.

The results describe the relationship between measures, challenges, indicators and targets of each of the cities. First, all city´s mobility measures and associated challenges are described. Then, for each challenge the areas of intervention with their respective capacity indicators are defined. In this way, for each city the indicators that should be improved in order to achievethe objectives of each city for each of their measures are designated. Finally, the targets are set.

A city is used as an example in order to illustrate the followed process. Figure 11 illustrates the proposal to the city partners for measures to be taken by them in order to achieve a positive change in their capacity to implement plans. Regarding the mobility measure that aimed at developing an integrated intelligent mobility strategy, a set of challenges related to this measure are presented based on the contextualization and capacity results. Additionally, the indicators that are pertinent to these challenges and to which it was found that the city is underperforming, are indicated. During the collaboration with the representatives of the city in a workshop, it was found that the city was more interested in tackling some of the proposed challenges (Figure 11). Accordingly, the number of the capacity indicators to improve decreased. Through this approach the spectrum of the aspects to be tackled by the city is reduced and allows the city representatives to focus on a **small and manageable set of information that is designated as a priority for their operation**.
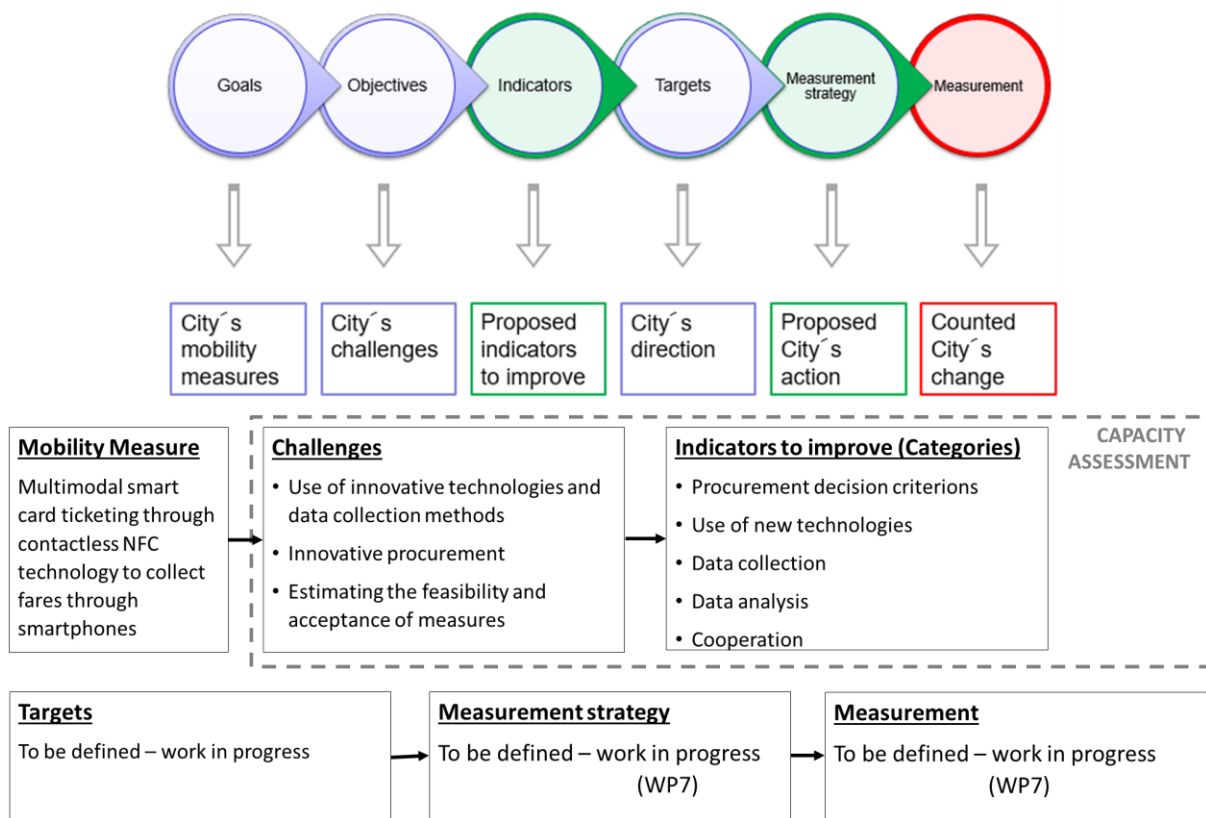
Figure 11: Example – Measure, Challenges and Target setting

A general conclusion is that many cities aim at reducing air pollution and improving the quality of life, especially in the city center. Most of the cities focus on measures related to freight transport and Intelligent mobility strategy. Also, several measures related to the use of more sustainable modes of transport and the increase of social awareness are found. This is in fact the basis for pursuing the objectives with a view to achieve sustainable mobility.

The Appendix I presents the capacity assessment anonymized results for each city, the mobility measures that are set as priorities for them, the identified challenges and targets and a short conclusion for each city.

5. Conclusion

The work presented in this Deliverable of SUITS project aims at depicting the current state of the participating cities and designating the priorities they need to set in order to improve their capacity as far the implementation of plans is concerned. A common aspect observed in the operation of many public organizations and cities, specifically, has been the lack of realistic and accurate targets with respect to the confronted challenges. Up to date, there is no manual for goal setting in the framework of city and transport planning. One main aim of the work carried out in the capacity assessment, was to understand the factors on which the cities' capacity to plan and implement measures depends. For the assessment of the cities a triangulation approach was applied, consisting of quantitative and qualitative methods in three steps: contextualization of cities, capacity assessment and target setting.

With the contextualization survey a fairly detailed picture of the general mobility conditions in each project city could be retrieved. The framework of capacity indicators presented in D2.2 shows which factors determine the cities' capacity to plan, develop and implement mobility measures. By applying the indicators for the assessment, concrete improvement potentials with regard to capacity could be identified for each individual project city. The qualitative investigation in the shape of workshops, interviews with the cities and the cooperation between academic partners and their assigned cities helped to find out the reasons for capacity needs and to collect the hidden knowledge of the mobility planners. The findings were used to derive a total of 15 challenges which all cities face when planning and implementing mobility measures. The cities have selected concrete challenges for 3 of their measures, which they want to put a focus on in the further course of their activities on the measures. The project will support the cities on these challenges and will use the insights for the iterative development of training methods and materials. In order to pinpoint the areas in which each city should pay the most attention for each of its mobility measures, each mobility measure is associated with the most important challenges, which in turn were associated with the indicators that were found to be important and low performing during the capacity assessment. This process allows the definition of targets that should be set for each city. Then these targets set for each city require the definition of a measurement strategy and a measurement score that will allow the assessment of the impact of the targets.

The research made it clear that the substantive problems that the cities face are essentially the same. In the main focus these are problems caused by motorised private transport like congestion and pollution. The solution approaches are mainly based on an increase in the attractiveness of public transport, the integration of new forms of mobility into existing networks, the enhancement of efficiency through the use of digital technologies as well as the establishment of participation processes. In addition, the issue of improving the quality of life is becoming a point of focus. The topic of freight transport also plays an increasingly important role but is still not in the priorities of many cities.

The results show that an improvement in the ability to act effectively can be achieved above all through the improvement of internal organisational and communicational processes and the strengthening of cooperation and participation processes with citizens, business partners and politicians. Particularly in the area of institutional cooperation it became clear that this is regarded by the cities as an essential factor within the framework of sustainable mobility planning, but at the same time this area presents the cities with the greatest challenges, which are associated with many uncertainties. This becomes clear with a look at the challenges the cities chose for their further work. This topic will play an important role to the organisational

change process in WP6. The situation is somewhat different when it comes to the involvement of citizens. This challenge is considered equally important by the cities but is also often selected. Also, very often the challenge of Interaction and cooperation with business partners was chosen. Cities are aware that more and more private providers are shaping the mobility offerings of the future. In order to integrate their services, they need to understand the added value of certain services for citizens, for the city or even for the provider of local public education. They also need to understand what conditions need to be created to make it lucrative for private operators to offer the respective services. Considering the selection of the cities, the challenges Use of innovative technologies and data collection methods, Understanding political interests and affecting political decisions and Estimating the feasibility and acceptance of measures continue to play an important role.

As the outcomes of SUITS should support mainly small to medium cities, a high focus of the analysis was on the differences between the different types of cities. From the findings of the work with the project cities it can be concluded that small, medium and large cities basically face the same challenges. Of course, the planning and implementation of certain measures in larger cities usually affect more people and require more effort than in a smaller city, but nevertheless, each city is confronted to some extent with the challenges derived in Chapter 3. A significant difference lies in the personnel capacity. In this regard, larger cities are usually better situated than smaller ones. This makes it possible to build up a wider range of knowledge and expertise. In the medium-sized cities, on the other hand, the mobility departments are smaller and consist of only a few people. In small cities, mobility planning is often entrusted to only one person, in some cases, mobility planning is just a "secondary task" of the traffic planner or the city planner. As a result, more tasks have to be outsourced or contracted because the required expertise is simply not strong enough. However, this is associated with high costs and some regions often have a lack of financial resources. But apart from this, there are also large cities that have completely outsourced individual areas of their mobility planning to external consulting companies. In addition, it is usually difficult to establish innovative and sustainable forms of mobility in smaller cities. For many providers, such as bike- or car-sharing providers, it is only worthwhile to offer their services profitably from a certain size of the city. In smaller cities, however, it is often easier to implement certain measures as fewer people are to be involved in the administration and in decision-making. Usually, larger cities in particular are the pioneers in terms of sustainable mobility and development of innovative measures. Smaller cities are then more oriented towards the large cities and try to adapt measures.

With regard to the support materials to be developed, it became clear that the knowledge from research projects, which is available in the form of extensive guidelines, is rarely used by the cities. Cities primarily want clear materials that give a quick overview of thematic areas. In addition, it is helpful to receive recommendations and experiences derived from concrete projects. Overall, good practice examples for inspiration and information gathering play the main role. However, it is often difficult to transfer the findings to the local conditions of another city.

This deliverable links the information obtained during the contextualization of the cities to the capacity assessment results and the material obtained through the collaboration with the cities ensuring that the targets set per city correspond to their needs and mobility priorities. The presented methodology is a user-friendly methodology. It allows any city to benefit from its fast-to-reach results and get closer to improvements and successful implementation of plans. The conducted analysis will be employed as input for further analysis to be conducted in other working packages in order to materialize and count the impact of the proposed changes. In the further course of the project and the iterative development of materials in cooperation with the cities, the focus will be on the development of an increasingly precise picture of how information must be prepared so that it will be efficiently and effectively used.

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Appendix I

A.1 City 1

During the self-assessment process, it was found that City 1 is implementing a new SUMP and the previous one is under evaluation and revision. As expected, it has allowed a more sustainable city profile in terms of mobility. Nevertheless, the city continues to focus on developing a car-sharing system and reducing congestion in the center to make it a more peaceful and clean place. The results from the self-assessment on aspects related to sustainability and mobility policies showed a good operation in almost all fields, highlighting **Financing** and **Safety&Security** as priorities, and the areas where support is needed, namely **urban traffic safety, urban logistics and electric mobility and clean fuels**.

A.1.1 Results of the capacity assessment

Two self-assessment results were obtained: one conducted by the Municipality and one conducted by the transport Authority. The evaluation of process indicators and aspects related to the working environment, political – legal and societal aspects coincide for the two entities. Regarding the ***process*** followed, both the Municipality and the transport Authority believe that the capacity of the city is very good since most of the times the city complies with monitoring, punctuality, organization´s budget, progress control, risk awareness, adaptability/contingency plans and process learning. The opinion of the two is also aligned in what concerns the implementation rate that is considered by both high. Their view on the ***technical and data resources*** differed in most of the indicators apart from the assessment of exploitation of communication and technological resources which happens at an average rate ("sometimes"). The use of new technologies is not well rated by either of the two. In the assessment of the rest of the indicators, the transport authority is more optimistic than the Municipality. ***Human resources*** have also been equally rated by the two entities reflecting the impression that most of the times there is correspondence with the required staff´s commitment, realistic goals and priorities, participatory management, team´s trust in processes and tools, early engagement of staff, team´s skills and use of support tools/techniques and personnel. The only difference is observed in the team´s size that has been lower rated by the transport authority but still remains at a very good level for the local authority which allows to correspond most of the times to the needs of the projects. Considering the ***working environment,*** it is perceived in the same way, with a medium performance; regular assessment, staff´s needs and continuous learning take place sometimes and the turnover rate is medium. In the ***political – legal – and societal aspects,*** we see a variation in the self-assessment of the indicators but there is agreement between the two entities. The weakest areas were: the coordination/cooperation between sectors, the understanding of the applied legal framework and procurement decisions. It is considered that the ***financial resources*** are identified but exploited at a medium or low level. The perception of the transport Authority and the Municipality are

identically different in the evaluation of the impact of the innovative financing and business models; the Municipality rates these two factors much lower than the Transport Authority indicating that there is a gap of understanding between the two or that the expectations differ.

Figure 12, Figure 13, Figure 14 and Figure 15 give an overview of the assessment of the city´s capacity to implement plans from the perspective of the Municipality (M) or the Transport Authority (TA). There are few coincidences of the view of the two stakeholders.
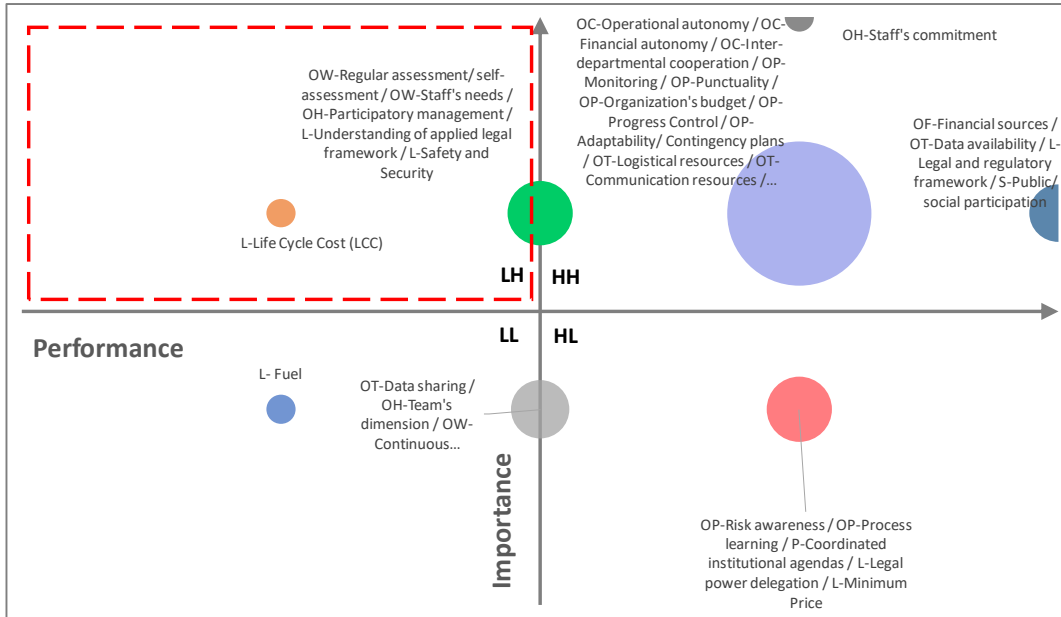
Figure 12: City 1 – Transport Authority – Frequency related indicators
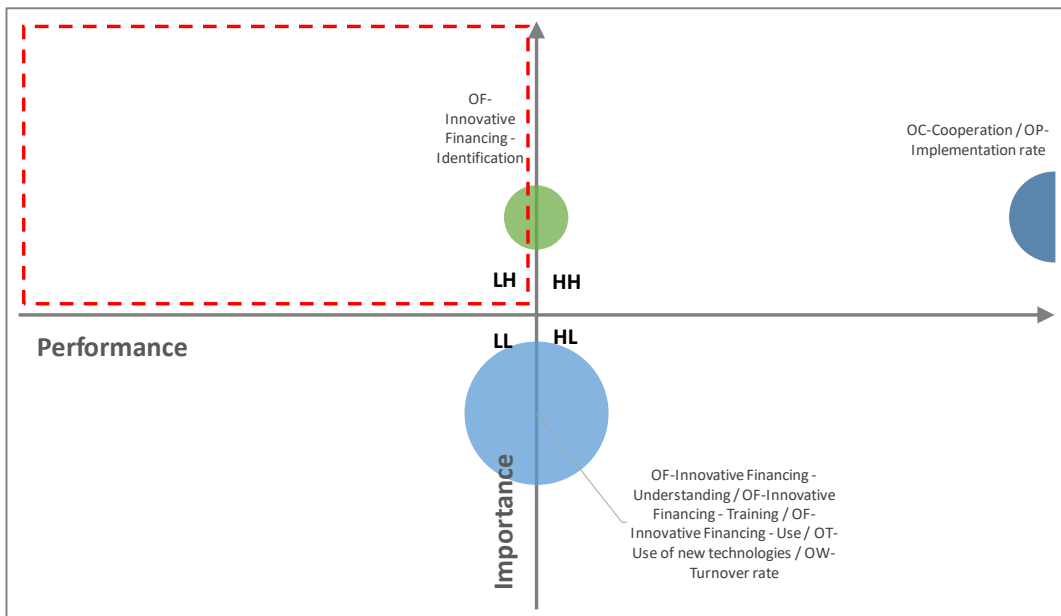
Figure 13: City 1 - Transport Authority – Level related indicators
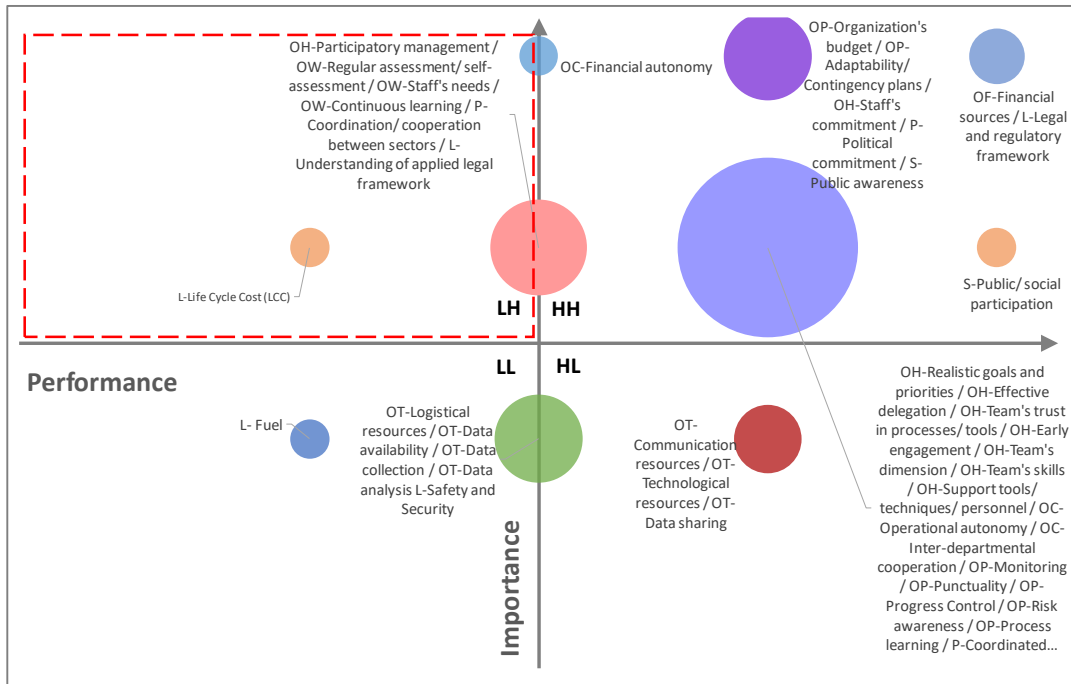
Figure 14: City 1 - Municipality - Frequency related indicators
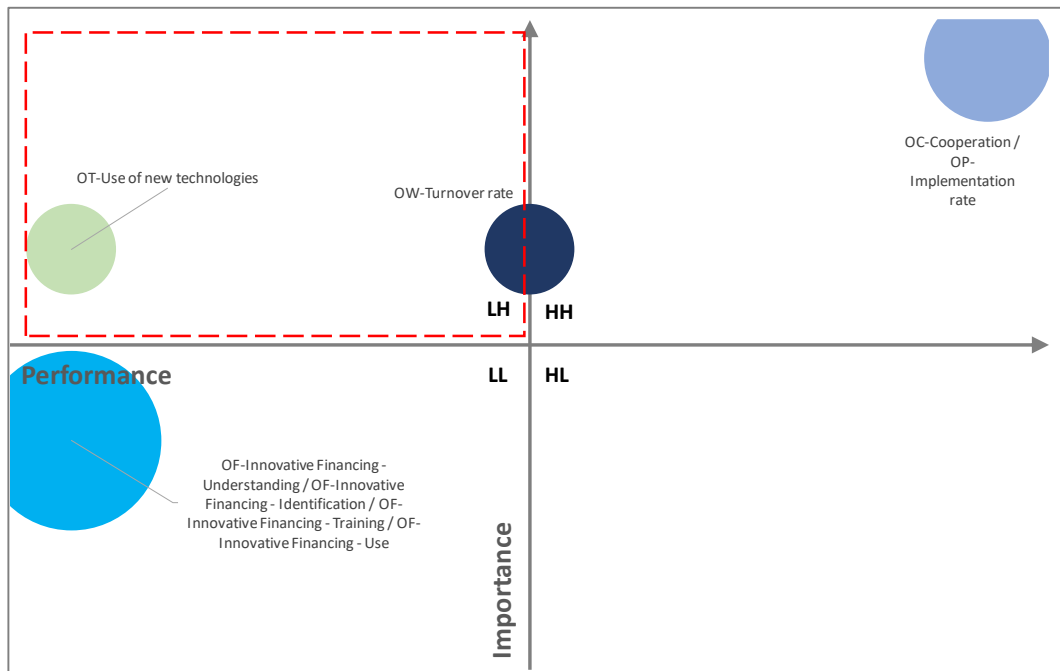
Figure 15: City 1 - Municipality - Level related indicators

The following Table 27 show the indicators that received low assessment scores and high importance rates.

Category	Indicator	Description
Organizational		
Cooperation/ Coordination	OC-Financial autonomy	Financial independence from central government and other financial agencies.
Financial Resources	Innovative Financing - Identification	Ability to identify innovative financing opportunities
Human Resources	Participatory management	Level of bidirectional communication between different management levels of the organization. Global knowledge increment.
Working Environment	Regular assessment/ self-assessment	Identification of strengths and weaknesses of each member of the team.
	Staff's needs	Team's members needs are encouraged to be exposed inside the organization.
	Continuous learning	Permanent effort in keeping the staff updated regarding tools and techniques that would assist the project. Includes the level of evolvement in workshops, seminars, conferences, etc..
Political	Coordination/ cooperation between sectors	Effective networking between the national departments of Transport, Land use, Mobility, Energy, etc..
Legal	Understanding of applied legal framework	All applicable legal framework should be clearly understood by all the involved stakeholders.
	Procurement decision criterions - Safety and Security	Way of using safety and security as a decisional criterion in the public procurement procedures
	Procurement decision criterions - Life Cycle Cost (LCC)	Way of using LCC as a decisional criterion in the public procurement procedures
	Procurement decision criterions - Fuel	Way of using fuel as a decisional criterion in the public procurement procedures

Table 27: City 1 - Areas for interventions

Speculation of all the information for the city leads to the observation that the mobility measures and respective challenges involve areas of intervention linked to aspects more related to citizen participation and stakeholder engagement. Hence, with the intention of redesigning the city, they will focus their efforts both inside and outside the organization. Within the organization, the objectives are the transfer of information and the demand for innovative public procurement. Outside the organization, the city must work to change the habits and the behaviour of the citizens to increase awareness and commitment to the planned mobility measures.

A.1.2 Mobility Measures

1. Improve Freight Distribution in the city center

Background and goals of the measure

City 1 has an historic city centre. In order to save this character and to increase the quality of life and stay in the centre, freight traffic needs to be restricted. This should lead in particular to a reduced pollution and a lower impact of urban freight logistics on circulation of pedestrians and cyclists. For this, the following measures will be implemented:

- Increase number of special loading and unloading areas
- Access control to restricted areas
- Time windows for delivery
- Use of new technologies to create efficient distribution and delivery systems that reduce the number of journeys, the length of delivery routes and -time,

Actually, this item depends on moreelements, such as: new ordinance, new tender process for monitoring parking spots, urban planning related to parking spots, and several funded projects in the city with some developments regarding parking access and monitoring.

In mobility every action related to parking spots reduction, redesign or limited access is always of the great interest for any City Council. Therefore, the key is to develop a good communication strategy with participatory process, transparency, raising awareness, show the benefits and ensure the citizens´ and stakeholders´ support. Great challenges are citizen engagement, stakeholder support, developing parking alternatives and competitive public transport.

SUITS Challenges chosen by the city	Related Indicators
1) Institutional cooperation 2) Interaction and cooperation with business partners 3) Citizen participation	1) Coordination/cooperation between sectors - Political 2) Participatory management – Human resources; Understanding of applied legal framework – Legal 3) None applicable

Targets
1) Organize public meetings with different agents
2) Organize workshop with Local Authorities
3) Conduct surveys, feedback on measures and innovative results

2. Progressive pacification of the speed of transit in the center and other points of City 1

Background and goals of the measure

City 1 promotes Sustainable Mobility and the change of the government had an impact on the mobility vision and the main goals aligned with CIVITAS and ELTIS. Higher attention is given to citizens and the implementation of a SUMP. An important issue is to increase the traffic safety in the inner city. For this, City 1 is implementing a package of different measures with the aim of:

- reduction of accidents (aim of zero deaths)
- improvement of sustainability of transport
- improvement of the quality of life
- increase in pedestrian and bicycle movements
- ensure safe and secure pedestrian and bicycle mobility

The following measures will be implemented. After a test period these measures will be replicated in other areas of the city:

- speed limits (30 km/h)
- calm down of transit traffic

- rearrangement of parking spaces
- recovering and enhancing small public spaces
- promoting sustainable ways of transport

Success will be measured through:

- changing mobility patterns
- number of casualties
- data coming from environmental and mobility indicators like pollution level and information from public transport operator
- ideally, data regarding how this measure has changed local commerce and consumer behaviour

There was a high resistance on citizen's side and critical feedback on media at the beginning. Therefore, in the following steps a higher focus will be on:

- communication and citizen engagement
- raising awareness and show the benefits of the measures

SUITS Challenges chosen by the city	Connected Indicators
1) Institutional cooperation 2) Interaction and cooperation with business partners 3) Citizen participation	1) Coordination/cooperation between sectors - Political 2) Participatory management – Human resources; Understanding of applied legal framework – Legal 3) None applicable

Targets
1) Public meetings with different agents
2) Workshop with Local Authorities
3) Surveys, feedback on measures and innovative results

3. Pedestrianization of different areas in the inner city

Background and goals of the measure

This initiative is the first big initiative which shows the sustainable mobility strategy of the city. At significant tourist locations in the city different measures are to be implemented with the goal of:

- claiming back public space – design the city for the people
- promoting sustainable ways of transport
- improving public transport alternatives
- increasing safety

The measures to be implemented will include:
- re-design of public spaces in a participatory process
- claim back streets - Open space for walking and cycling
- traffic calming measures

City 1 focuses on transparency, raising awareness and a systematic citizen communication strategy in order to explain the benefits and get on-board both civil society and shopping association.

From the SUITS project, City 1 expects to receive helpful best practice examples, analysis methods and information on activities for stakeholder and citizen engagement.

SUITS Challenges chosen by the city	Connected Indicators
1) Institutional cooperation 2) Interaction and cooperation with business partners 3) Citizen participation	1) Coordination/cooperation between sectors - Political 2) Participatory management – Human resources; Understanding of applied legal framework – Legal 3) None applicable

Targets
1) Public meetings with different agents 2) Workshop with Local Authorities 3) Surveys, feedback on measures and innovative results

*None applicable: No important and low performing indicator was designated during the capacity assessment

Table 28: Measures of City 1

Speculation of all the information for the city leads to the observation that the mobility measures and the respective challenges involve **areas of intervention** linked to aspects more related to **citizen participation and stakeholder engagement**. Hence, with the intention of redesigning the city, they will focus their efforts both inside and outside the organization. Within the organization, the objectives are the transfer of information and the demand for innovative public procurement. Outside the organization, the city must work to change the habits and the behaviour of the citizens to increase awareness and commitment to the planned mobility measures. At this point, it is clarified that some challenges are not related to indicators in the city´s Measures Table (Table 28) meaning that the indicators associated to the challenge, as expressed in Table 28, were not part of the area for interventions of the city (Table 27), namely the related indicators were not found to be both "important and low performing". Therefore, these indicators may not necessarily be a priority for the city when it wants to improve its capacity.

Following the intention to improve the quality of life in the city center that was referred in the self-evaluation of the city, it should be noted that all the measures have as main focus of study the center of the city. Individually, we derive some correspondences from the measures with the transport offer self-assessment (Appendix I). In the case of the _Freight Distribution_, attention is paid on the regulation based on Delivery hours, which has already been implemented with a strong performance. This is reflected in some of the measures mentioned above to improve the freight distribution in the city center, such as the time windows for delivery and the use of new technologies to create efficient distribution and delivery systems that reduce the number of journeys, the length of delivery routes and time. Access control to restricted areas and increase in the number of special loading and unloading areas have not been implemented yet.

The mobility measures _Pacification of the speed of transit_ and _Pedestrianization of different areas in the inner city_, are related with car and active mode aspects gathered in the self-assessment of the city. Some of these aspects have been implemented with a strong performance, such as traffic calming zones or traffic light coordination, and others have been lightly performed, such as the setting up public bicycle/bike sharing systems and the making road crossings safer for cyclists. In this regard, the results from the capacity assessment highlighted the areas of intervention that the city needs to improve in order to achieve tackle with low-in-performance aspects.

From the SUITS project in general, City 1 is expecting assistance to identify innovative financing tailored to the national legal framework and promote innovative public procurement,

PPP (Public Private Partnership), business models and alternatives out of the box for the municipality.

A.1.3 Conclusions

The combined analysis highlighted that **political, human, legal aspects** are mainly the areas/fields to be considered as the **barriers** that impede its operation as far as the implementation of their plans is concerned. It should be noted there are no areas to be considered as enablers for these specific measures. Regarding the mobility measures, there are two challenges where City 1 should focus its efforts, each of them with the specific area of improvement: "***Institutional cooperation"*** and "***interaction and cooperation with business partners"***.

Despite "Participation" being one of the most important challenges for City 1, according to the capacity assessment, this is not one of the areas to improve. On the other hand, "Stakeholder Engagement" is collected in all the areas of performance as considered barriers, so it should be the focus of improvements for the city through changes in the following indicators: coordination/cooperation between sectors, participatory management and understanding of applied legal framework.

A.2 City 2

During the self-assessment process (Appendix I), it was found that City 2 does not have either a SUMP implemented or sectoral plans, but they are going to implement. As expected, this leads the city to a less sustainable modal split, where the private vehicles are the majority. The low extension of bike lanes and pedestrian area are elements that surely influence these values. Accordingly, the results from the self-assessment on aspects related to sustainability and mobility policies showed a not so high level of development in the aspects analyzed. The main focus would be on the following three mobility policy areas: **non-motorized transport, urban traffic safety and road transport** (including parking).

Data is usually collected to increase the knowledge on passenger mobility while, at the moment, not so much information is available on other topics. However, the interest in data acquisition in different domains is high. For example, the car-related aspects analysis shows that information would be needed on car ownership density, propulsion system and age of vehicles, while fleet composition, traffic flows and their distribution on the network would be requested for freight transport. Moreover, active modes data would focus on pedestrian and bicycle flows on main routes and passenger satisfaction on infrastructure and services.

A.2.1 Results of the capacity assessment

We receved the results of two assessments: one conducted by the Municipality (M) and one conducted by the transport Authority (TA). The self-assessment showed that there is not sufficient autonomy in the operation and cooperation from the perspective of the Municipality; the Transport Authority on the other hand indicated that the cooperation level is high. The view

of the two entities differ in the evaluation of the ***process indicators***; the highest variation is observed in the progress control and risk awareness aspects. The implementation rate of plans has been assessed with a low and a medium score. Most of the times ***financial resources*** are identified but innovation is not introduced in their exploitation. ***Technical aspects and data resources*** present a good, on average, performance for both entities. Data collection was the indicator with the lowest rate in this category (sometimes) while the use of new technologies has been considered high from the Municipality´s side and medium form the Authority´s side. ***Human resources*** are perceived to be well utilized/organized in the case of the Municipality while the transport Authority showed that there is space for improvements in almost all the indicators apart from the level of staff´s commitment which is always an asset for the operation. In what the ***working environment*** is concerned, the Municipality assesses better the related indicators (self-assessment, continuous learning and staff´s needs) than the transport Authority which indicated that actions of self-assessment and staff´s needs are almost never considered. In this context the turnover rate of employees´ occupation and participation was reported to be low in the operations of the Municipality and high in the case of the Transport Authority. Impediments appear due to the ***legal aspects of operation*** as there are many factors that are considered as not controllable. The same profile is presented for the assessment of political aspects. At this category the Transport Authority rated higher the exploitation of financing schemes for the transport plans and the coherence among national/regional/local transport plans. The views of the two entities on ***societal aspects*** varied; especially public awareness is assessed with both low and high levels. Media reaction to transport plans was mutually rated at an average level. Media reaction to transport plans was mutually rated at an average level. Factors related to financing were very low rated while the use of new technological resources and innovating financing received the highest values.

Figure 16, Figure 17, Figure 18 and Figure 19 illustrate the four areas of assessment-performance according to the Transport Authority and the Municipality. The indicator "Legal framework" is excluded because it received the highest score of importance (10 points) and was outstanding.
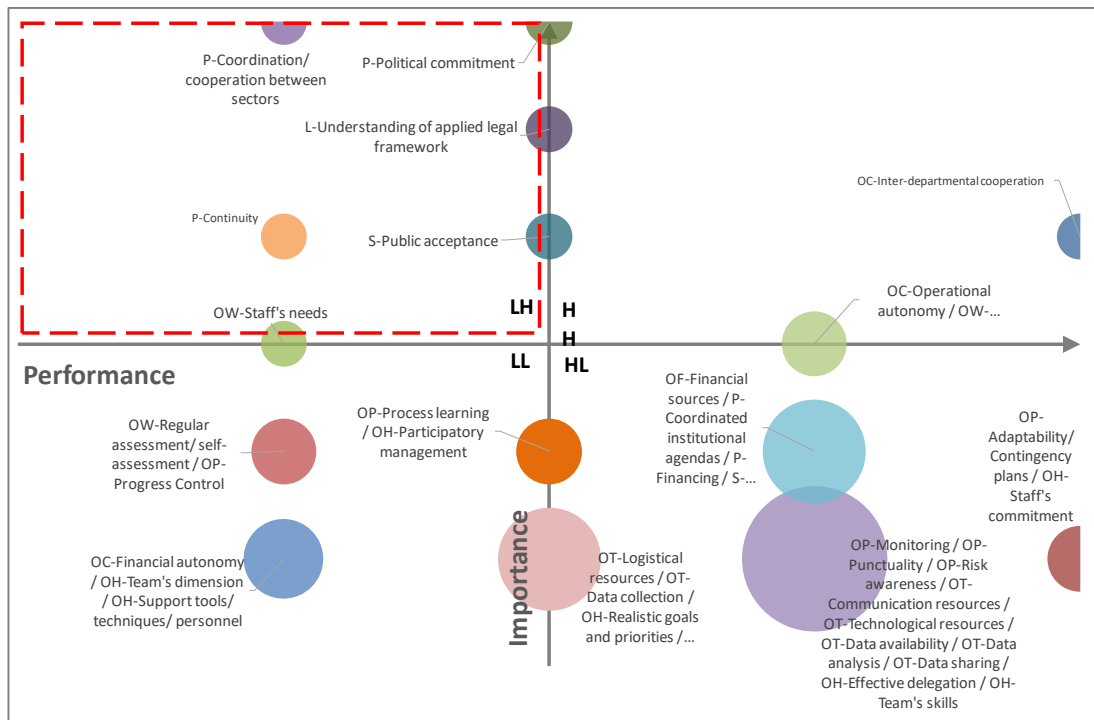
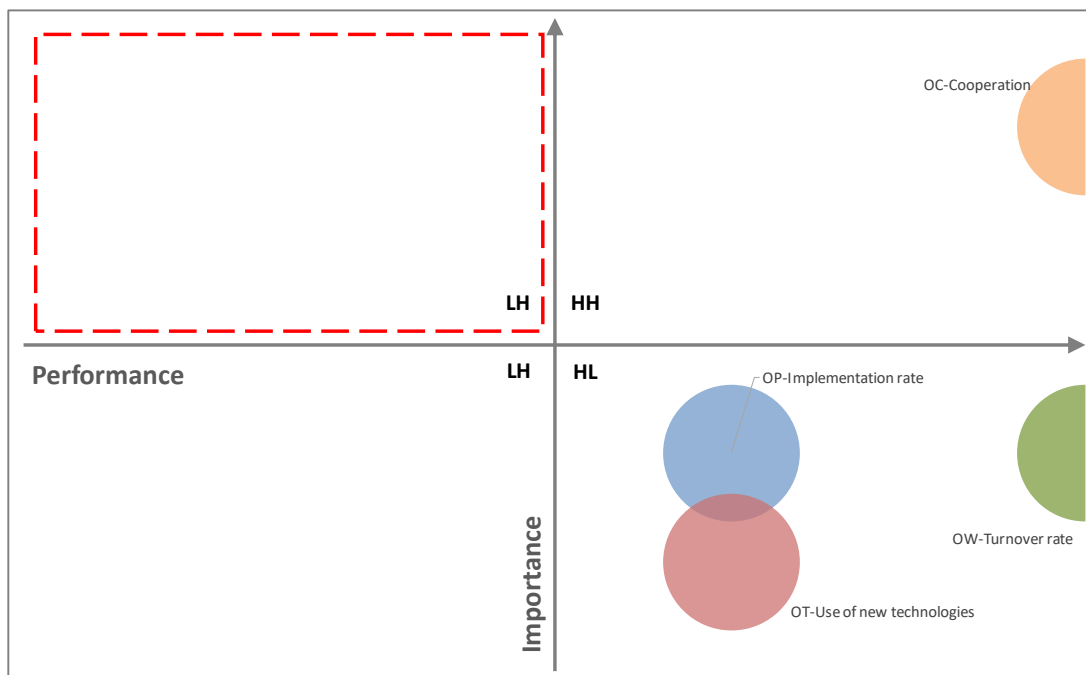Figure 16: City 2 - Transport Authority – Frequency related indicators

Figure 17: City 2 - Transport Authority - Level related indicators

Regarding the level-related indicators that reflect innovation and cooperation, they were not rated and it was commented that it is expected their impact to change in the new regulatory environment.
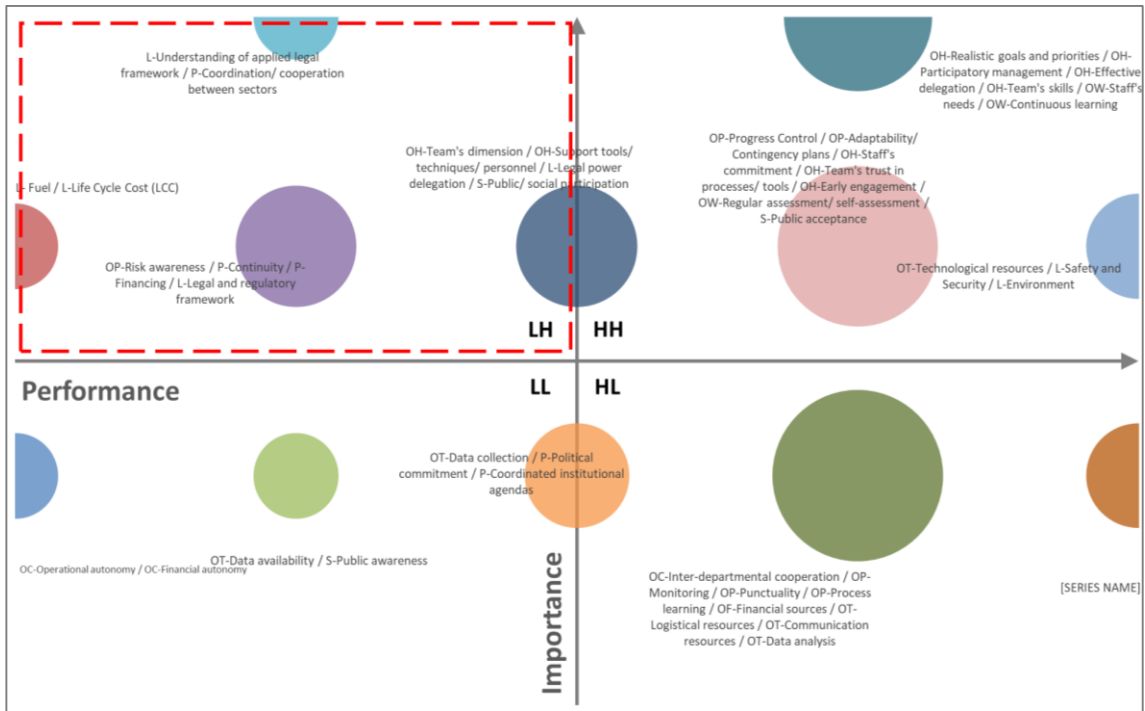
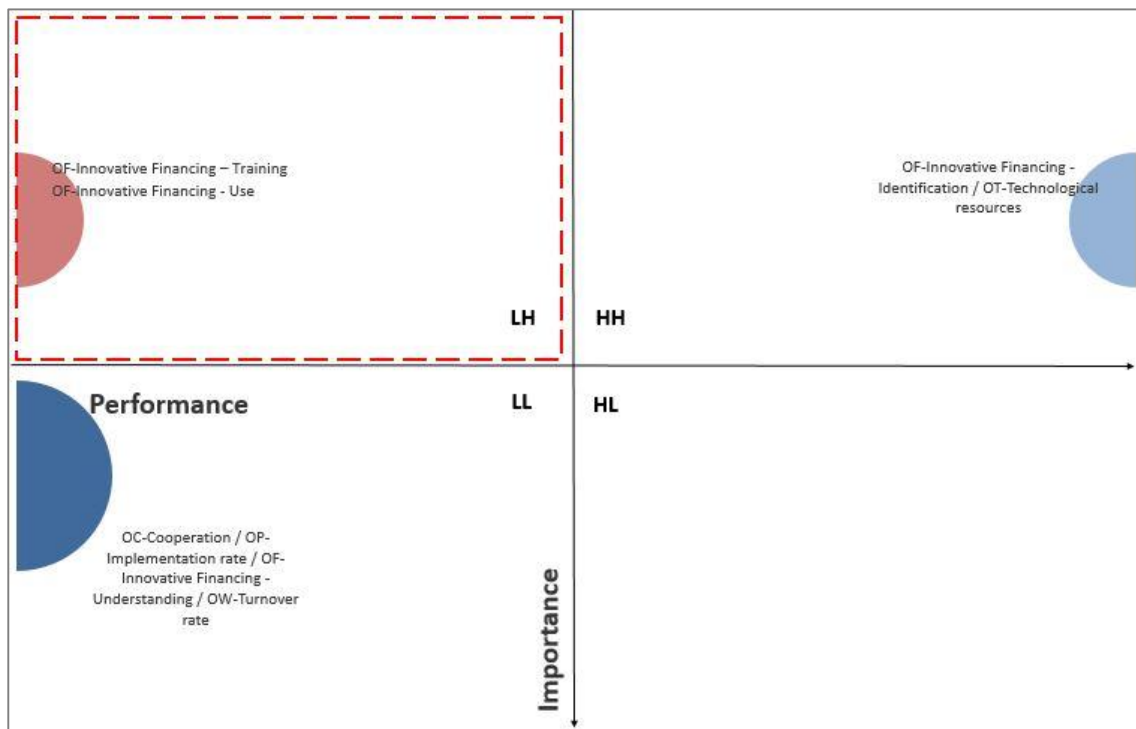Figure 18: City 2 - Municipality - Frequency related indicators

Figure 19: City 2 - Municipality - Level related indicators

Factors related to financing were very low rated while the use of new technological resources and innovating financing received the highest values.

Table 29 sums up areas for intervention. The majority of legal and political aspects are pinpointed as areas where improvements could lead to capacity enhancements.

Category	Indicator	Description
Organizational		
Process	Progress Control	Regular process' evaluations to determine gaps and flaws in the Plan's workflow execution.
	Risk awareness	Identification of possible risks that may appear during all the project´s lifetime.
	Process learning	Organization's acknowledgement of internalizing past experiences, both positive and negative, to solve present/ future issues that may arise.
Financial Resources	Innovative Financing - Training	The number of people in the organization who are trained in innovative financing.
	Innovative Financing - Use	Organization's implementation of projects utilising innovative financing resources.
Human Resources	Participatory management	Level of bidirectional communication between different management levels of the organization. Global knowledge increment.
	Team's dimension	Human resources available to complete all the project´s tasks.
	Support tools/ techniques/ personnel	Responsiveness to operational/ process inefficiencies.
Working Environment	Regular assessment/ self-assessment	Identification of strengths and weaknesses of each member of the team.
	Staff's needs	Team's members needs are encouraged to be exposed inside the organization.
Political	Political commitment	Defines how the project will be led and if it is a priority in the political agenda.
	Coordination/ cooperation between sectors	Effective networking between the national departments of Transport, Land use, Mobility, Energy, etc..
	Continuity	Commitment to the continuation of the project independently of the authorities elected; the plan is maintained unimpeded when moving from one political framework to the next one elected.
	Financing	Existence of financial programmes within the National General Budget to undertake the implementation of the Plan.
Legal	Legal and regulatory framework	Contribution of legal and regulatory frameworks to efficient decision-making processes.
	Legal power delegation	Organization´s autonomy to solve its own legal issues regarding the planning and implementation of the projects.

	Understanding of applied legal framework	All applicable legal framework should be clearly understood by all the involved stakeholders.
	Procurement decision criterions - Fuel	Way of using fuel as a decisional criterion in the public procurement procedures
	Procurement decision criterions - (LCC)	Way of using LCC as a decisional criterion in the public procurement procedures
Societal	Public/ social participation	Relevant public actions/ procedures taken to engage people in the development of the project.
	Public acceptance	Public willingness to support the implementation of the project and engagement to its operational phase

Table 29: City 2 - Areas for interventions

A.2.2 Mobility Measures

1. Intelligent mobility system information on traffic conditions and parking availability

Background and goals of the measure

In order the optimize travel times, City 2 is developing a real-time information system that provides the driver with information about current traffic conditions, available parking spots, public transport arrivals, estimated travel time, estimated optimal route and combined transport options. The greatest challenge for this is the use and sharing of citizens mobility data. Citizens must be aware and incentives must be created for the provision of mobility data (among the population but also in the logistics sector). City 2 wants to reach the following goals:

- Reduction in operational costs
- Decrease in air pollution during peak traffic freight hours
- Contribution and sharing of citizens' mobility data
- Awareness of citizens for sustainable mobility

Success will be measured through:

- Usage (%) of parking slots
- Measurement of travel time

SUITS Challenges chosen by the city	**Connected Indicators**
1) Citizen participation	1) Public acceptance
2) Use of innovative technologies and data collection methods	2) None applicable*
3) Application of research knowledge and adaption of Good Practice examples	3) None applicable*

Targets

1) Awareness of citizens for sustainable mobility; Increase of road´s level of service
2) Reduction in operational costs; Decrease in air pollution during peak traffic freight hours; Contribution and sharing of citizens' mobility data
3) Reduction in operational costs; Decrease in air pollution during peak traffic freight hours; Contribution and sharing of citizens' mobility data

2. Smart pedestrian crossing

Background and goals of the measure

City 2 has implemented a smart pedestrian crossing near a school to achieve higher road safety. Furthermore, renewable power energy resources (solar) should be promoted with this. Due to the wide usage

of the crossing, City 2 will extent the project and will implement other smart pedestrian crossings around the region. For this they need to raise the awareness and acceptance of the measure on the citizens´ side in order to get support for the expansion of the project.

SUITS Challenges chosen by the city	Connected Indicators
1) Citizen participation 2) Use of innovative technologies and data collection methods	1) Public acceptance 2) None applicable*

Targets

1) Awareness and acceptance of the measure of citizens for sustainable mobility, high usage and acceptance for innovative technologies using renewable energy (solar power)
2) Higher probability for implementing and widening this measure

3. Installation of 150 – smart parking slots system at 3 roads (on-street) with sensors

Background and goals of the measure

City 2 is developing a sensor-controlled parking management system, with the aim to optimize the usage of urban parking spaces and to reduce the parking search traffic. 150 parking spaces located around the commercial center of the city will be equipped with sensors to measure the occupancy of the parking lots. The gathered information on the parking situation will be sent to the system that can be used by the drivers to find a vacant parking slot.

SUITS Challenges chosen by the city	Connected Indicators
1) Institutional cooperation 2) Innovative procurement 3) Citizen participation	1) Coordination/cooperation between sectors – Organization; Continuity – Political; Understanding of applied legal framework – Legal 2) Innovative financing- training – Financial 3) Public acceptance

Targets

1) Advanced cooperation between the staff in the municipality
2) Better probability for implementation of the measure
3) Campaign for benefits from constructions of parking slots system; Increase quality of life for citizens; More safety

*None applicable: No important and low performing indicator was designated during the capacity assessment

Table 30: Measures of City 2

When comparing the self-assessment results with the capacity assessment and the mobility measures, it is observed that the mobility measures and the respective challenges involve **areas of intervention** linked to aspects more related with **Engagement, Financing, Innovation Management and Participation**. The indicators commonly highlighted through the challenges include are **the citizen participation** and the **use of innovative technologies and data collection methods**.

As two evaluations were received for City 2, it is reminded that the indicators that appear in association with the challenges may not reflect the view of all the involved stakeholders of the city. Hence, some challenges can be considered at the same time as highly

important/performed or as low important/performed by the stakeholders but once they appear in the Table "Areas for Interventions", they are considered in the analysis.

In general, it should be noted that all the measures have as main focus the **Citizen participation**. Individually, we derive some correspondences from the measures with the transport offer self-assessment. Regarding the measure *Optimize the usage of urban parking spaces*, the self-assessment data on car-related aspects reveal that there are only some actions that have been done sporadically and with very little performance (*Traffic calming zones with speed limit and Preferential parking fees or reserved spaces for different target groups*) and that there is only one aspect that is being implemented (*Price differentiation for on-street parking on the basis of duration of stay*). Regarding the *Smart pedestrian crossing* and *Optimizing travel times*, the only related aspect that is being implemented is *Making road crossings safer for pedestrians* and *Promoting round deliveries instead of parallel deliveries to reduce travel distances in the case of travel times measure*. The results indicate that further actions need to be taken in order to support the measures. In this sense, the results from capacity assessment highlights several areas of intervention where City 2 should focus on in order to successfully implement all the mobility measures.

A.2.3 Conclusions

In the case of City 2, **human resources, organizational, political, legal, social and financial aspects** are mainly the areas/fields to be considered as the **barriers** that impede its operation as far as the implementation of their plans is concerned. At the same time, the Municipality considers some of these aspects as opportunities for the city, such as human resources or social aspects. Regarding the mobility measures, public acceptance is the challenge where City 2 should focus its efforts on.

The area for interventions linked with the key aspects related to SUMPs implementation for City 2 (**Management, Innovation and Sustainability** – Appendix I) are related to the areas as considered barriers at the capacity assessment analysis (Societal, Human Resources, Organizational, Legal, Political, Financial). Hence, the focus of the city when implementing mobility measures should be on the following indicators: Public acceptance, Coordination/cooperation between sector, Continuity, understanding of applied legal framework, Innovative financing and Legal and regulatory framework.

A.3 City 3

During the self-assessment process, it was found that City 3 has a SUMP in process of implementation but there are sectorial plans available for almost all the aspects. The fact that the city has not implemented a SUMP makes it difficult to reach a sustainable modal split. Nowadays private transport is the main mode used by the majority of the population. Accordingly, the results from the self-assessment on aspects related to sustainability and mobility policies showed that **environment, innovation and multimodality** are topics not so well developed in the city. However, a high interest in improvement and application of mobility

measures in almost all considered aspects is found. In terms of data, a good level of data acquisition is declared in almost all domains together with a great interest in other data currently not available.

A.3.1 Results of the capacity assessment

Four entities assessed the capacity of the city to implement SUMPs: the transport Authority, the agency for energy sustainability, the transport operator and the Municipality. Compared to the other cities, in this case we see that the self-assessment shows a very good performance. Most of the stakeholders that participated have indicated high levels of performance for the indicators under study. The Agency for sustainable energy has been the most conservative of all. No indicator was commonly assessed with a low score and the area with the weakest evaluation was the financial resources. Innovative Financing – Use and Understanding were the two indicators for which all the entities indicated that needs improvements. Mainly organizational were the aspects that appeared to have low assessment scores and high importance. Figure 20 to Figure 27 present the assessment results per stakeholder.
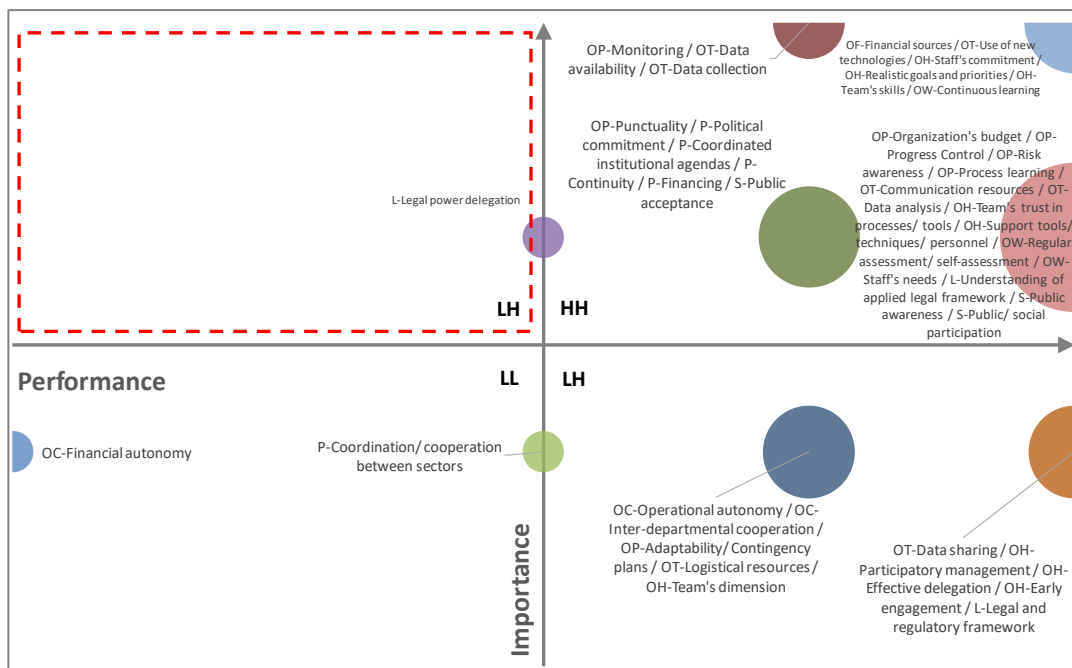
Figure 20: City 3 - Transport Authority - Frequency related indicators
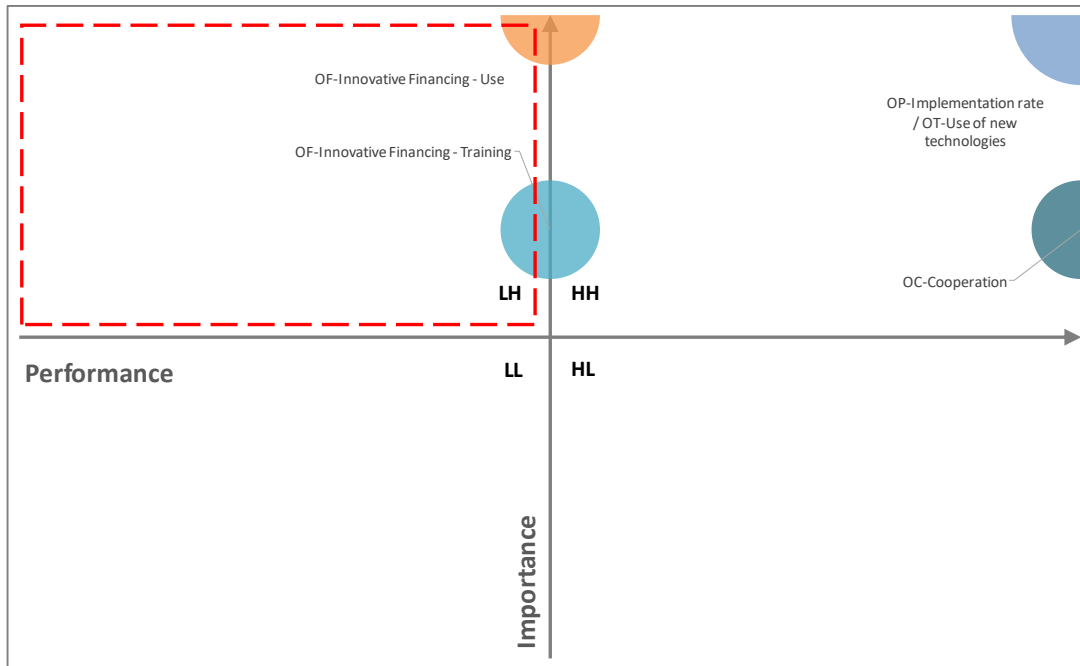
Figure 21: City 3 - Transport Authority - Level related indicators
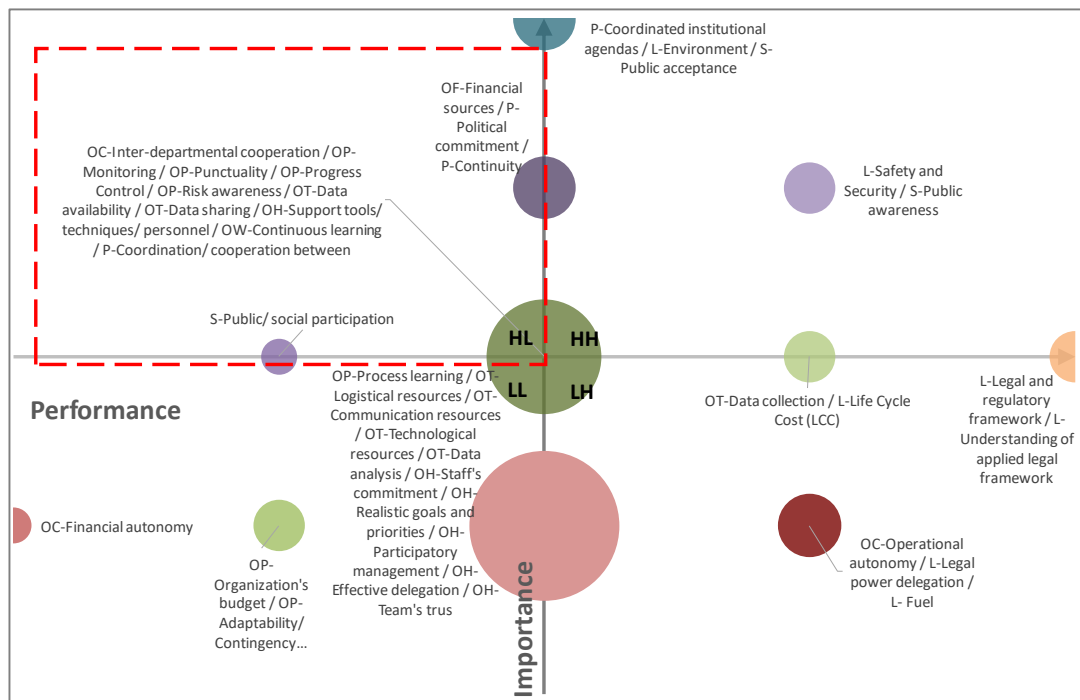
Figure 22: City 3 - Agency for sustainable energy - Frequency related indicators
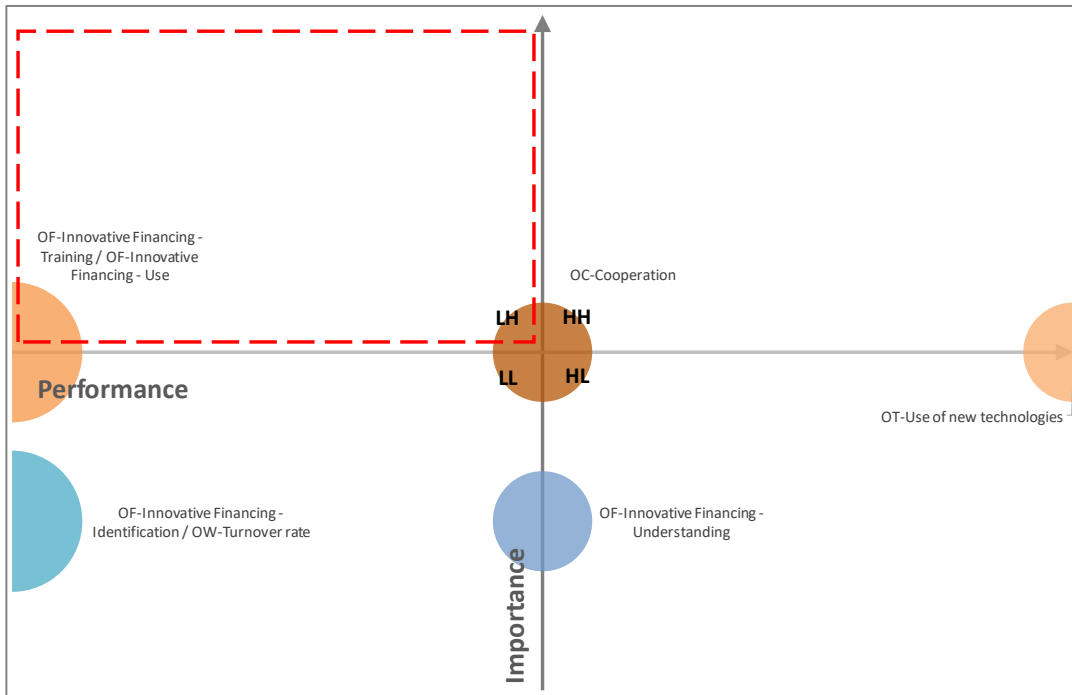
Figure 23: City 3 - Agency for sustainable energy - Level related indicators
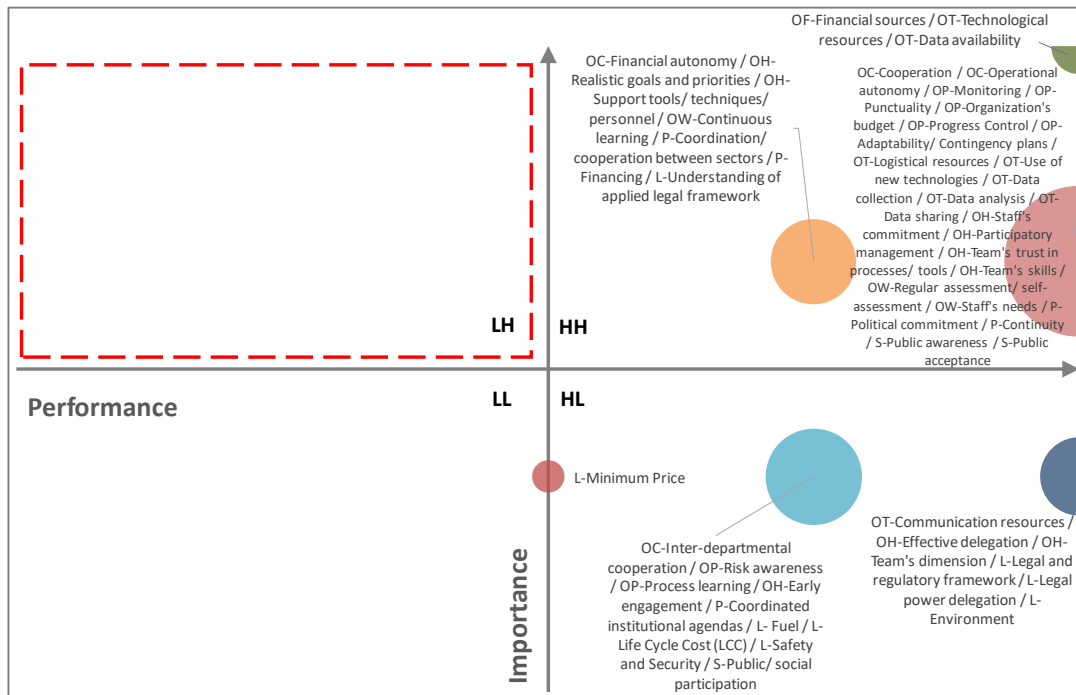
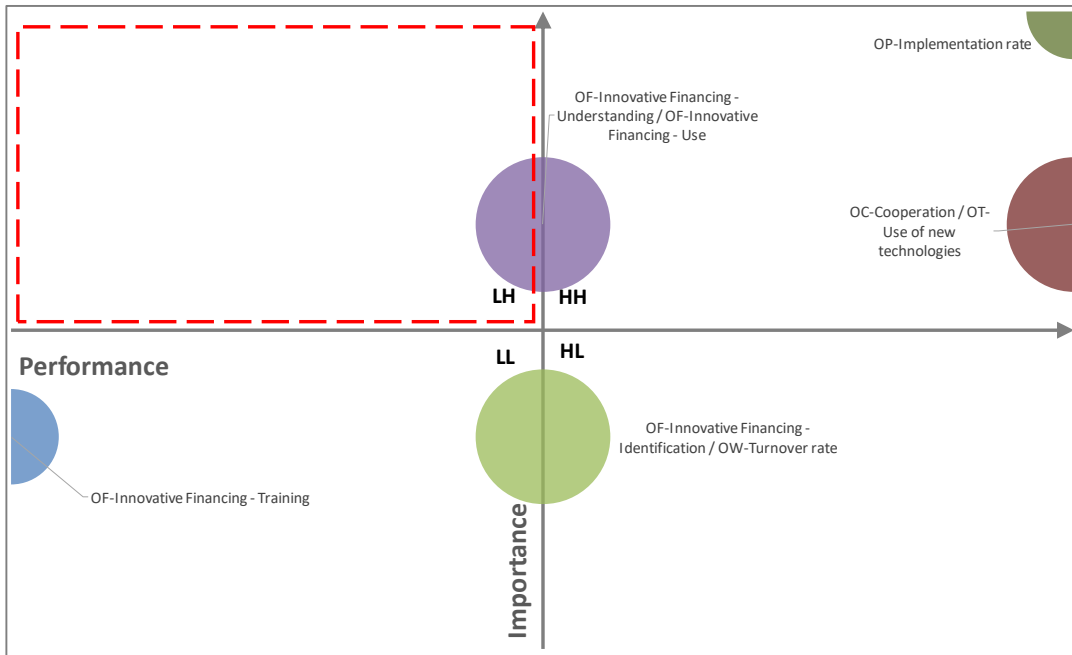Figure 24: City 3 - Transport Operator - Frequency related indicators

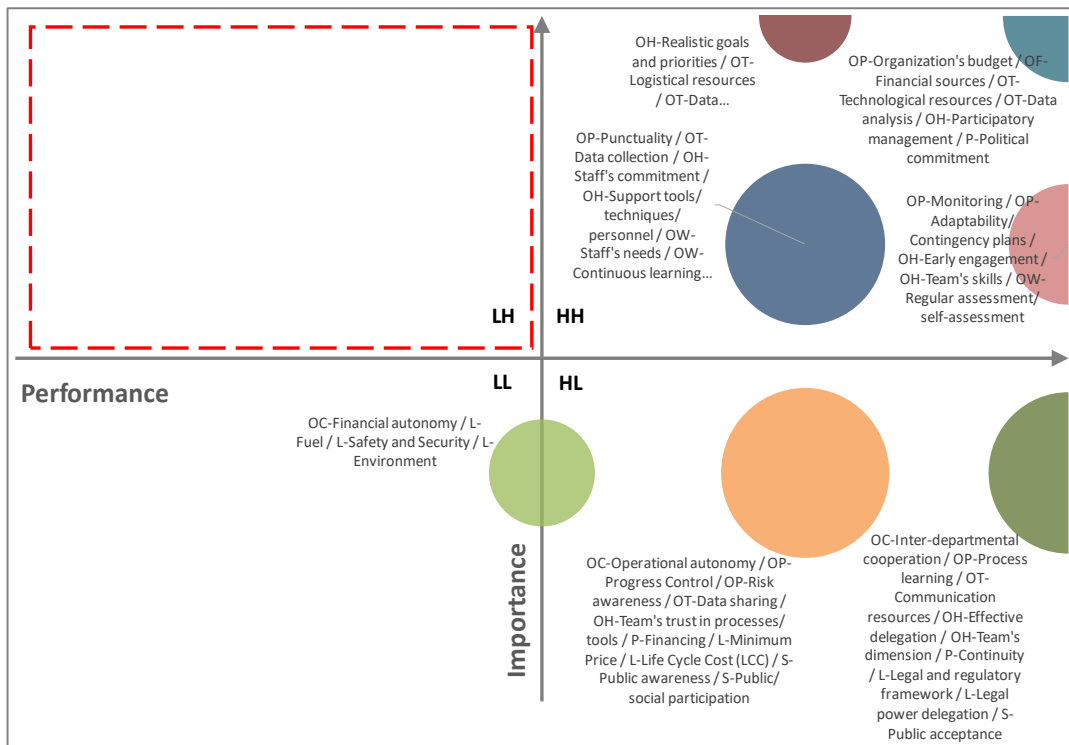Figure 25: City 3 - Transport Operator - Level related indicators

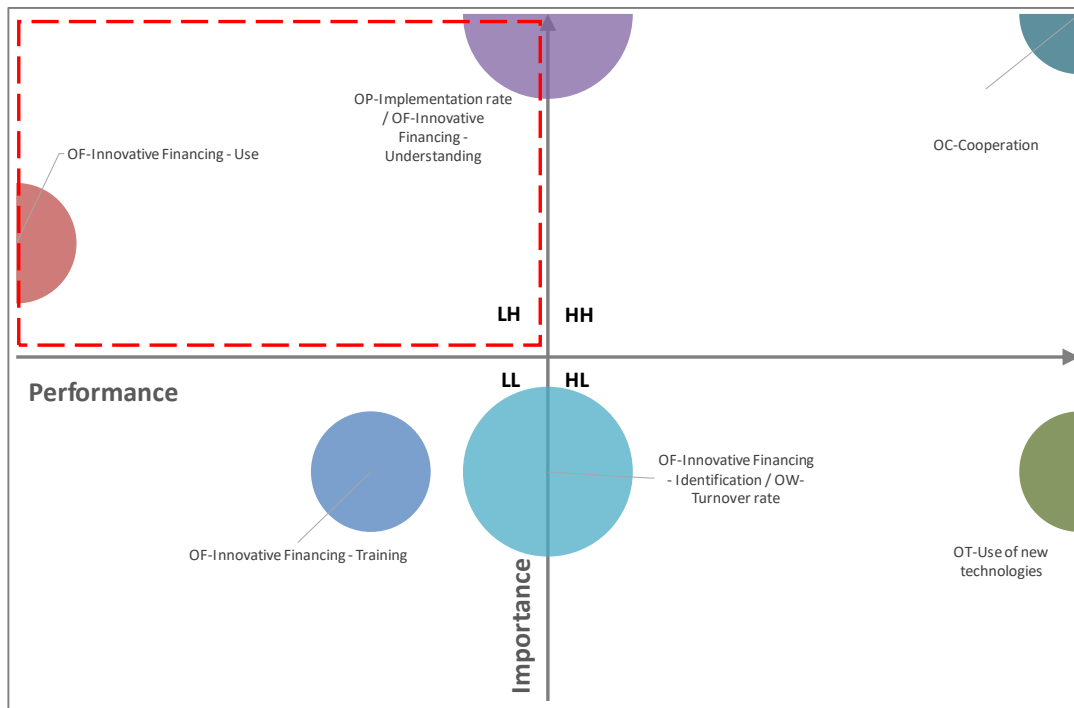Figure 26: City 3 - Municipality - Frequency related indicators

Figure 27: City 3 - Municipality - Level related indicators

Table 31 summarizes the information gathered on the indicators that have low scores in the assessment but are considered importance by each of the entities interviews.

Category	Indicator	Description
Organizational		
Cooperation/ Coordination	Financial autonomy	Financial independence from central government and other financial agencies.
	Inter-departmental cooperation	Level and frequency of cooperation and networking between the involved departments inside the same organization.
Process	Implementation rate	Number of implemented measures/ number of planned measures.
	Monitoring	Project's big picture related to technical and processual issues
	Punctuality	Performance index that measures the capacity to deliver outputs on estimated time – compliance with pre-defined timelines.
	Progress Control	Regular process' evaluations to determine gaps and flaws in the Plan's workflow execution.
	Risk awareness	Identification of possible risks that may appear during all the project's lifetime.
Financial Resources	Innovative Financing - Use	Organization's implementation of projects utilising innovative financing resources.

	Innovative Financing - Understanding	An understanding of the benefits that innovative financing methods have on the financial capacity of the organization.
	Innovative Financing - Training	The number of people in the organization who are trained in innovative financing.
Technical/ Data Resources	Data availability	Availability of the necessary data required to complete all project's tasks.
	Data sharing	Be able to retrieve valuable information as an output from the data analysis. Quantity and quality of data shared among departments.
Human Resources	Support tools/ techniques/ personnel	Responsiveness to operational/ process inefficiencies.
Working Environment	Continuous learning	Permanent effort in keeping the staff updated regarding tools and techniques that would assist the project. Includes the level of evolvement in workshops, seminars, conferences, etc..
Political	Coordination/ cooperation between sectors	Effective networking between the national departments of Transport, Land use, Mobility, Energy, etc.
Legal	Procurement decision criterions -Fuel	Way of using fuel as a decisional criterion in the public procurement procedures
	Procurement decision criterions - Safety and Security	Way of using safety and security as a decisional criterion in the public procurement procedures
	Procurement decision criterions- Environment	Way of using environment as a decisional criterion in the public procurement procedures
Societal	Public/ social participation	Relevant public actions/ procedures taken to engage people in the development of the project

Table 31: City 3 - Areas for interventions

A.3.2 Mobility Measures

1. Raising Society Awareness

Background and goals of the measure

City 3's overall goal is to raise public awareness of the objectives and the measures needed to be taken in order to implement the SUMP. In addition, there should be a greater dissemination among the stakeholders. Concrete Measures to reach this goal are for example:

- increase of press releases
- social media campaigns
- public meetings
- organizational campaigns

- dissemination during international meetings

From SUITS project, the city expects the provision of good practice examples and concrete methods that will be adapted to the specific goals and the local conditions.

SUITS Challenges chosen by the city	Connected Indicators
1) Use of innovative technologies and data collection methods 2) Understanding political interests and affecting political decisions 3) Sustainability Thinking	1) None applicable* 2) None applicable* 3) None applicable*

Targets

1) Identify and disseminate good practice examples; Training sessions for communication professionals; Development of a strategy to use innovative technologies
2) Good practice models; round tables with political decision makers
3) Conduct training sessions for communication experts; Exchange of good practice examples

2. Improve Public Transport

Background and goals of the measure

With this target City 3 want´s to improve the conditions of the public transport in order to increase the effectivity and attractiveness for the users. Within the project City 3 will work on:

- a more effective network planning
- increasing the comfort and safety of passengers
- use of data collection and data management for systematic improvement
- reduction of chemical and noise pollution
- acquisition of at least 5 electric buses

During the project period, the following measures have so far been successfully implemented:

- improved time table for public transport
- real-time passenger information at bus stations
- first generation e-ticketing system
- free Wi-Fi for passengers
- bus upgrade project to reduce chemical pollution
- mobile sensors on buses for air quality monitoring

SUITS Challenges chosen by the city	Connected Indicators
1) Understanding political interests and affecting political decisions 2) Innovative procurement 3) Sustainability thinking	1) None applicable* 2) None applicable* 3) None applicable*

Targets

1) Good practice models; Comprehensive feasibility studies; Highly specialized human resources
2) Update internal procedures to meet legal framework opportunities; Training of procurement professionals
3) Conduct training sessions for city planners; Exchange of good practice examples

3. Encouragement of cycling

Background and goals of the measure

City 3 wants to encourage citizens to put more emphasis on the bicycle as a means of transport. In the last years a bike sharing system was already implemented and so far 20 km bike lane were built. In the next step, a continuous bike lane network will be built to connect peripheral areas with the city centre.

Unfortunately, changes to Romanian legal framework for public procurement and funding which lead to the delay of some projects.

SUITS Challenges chosen by the city	Connected Indicators
1) Citizens participation 2) Understanding and applying innovative financing methods 3) Sustainability Thinking	1) None applicable* 2) Innovative financing – use Financial resources/ training -Financial resources 3) None applicable*

Targets

1) Organize public debates; User friendly communication materials; Increase social-media presence
2) Training sessions; Twining activities; Identification and dissemination of good practice examples
3) Training sessions; Twining activities; Identification and dissemination of good practice examples

4. Improve freight transport

Background and goals of the measure

City 3 wants to improve freight transport in the city. Within the project City 3 will work on:

- Drop chemical and noise pollution
- Drop loud usage need
- Reduce long distance freight traffic through the city

During the project period, the following measures have so far been successfully implemented:

- Completion of highway bypass
- Implementation of first phases of traffic management system

Also, best practices in the field of organizing freight logistics are needed.

SUITS Challenges chosen by the city	Connected Indicators
1) Understanding political interests and affecting political decisions 2) Effective project management and monitoring 3) Use of innovative technologies and data collection methods 4) Sustainability Thinking	1) None applicable* 2) None applicable* 3) Innovative financing – use Financial resources / training -Financial resources 4) None applicable*

Targets

1) Organize debates each month
2) Training sessions and Good practice models
3) Training sessions and Good practice models
4) None applicable

*None applicable: No important and low performing indicator was designated during the capacity assessment

Table 32: Measures City 3

When comparing these results with the capacity assessment, we observe that the mobility measures and respective challenges involve areas of intervention linked to aspects more related with **Data analysis, Engagement (stakeholders), Environment, Financing, Innovation and Management**. More specifically, the common challenges shared the need for improvement in their common indicators: use of innovative technologies and data collection method, the understanding of political interests, the impact of political decisions and the sustainability thinking.

City 3 highlighted four of all mobility measures initially proposed: Raising society´s awareness; Improve public passenger transport; Encouragement of cycling; Improve freight transport. In this regard, certain aspects should be considered for a successful implementation, such as the mobility data available or the cultural and economic barriers. In relation to the data from the contextualization survey, City 3 has some difficulties to get suitable information on the freight transport and individual mobility pattern. In the case of cultural barriers, it should be noted that the car remains a priority for many people, while the public is relegated to the background. On the other hand, the city also faces difficulties in obtaining local funds, the SUITS project can be useful for addressing this.

City 3 has many challenges to which no indicators have been attributed. As it happens with City 1 and City 2, it means that they are not necessarily a priority for the city when it wants to improve its capacity. Both Society awareness and Improve Public transport measures have no applicable indicators, while both Encouragement of cycling and Improve freight transport have associated financial indicators.

In general, it should be noted that all the measures have as main focus **innovation** (Innovative financing methods and Innovative technologies) based on **sustainability thinking**. An important challenge for mobility planners is the internalization and consideration of sustainability principles. Therefore, the fundamental understanding and application of sustainable principles is particularly important when it comes to developing learning organizations that are innovative and not only adapt measures but also break new ground. Individually, we derive some correspondences from the measures with the transport offer self-assessment. In the case of the _Society awareness_, it is related to all the aspects (car, public transport, freight transport and active modes), since environmental awareness is the basis for sustainable mobility. The _Improve of public transport_ and _the Encouragement of cycling_ are both measures focused on the good practices in order to reduce the use of private transport. In relation to the _Public Transport_, two related aspects from self-assessment have already been implemented: _Improving the density_ and _Extent of the PT network and Actions to improve ticketing system_. These aspects coincide with the more effective network planning that City 3 will work on during the project, and also with the first generation e-ticket system already implemented in the project. In relation to the _Cycle System_, there are some related aspects but still in process of implementation: _Analysing and improving the density_, _Extent and continuity of the cycling network_; _Creating opportunities for shortcuts_ (e.g. to allow cyclist to ride in one-way roads in both directions); and _Making road crossings safer for cyclists._ Finally, with regard to the _Improve of freight Transport_, the aspects already implemented have to do

with the *regulation of freight transport*. Both Cycle system and Freight transport should focus more on aspects related to innovative methods, financial for Cycle system and technological (and data collection) for Freight transport.

A.3.3 Conclusions

In the case of City 3, there are many aspects to be contemplated. Some of them are considered at the same time barriers and enablers, depending on the institution. Regarding the mobility measures, most of the challenges are important and should be taken into consideration, either to increase the efforts (in the case of barriers), or to pull advantage (in the case of enablers).

The set of areas for intervention, considered as barriers for capacity are focused on financial aspects. The city can assess the increase in capacity in this sense through these capacity indicators: use of financial resources and training.

A.4 City 4

During the self-assessment process, it was found that City 4 does not have a SUMP implemented yet, but it is elaborating it. On the contrary, sectoral plans are available for all the aspects evaluated and the city is planning to implement measures in almost all of them. As a result, most of the people move by car. Accordingly, the results from the self-assessment on aspects related to sustainability and mobility policies showed a good evaluation in almost all the aspects considered, with the exception of innovation and multimodality. The three mobility policy areas where most support is needed in this city, according to the survey respondents, are **public transport, urban logistics, electromobility and clean fuels**.

A.4.1 Results of the capacity assessment

Only the Municipality provided feedback on the self-assessment. The operation of the Municipality is considered autonomous with a satisfactory level of ***cooperation*** despite the high number of stakeholders (10). Financial indicators are also low rated, indicating that there are opportunities for improvements. ***Process indicators*** received a medium-level score (they occur "sometimes") with the risk awareness as an exception ("always"). All the factors included in the ***technical/data resources*** and the ***working environment*** received average values of performance. The use of new technologies and the turnover rate were assessed with a low and medium level respectively. Few of the ***legal aspects*** were rated and the results varied. The ***legal*** and regulatory framework is explored but resources are not always devoted to its efficient comprehension. The analysis of the ***political and the societal aspects*** is also close to the average rate. Figure 28 and Figure 29 illustrate the results of the assessment considering the importance and the score of all the indicators.
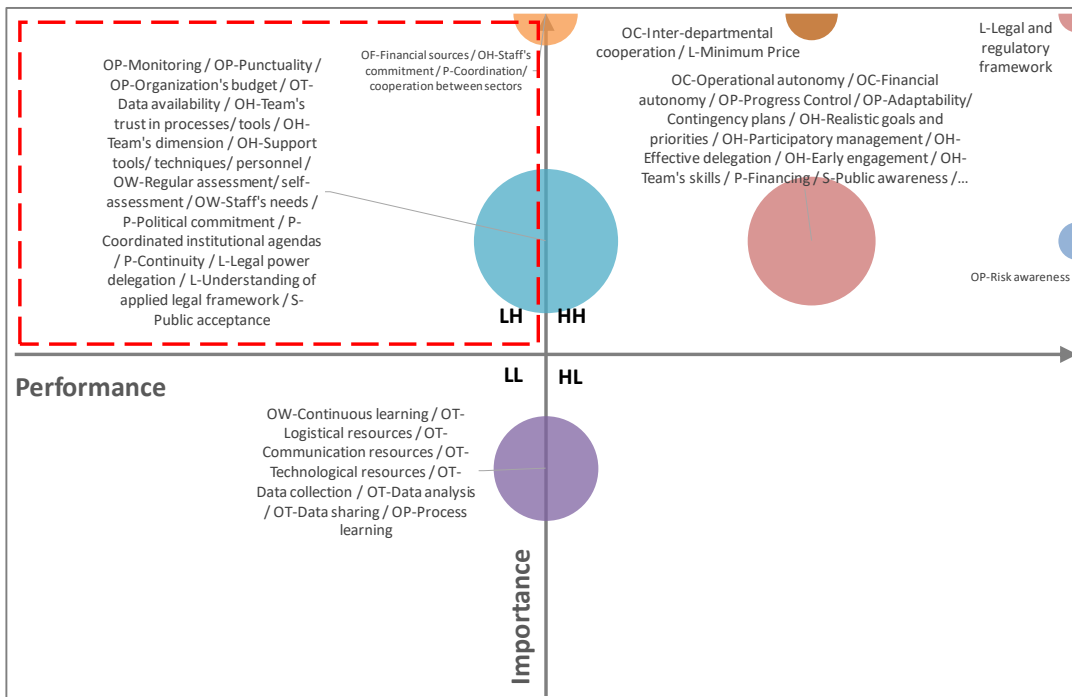
Figure 28: City 4 - Municipality - Frequency related indicators
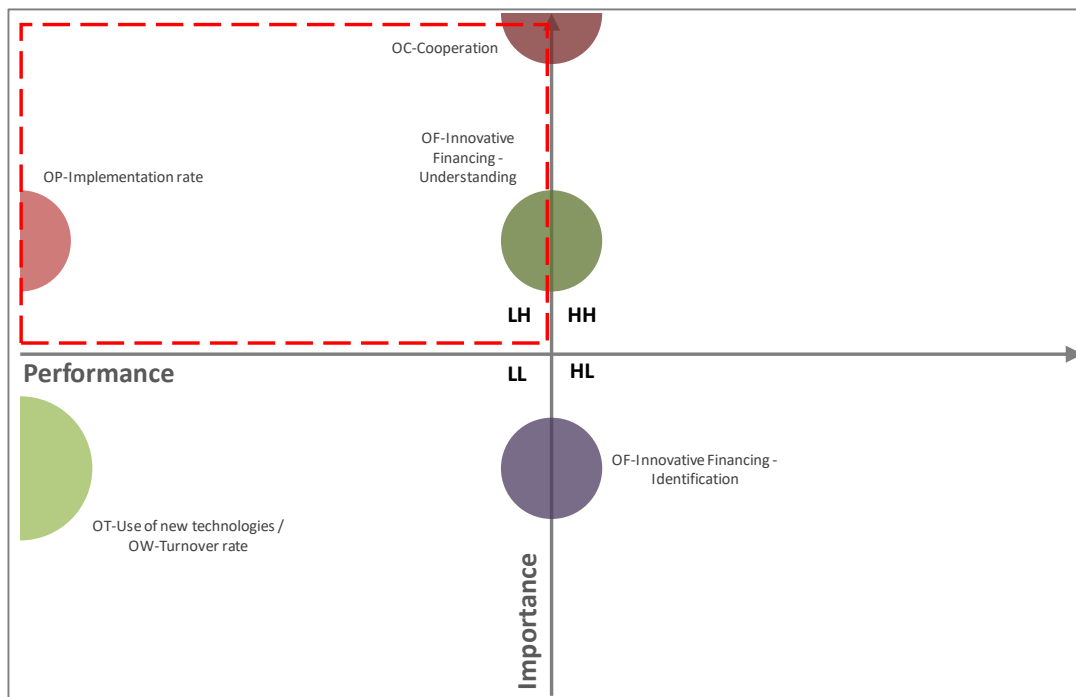

Figure 29: City 4 - Municipality - Level related indicators

The overall view of the assessment shows that most of the aspects included in the analysis can be improved. Table 33 presents the most important areas that need to be improved in order to increase the capacity to implement plans.

Category	Indicator	Description
Organizational		
Process	Monitoring	Project's big picture related to technical and processual issues
	Punctuality	Performance index that measures the capacity to deliver outputs on estimated time – compliance with pre-defined timelines.
	Organization's budget	Ability to efficiently include Plans/ measures in the organization's budget.
Financial Resources	Financial sources	Identification of national/ international financial sources. Efficient use of national/ international, public/ private investment sources.
Technical/ Data Resources	Data availability	Availability of the necessary data required to complete all project's tasks.
Human Resources	Staff's commitment	Staff´s alignment, in attitude and performance, with the goals of the organization.
	Team's trust in processes/ tools	All staff involved in the Plans' planning and implementation phases is completely comfortable with the tools and methodologies needed to successfully carry on all projects' tasks.
	Team's dimension	Human resources available to complete all the project´s tasks.
	Support tools/ techniques/ personnel	Responsiveness to operational/ process inefficiencies.
Working Environment	Regular assessment/ self-assessment	Identification of strengths and weaknesses of each member of the team.
	Staff's needs	Team's members needs are encouraged to be exposed inside the organization.
Political	Political commitment	Defines how the project will be led and if it is a priority in the political agenda.
	Coordinated institutional agendas	Consistency in national/ regional/ local priorities. Correspondence between the Plan and the national political agenda.
	Coordination/ cooperation between sectors	Effective networking between the national departments of Transport, Land use, Mobility, Energy, etc..
	Continuity	Commitment to the continuation of the project independently of the authorities elected; the plan is maintained unimpeded when moving from one political framework to the next one elected.
Legal	Legal power delegation	Organization´s autonomy to solve its own legal issues regarding the planning and implementation of the projects.
	Understanding of applied legal framework	All applicable legal framework should be clearly understood by all the involved stakeholders.
Societal	Public acceptance	Public willingness to support the implementation of the project and engagement to its operational phase

Table 33: City 4 - Areas for interventions

When comparing these results with the capacity assessment, we observe that the mobility measures and respective challenges involve areas of intervention linked to aspects more related with Engagement (stakeholders), Financing, Management, and Planning. The city of Roma highlighted the sustainable mobility strategy for transport plans (public, cycling and freight). The common challenges included the cooperation among LA and the involved business partners, the increase of public acceptance and the search for new techniques of collecting and processing mobility data. Except public transport, both cycling and freight plans are expecting to be completed by the end of the project.

A.4.2 Mobility Measures

City 4 is drafting a SUMP, a strategic plan with a short, medium and long-term horizon that develops a vision of a sustainable mobility system and is working on various measures that follow the vision of the Mobility Master Plan of 2015. The activities in the SUITS Project will focus on measures that are related to the Public Transport Plan, the Urban Logistic Plan and the Cycling Plan. Except for public transport, both cycling and freight mobility strategies are expecting to be completed by the end of the project.

1. Public Transport Plan
Background and goals of the measure City 4 is a city where citizens prefer to use the car as a means of transport. The main goal of the city is to increase the public transport use, to reduce traffic congestion and pollutants emission and guarantee a sustainable mobility system, as indicated in the SUMP. The Municipality has already approved infrastructure interventions like: • Subway modernization on different lines and the increase of accessibility through new intermodal connections • Tram system strengthening inside the railway ring • Extensions to existing subways Within the SUITS project, further measures are to be implemented to increase the efficiency of public transport and make its use more attractive. • protect bus lanes, Traffic light priority, enhance interchanges nodes (with rail), P&R • Measurement of safety and security for vulnerable people • Measurement of the quality of public transport experience

SUITS Challenges chosen by the city	**Connected Indicators**
1) Understanding political interests and affecting political decisions 2) Sustainability Thinking	1) Political commitment – Political; Coordinated institutional agendas – Political; Coordination/cooperation between sectors – Political; Continuity – Political 2) None applicable*

Targets
1) More technical table with stakeholders; Participative processes; Periodical meeting including all stakeholders 2) Involve academic world, planners, and engineers to complete sustainable vision; Periodical meetings or workshops/events on this topic

2. Urban Logistic Plan

Background and goals of the measure

City 4 Municipality approved the new Mobility Master Plan in 2015, outlining how to reduce impacts of circulating freight vehicles for a sustainable city. The following objectives are to be pursued:

- Reduce freight vehicle impacts
- Make the freight distribution more sustainable
- Regulate demand in city center and railway ring
- Implementation of a freight distribution center
- Control misuse of parking bays for loading/unloading goods

This is to be achieved, for example, through the following measures:

- Enlargement of the freight distribution center
- New booking service to optimize parking areas
- Timetable and pricing policy evaluation, based on vehicle models and commodities
- Van-sharing policy promotion
- Increasing the vehicles load capacity and reducing unloaded trips, through new transit points
- Revise/update the loaded and unloaded freight plan in the city centre

SUITS Challenges chosen by the city	**Connected Indicators**
1) Interaction and cooperation with business partners 2) Knowledge management / knowledge transfer:	1) Staff commitment – Human resources; Coordination/cooperation between sectors – Political 2) None applicable*

Targets

1) Involve logistic operators, transport associated countries in the implementation of the freight plan; Specific technical meeting with various stakeholders
2) Increase the knowledge of freight urban distribution (lack of data); Survey implementation

3. Cycling Plan

Background and goals of the measure

City´s 4 SUMP promotes cycling to create an integrated mobility system. Goals are among others:

- Better health condition for citizens
- Bicycle lane network extension and reconnection of bicycle line network
- Bike sharing service promotion
- Bike parking promotion

For this City 4 sets on the active participation of citizens through a social media platform, where citizens can make specific suggestion on paths and interconnections among the bike lanes. During the planning, planners meet various constraints during the project phase mostly due to historical/architectural restrictions.

SUITS Challenges chosen by the city	**Connected Indicators**
1) Citizen participation 2) Understanding political interests and affecting political decision	1) Public acceptance - Societal 2) Political commitment – Political; Coordinated institutional agendas – Political; Coordination/cooperation between sectors – Political; Continuity – Political

	Targets
	1) Convince citizens/cycling associations to benefits of the project through awareness campaigns 2) More technical table with associations and stakeholders

*None applicable: No important and low performing indicator was designated during the capacity assessment

Table 34: Measures City 4

It is seen that the mobility measures and their respective challenges call for interventions that are linked to **Engagement (stakeholders), Financing, Management, and Planning**. The indicators commonly highlighted through the challenges are the **cooperation among LA and the involved business partners**, the **Increase of public acceptance** and the **Search for new techniques of collecting and processing mobility data.**

Despite the fact that in some cases there are no applicable indicators, the results from capacity assessment show how most of the indicators associated to these challenges are barriers that impede the implementation of mobility plans. Therefore, City 4 should focus its efforts on almost all considered challenges.

In general, all the mobility measures have related mobility aspects that have already been implemented (as in the case of the _Urban Logistic Plan_ where there are actions related _to Regulation_) or are being implemented (as in the case of _Public transport_ with actions such as the _Actions to implement ITS_ or the _Actions to take into account the importance of a green PT-fleet_). In both measures, the objectives defined in each one is coincident with many of these related aspects. This is a good signal since it means that the city is consistent and efficient. As an exception we find the _Cycling plan_, which have many of related actions that have been done sporadically with very little performance. This is an area which the city has to develop in order to integrate cycling into its mobility system.

A.4.3 Conclusions

City 4 needs to improve the following capacity indicators: Staff commitment, Political commitment, coordinated institutional agendas, Coordination/cooperation between sectors, Continuity and Public acceptance in order to observe improvements in its capacity to implement its plans.

A.5 City 5

During the self-assessment process, City 5 stated that it does not have a SUMP implemented but it is under preparation. Although not having implemented a SUMP yet, a rather multimodal attitude is seen in the city thanks to a good PT offer and the availability of bike-sharing and car-sharing systems. Accordingly, the results from the self-assessment on aspects related to sustainability and mobility policies showed an overall good trend for all the city assessment indicators with a higher efficiency in the management and stakeholder engagement. The main support is needed for financing and procurement issues while the three main mobility policy areas where some help is asked are **public transport, non-motorized transport and road transport**.

A.5.1 Results of the capacity assessment

The city did its capacity self-assessment. Medium to low scores are given to most of the indicators. *Legal and societal* aspects received higher scores at the evaluation, without having an outstanding performance in all the indicators included in the analysis. However, not all the aspects are of high importance. Figure 30 and Figure 31 illustrate an aggregation of the total performance of the city Authority and highlights the areas where the city needs to focus so that is improves its capacity to implement plans.
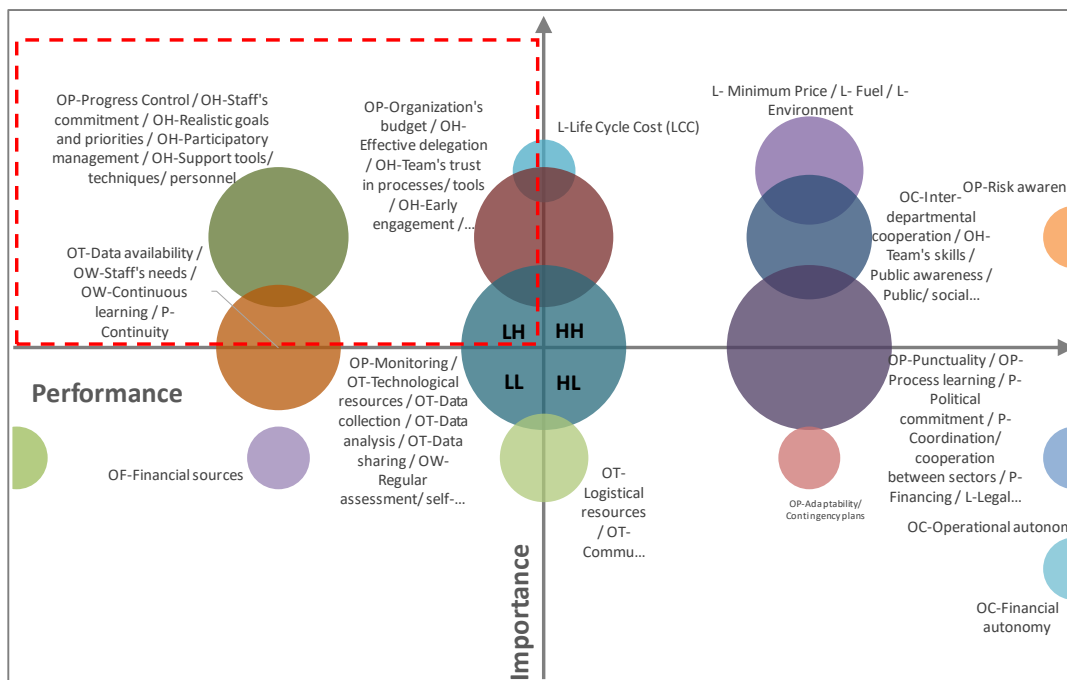

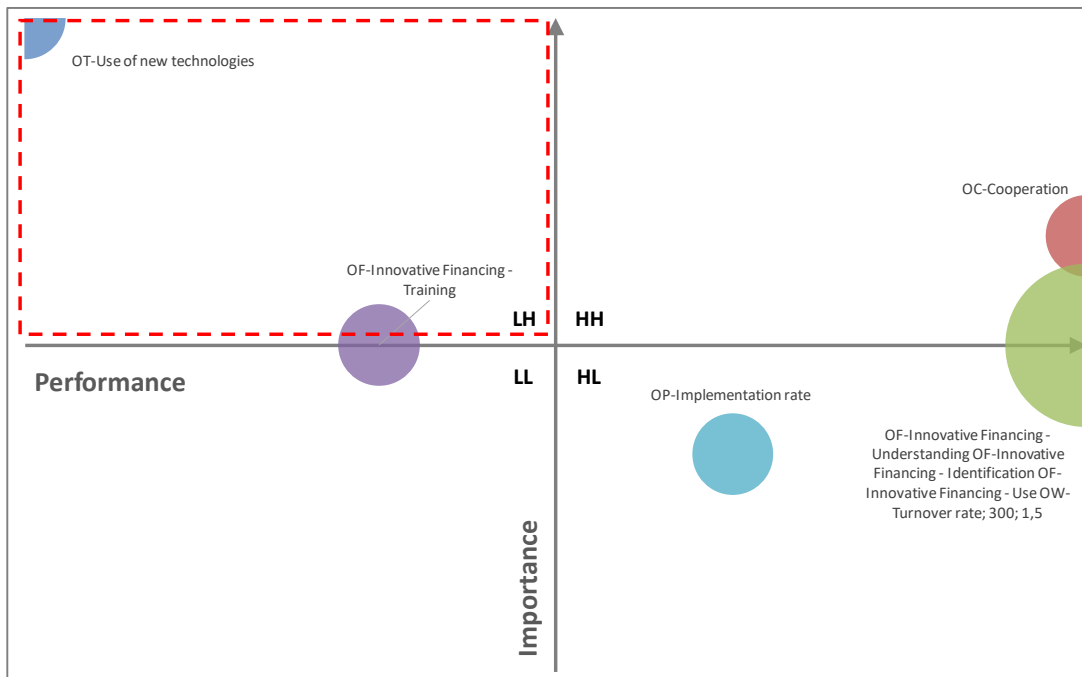Figure 30: City 5 - Frequency related indicators

Figure 31: City 5 - Level related indicators

Category	Indicator	Description
Organizational		
Cooperation / Coordination	*Operational autonomy*	*Organization's autonomy to implement Plans independently of another stakeholders' approval.*
	Financial autonomy	Financial independence from central government and other financial agencies
Process	Monitoring	Project's big picture related to technical and processual issues
	Punctuality	Performance index that measures the capacity to deliver outputs on estimated time – compliance with pre-defined timelines.
	Adaptability/ Contingency plans	Capacity to adjust Plans/ measures in reaction to an extraordinary event. Existence of Risk Control measures defined to control the impact of the risks that affect the project
	Implementation rate	Number of implemented measures/ numbers of planned measures
	Process learning	Organization's acknowledgement of internalizing past experiences, both positive and negative, to solve present/ future issues that may arise
Financial resources	Financial sources	Identification of national/ international financial sources. Efficient use of national/ international, public/ private investment sources
	Innovative Financing - Understanding	An understanding of the benefits that innovative financing methods have on the financial capacity of the organization.
	Innovative Financing - Identification	Ability to identify innovative financing opportunities

	Innovative Financing - Use	Organization's implementation of projects utilising innovative financing resources
	Innovative Financing - Training	The number of people in the organization who are trained in innovative financing
Technical/ Data Resources	Communication resources	Available resources' quantity/ quality needed to proper complete all the tasks associated to planning and implementation phases. Easy access to communication tools
	Technological resources	Available resources' quantity/ quality needed to proper complete all the tasks associated to planning and implementation phases. Easy access to technological tools
	Logistical resources	Available resources' quantity/ quality needed to proper complete all the tasks associated to planning and implementation phases. Easy access to logistical tools
	Data collection	Have the necessary tools, networks and resources needed to efficiently collect data from diverse sources and in different formats
	Data analysis	Have the necessary tools, networks and capabilities needed to efficiently analyse data collected from diverse sources and in different formats
	Data sharing	Be able to retrieve valuable information as an output from the data analysis. Quantity and quality of data shared among departments
	Data availability	Availability of the necessary data required to complete all project's tasks
Working environment	Staff's needs	Team's members needs are encouraged to be exposed inside the organization
	Turnover rate	Reflects the stability in the composition of the team
	Continuous learning	Permanent effort in keeping the staff updated regarding tools and techniques that would assist the project. Includes the level of evolvement in workshops, seminars, conferences, etc..
	Regular assessment/ self-assessment	Identification of strengths and weaknesses of each member of the team
Political	Political commitment	Defines how the project will be led and if it is a priority in the political agenda
	Coordination/ cooperation between sectors	Effective networking between the national departments of Transport, Land use, Mobility, Energy, etc
	Financing	Existence of financial programmes within the National General Budget to undertake the implementation of the Plan
	Coordinated institutional agendas	Consistency in national/ regional/ local priorities. Correspondence between the Plan and the national political agenda
	Continuity	Commitment to the continuation of the project independently of the authorities elected; the plan is maintained unimpeded when moving from one political framework to the next one elected
Legal	Legal and regulatory framework	Contribution of legal and regulatory frameworks to efficient decision-making processes
	Legal power delegation	Organization´s autonomy to solve its own legal issues regarding the planning and implementation of the projects

Table 35: City 5 - Areas for interventions

A.5.2 Mobility Measures

1. Clean Fuels and low emission vehicles – EV charging points

Background and goals of the measure

City 5 will make an important contribution to environmental protection through the implementation of various measures aiming at strengthening sustainable mobility and reducing air pollution:

- Switch to hybrid fleet of pool cars
- Introducing car sharing
- Introducing ultra-low emission taxi´s + infrastructure project for the service and installing 39 strategically located rapid charge points in City 5

Big challenges are in the need to embed trust in the electric taxis by drivers. In addition, there is the aim to change public perception on electric vehicles. A question that remains is: how to best monitor the impact of the project on pollution?

SUITS Challenges chosen by the city	Connected Indicators
1) Citizens' participation 2) Effective project management & monitoring 3) Use of innovative technologies and data collection methods	1) None applicable* 2) Continuous learning – Working environment 3) Data availability – Technical / Data resources

Targets

1) improving attitudes towards electric vehicles; survey on perceptions communications- consider how to celebrate project plus its benefits
2) Understanding how to evaluate impact; identify KPIs, integrate impact of monitoring into project monitoring
3) Understanding how to evaluate impact; identify KPIs, integrate impact of monitoring into project monitoring

2. Developing a fully integrated intelligent mobility strategy, capitalizing on new technologies

Background and goals of the measure

The objective is to work towards a fully integrated strategy, which capitalizes on new technologies and opportunities for economic growth. An ongoing project supports this objective by trialling CAV (connected automated vehicle) technology around City 5, across 5 diverse types of roads. It will be finished in autumn/winter 2018, followed by a 2-year legacy phase which will investigate a business case for CAV technology. Focus will now be on making the most of the legacy phase.

SUITS Challenges chosen by the city	Connected Indicators
1) Citizens participation 2) Estimating feasibility and acceptance of measures 3) Understanding and applying innovative financing methods	1) None applicable* 2) None applicable* 3) None applicable*

Targets

1) Engage citizens and disseminate the benefits of connected autonomous vehicle to them in order to increase acceptability
2) Identify business cases for CAV
3) Assess the viability of CAV business models

3. Integration of car sharing system
Background and goals of the measure The objective of this measure is to encourage multi-modal transport through improved information systems and thereby, reduce the number of trips in single occupancy cars. A Mobility as a service (MaaS) project will support this objective through enabling a commercial service where customers can pay a subscription (public transport, taxi, car, and bike hire) to replace their private cars. Collaborative working with innovative commercial company has enabled City 5 to be the first area in the country to have an operating MaaS service.

SUITS Challenges chosen by the city	**Connected Indicators**
1) Citizen participation (to encourage uptake)	1) None applicable*

Targets As this measure is already implemented it would be interesting to evaluate the operation of the service and encourage the uptake of the service. Packaging and selling the subscription is the business partners' responsibility. For the city it would be interesting to know the number of signed-up customers, the reasons for their sign-up, how to increase the appeal and how to identify the barriers

4. Safety and security- crash data analysis
Background and goals of the measure City 5 is currently working on a data-system to receive crash data and make it understandable. Based on the collisions data from the police system they are trying to understand which factors are likely to contribute to a collision e.g. types of junctions, number of speeding violations or victim socio-demographic analysis as to who is more likely to be involved in collisions. Several sub-actions are intended: • Communication has been key within the team as well as with our stakeholders to create a good system • Appointing a project manager to chase things that have been delayed • Choosing cloud systems that has already been approved by IT and security, there is a need to speed up the process Using analysis tools that have been already procured and that the team already knows how to use would mean a reduced need for extra finance and training

SUITS Challenges chosen by the city	**Connected Indicators**
1) Institutional cooperation 2) Interaction and cooperation with business partners 3) Citizens participation	1) None applicable* 2) Continuity – Political 3) None applicable*

Targets 1) Increase user engagement/feedback to the data system and analysis project; Attend workshops to engage with users and stakeholders 2) Speed up the delivery of the open data portal 3) Better understanding of how citizens feel about road safety in City 5; Following some sort of consultation process, obtain qualitative feedback from 60 citizens of City 5

*None applicable: No important and low performing indicator was designated during the capacity assessment

Table 36: Measures City 5

When comparing all the information obtained on City 5, we observe that the aspects of **Data analysis, Financing, Management and Planning** are important. The common challenging fields are the **citizen participation** and the **institutional cooperation internally and externally with other business partners.**

In general, it should be noted that all the measures mainly focus on individual transport aiming to make it more sustainable. In the cases of _Clean Fuels and low emission vehicles – EV charging points_ and _Integration of car sharing system_, there are many car-related actions that are being implemented, as for example the _Setting up carpool services_, and others that have already been implemented, although not very successfully, such as _On-street vehicle charging points to stimulate e-mobility_. On the other hand, the other two measures, _Developing a fully integrated intelligent mobility strategy_ and _Safety and security crash-data_, they are more related with new technologies and information security.

A.5.3 Conclusions

In the case of City 5, **technical/data resources, working environment and political aspects** are mainly the areas/fields to be considered as the **barriers** that impede its operation as far as the implementation of their plans. Regarding the mobility measures, City 5 can improve its capacity to implement them by focusing on the following areas: use of innovative technologies and data collection methods, effective project management and interaction and cooperation with business partners.

A.6 City 6

City 6 has already a SUMP that is currently under revision. In the same way as City 1, the trend is for an increasingly sustainable mobility. For example, both bike-sharing and car-sharing are present and a wide public transport offer is available. In this sense, the main goals of the city are to improve the freight management and create an underground railway system. The results from the self-assessment showed good results under all the aspects analyzed, with better performances for equity and multimodality, and stated the areas where support is need: **public transport, urban logistics and mobility management**.

A.6.1 Results of the capacity assessment

The assessment of the capacity of the City 6 is based on the responses of the Local Authority to the questionnaire that reflected the capacity framework. Indicators of **_cooperation and coordination_** demonstrated medium performance. Similarly, all the indicators that reflect the **_processes_** inside the Municipality were assessed with a medium rate. The lowest evaluation was given to the monitoring process and the implementation rate was also low. The results for **_financial resources_** showed that there are many opportunities for improvements. Data availability, data sharing and logistical resources were the indicators with the most frequent activity within the organization in the **_Technical/Data resources category_**. In this context the utilization of new technologies for data collection by the Municipality was rated as medium. The self-assessment also highlighted that improvements can happen in relation to all the

factors included in the category of **_human resources_**. There is evidence that activities related to this area are not applied in the Municipality´s operation. The same result is observed when analysing the **_working environment_** where the turnover rate is also considered to be insignificant. The area of **_legal aspects_** received a mixed assessment with, in general, low rates; the only exception was the "minimum price" regulation-related indicator which was referred as a frequently considered aspect. **_Political aspects_** obtained different results to the rest of the areas in the sense that most of the actions that they involve were indicated to have been completed with high frequency. In what concerns the public (**_societal aspects_**) and the reaction of media to transport plans a moderate score was given during the assessment. Speculation of all the results leads to the conclusion that the overall assessments has a medium rate and there is no area of exceptional performance.

Figure 32 and Figure 33 illustrate the results of this analysis for City 6. We observe that there is a considerable group of indicators in the HH area that implies a satisfactory state of operation from the perspective of the Municipality for the completion of its plans. Few aspects are characterized by low importance and low performance and some aspects of all the categories are at a medium performance level and are less important.
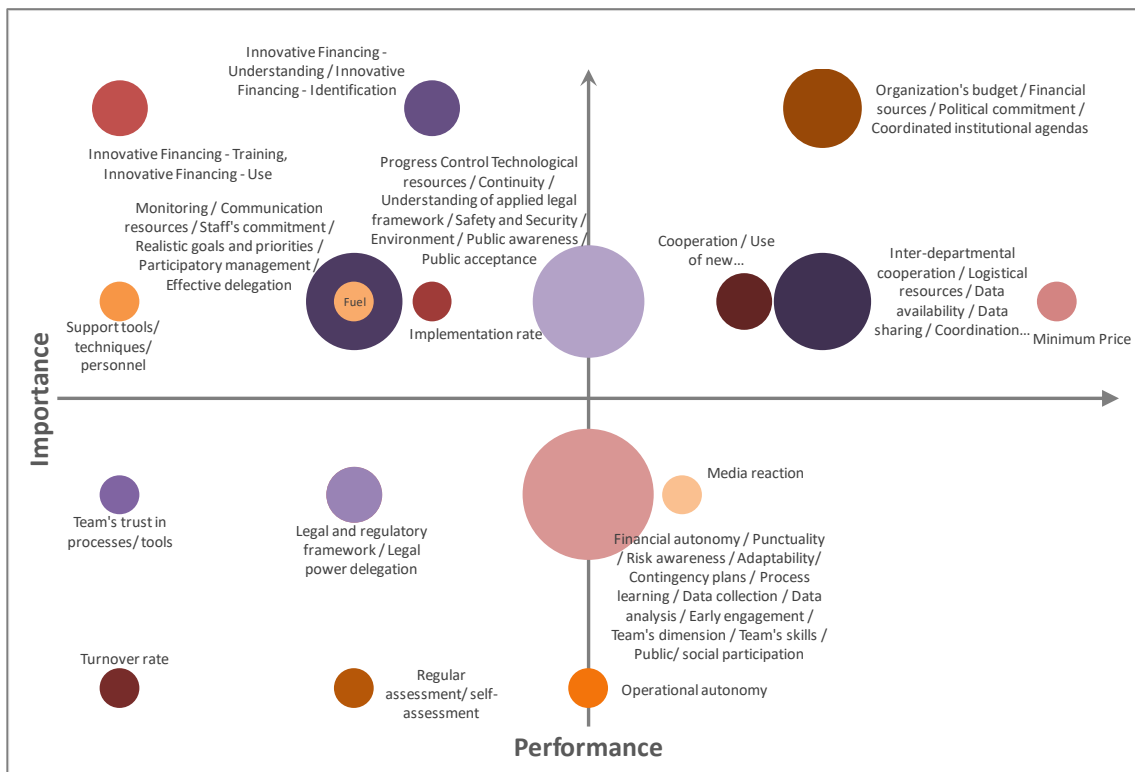

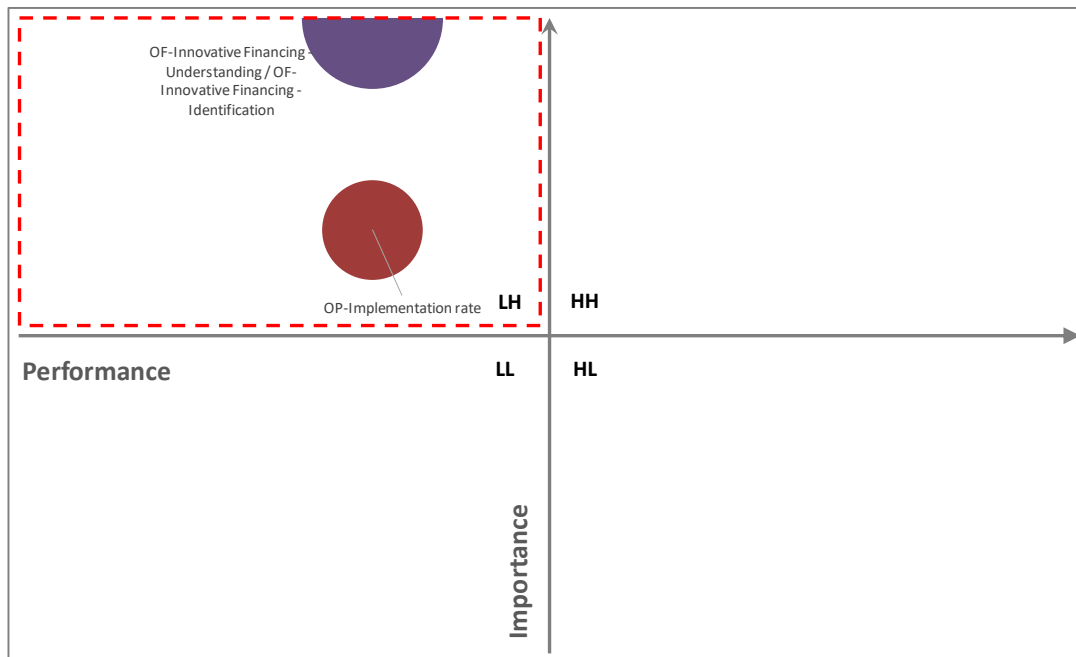Figure 32: City 6 - Frequency related indicators

Figure 33: City 6 - Level related indicators

Table 37 presents in more detail the indicators that belong to the highlighted area. The indicators are presented in groups, depending on the category they belong to. Their name and the description of their function is also indicated.

Category	Indicator	Description
Organizational		
Process	Monitoring	Project's big picture related to technical and processual issues
	Progress Control	Regular process' evaluations to determine gaps and flaws in the Plan's workflow execution.
Technical/ Data Resources	Communication resources	Available resources' quantity/ quality needed to proper complete all the tasks associated to planning and implementation phases. Easy access to communication tools.
Human Resources	Staff's commitment	Staff´s alignment, in attitude and performance, with the goals of the organization.
	Realistic goals and priorities	Link between managers' notion of her team's capacity, and the real team's capacity to deliver the expected outputs.
	Participatory management	Level of bidirectional communication between different management levels of the organization. Global knowledge increment.
	Effective delegation	Each member of the organization has a clear vision of her participation and responsibilities for the successful completion of the Plans. Clear understanding of one's role and participatory timeline.

	Support tools/ techniques/ personnel	Responsiveness to operational/ process inefficiencies.
Political	Continuity	Commitment to the continuation of the project independently of the authorities elected; the plan is maintained unimpeded when moving from one political framework to the next one elected.
Legal	Legal and regulatory framework	Contribution of legal and regulatory frameworks to efficient decision-making processes.
	Legal power delegation	Organization´s autonomy to solve its own legal issues regarding the planning and implementation of the projects.
	Understanding of applied legal framework	All applicable legal framework should be clearly understood by all the involved stakeholders.
	Procurement decision criterions - Fuel	Way of using each fuel as a decisional criterion in the public procurement procedures
Societal	Public awareness	Use of channels to communicate information related to the project, its design, implementation and impact included
	Public acceptance	Public willingness to support the implementation of the project and engagement to its operational phase

Table 37: City 6 - Areas for intervention

Human and legal aspects are mainly the fields to which attention should be paid for the capacity improvement. Regarding the level-oriented indicators, many of them were considered as insignificant (innovative financing, turnover rate and implementation rate) and the "Cooperation" and "Use of new technologies" had a moderate assessment score and a medium level of importance.

A.6.2 Mobility Measures

1. Urban goods freight distribution with clean vehicles
Background and goals of the measure City 6 has set up a Memorandum of understanding to improve freight management in 2014 together with all major national and local associations of trade and transport of goods. Main actions foreseen for a period of 5 years starting from 1st April 2014 were: • Reorganization of the loading and unloading of goods within the central limited traffic zone • Use of logistic platforms and of vehicles that meet the minimum requirements for the distribution of goods in urban area (Euro5, max. tonnage 3,5 t) • Progressive substitution of the most polluting vehicles • Fundraising to implement actions foreseen, including tax incentives The City started to test some of the measures foreseen in the Memorandum of Understanding in collaboration with some logistics operators and a car floating data provider. The operators who participate in the test period have been granted with special conditions/benefits for their delivery vehicles: • free access to the Limited Traffic Zone (LTZ) of the city • exclusive use of the bus lanes outside the LTZ zones • exclusive use of load parking areas

The vehicles with a maximum weight of 3,5 t had to meet EURO5 emission standard and they were equipped with an On-Board Unit linked to the traffic operation center of City 6 for recording the movement data. During this test period the connection systems V2I – Vehicles to Infrastructures were tested and different data was collected, demonstrating an increase in the operators' commercial production and in average speed of the vehicles and a decrease in the emissions per delivery.

The main challenge now is on the analysis of the data from the on-board units and the surveys proposed to the operators in order to understand:

- the traffic flows (for the planning of the delivery corridors)
- frequently used places for stops (for planning the location of loading / unloading parking areas)
- the increase in production (also diversified by type of vehicle used) and the reduction of polluting factors.

SUITS Challenges chosen by the city	Connected Indicators
1) Interaction and cooperation with business partners 2) Understanding and applying innovative financing methods 3) Sustainability thinking	1) None applicable* 2) None applicable* 3) Procurement decisions criterions - Legal

Targets

1) The signature of the FQP (Freight Quality Partnership) and increasing the number of partners involved (17 at now).

2) With the pull measures which lead to the increase in productivity that allows the companies to renew the vehicles fleet

3) Development and spread of a sustainability message: use of Euro 5 vehicles and in future switch to natural gas and electric!

2. Developing intermodality around the new interchanges for the underground and regional railway system

Background and goals of the measure

Starting from the 90s, City 6, together with the national body responsible for the rail transport, has been investing in the realisation of an underground railway system to connect the major city's railway stations to the most important urban centres of the metropolitan area. Today, there are 5 lines connecting 90 railway stations.

By 2021 a new railway line will materialize, connecting several important nodes of the nearest metropolitan South area, in particular one of the most important shopping centres and a big hospital. For this reason, it is planned to operate 3 new stops along this axis. In the meantime, a new station is expected to open as an exchange point of 3 lines of the railway system.

A big challenge is to understand in which way this line can and will change the mobility behaviour of the people and how passengers can be convinced to use this system, that includes multimodal choices. It should also be evaluated which means of transport are suitable to reach the nodes. It is necessary to understand, where new stations should be placed along the line and how these infrastructures could be financed and sustainable procured. The City is interested in the analysis of data provided by telephone companies for building an origin/destination model. This would lead to a better understanding of how citizens move.

SUITS Challenges chosen by the city	Connected Indicators
1) Use of innovative technologies and data collection methods 2) Understanding and applying innovative financing methods 3) Innovative Procurement	1) Support tools/techniques/personnel - Human resources 2) None applicable* 3) Procurement decisions criterions - Legal

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Targets

1) Apply new possible methods to analyze how citizens move (For example, analysis of data provided by telephone companies for building an origin/destination model).
2) Plan new stations in strategic areas with the sub-goal to increase the value of that areas (buildings, shops, productive zones). The creation of new transport services should attract new business and this could help in financing the work.
3) Apply new possible models of public procurement (For example, a station could be built inside a shopping mall, and the shopping mall contributes to the works)

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*None applicable: No important and low performing indicator was designated during the capacity assessment

Table 38: Measures City 6

Freight Logistics is already ongoing, and it is intended to be finalized by the end of the project. In this case, there is a large amount of mobility data coming from logistic operators (in the form of surveys) and traffic control room (via on-board units). The difficulty of implementation lies on the lack of capable staff to analyze the entire information. The intermodality measure is the most important measure for City 6. All information related to the movements of people has already been collected and its implementation will depend on the acceptance of SUITS project.

In general, it should be noted that all the measures face issues related to **legal aspects and human resources**. The self-assessment highlighted *Freight and Public transport* as the main aspects to focus on with a good level of development and performance (with values between 3-4). Also important are the *Regulation of Freight (*still without a high performance and connected with the legal area to improve) *and Inter-city connections on main street* (currently with a strong performance). The *Inter-city connections on main street* aspect fits the city´s main goals of improving connectivity and motivating people to opt for multimodal travel choices.

A.6.3 Conclusions

In the case of City 6, **human and legal aspects** are mainly the fields to be considered as the **barriers** that impede its operation as far as the implementation of their plans. Regarding the mobility measures, there are three challenges where City 6 should focus its efforts on, each of them with specific areas of improvement: Use of innovative technologies and data collection methods and Innovative Procurement.

The set of areas of intervention linked with the most important challenges for City 6 are Management, Innovation and Sustainability. The city needs to improve its performance in respect to the following indicators: Support tools/techniques/personnel and Procurement decisions criterions.

Data are usually acquired to gain information about passenger mobility mainly in public transport and, in a lower measure, to analyze freight transport. Some information would be required on active modes in the future.

A.7 City 7

In recent times, the use of public transportation has been increasing and the city has also increasingly adopted shared mobility as a means of transport (either car-sharing, bike-sharing and car-pooling system). Proper measures have been implemented for different mobility-related aspects, while the three areas where most support is needed are **non-motorised transport, urban logistics and electric mobility and clean fuels**.

A.7.1 Results of the capacity assessment

The city did its capacity self-assessment. The results show few areas are indicated as potential areas where measures can be taken to improve their capacity to implement plans (Figure 34 and Figure 35). Specifically, these are the use of support tools, the alignment with the legal framework, the working environment and the cooperation among different sectors.
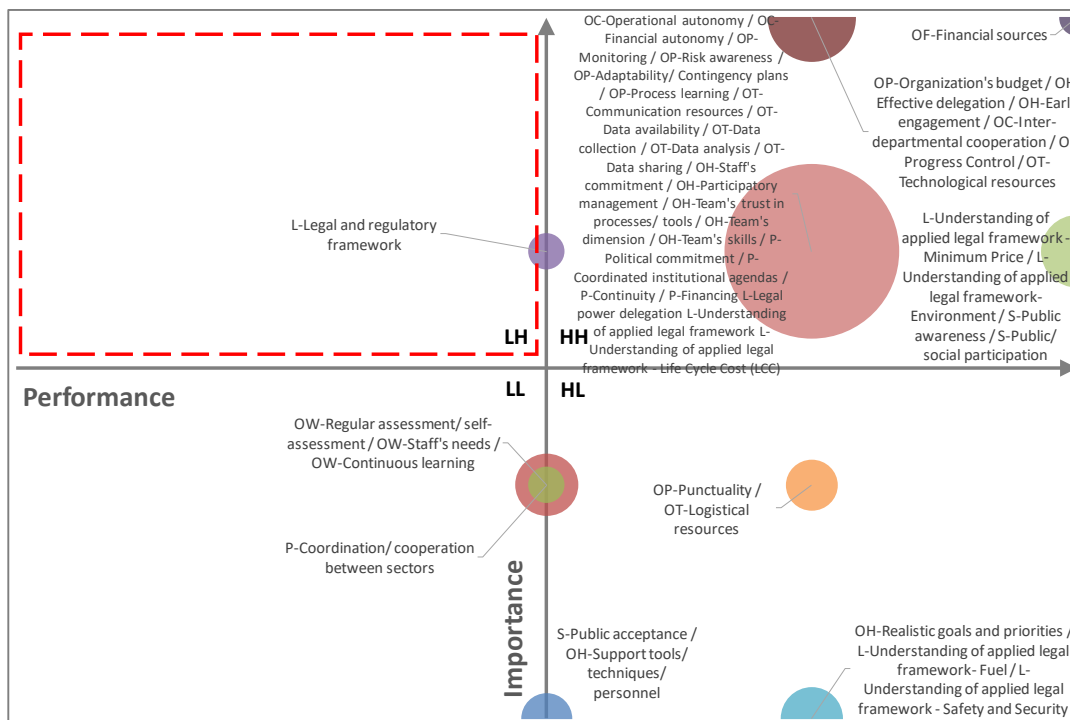
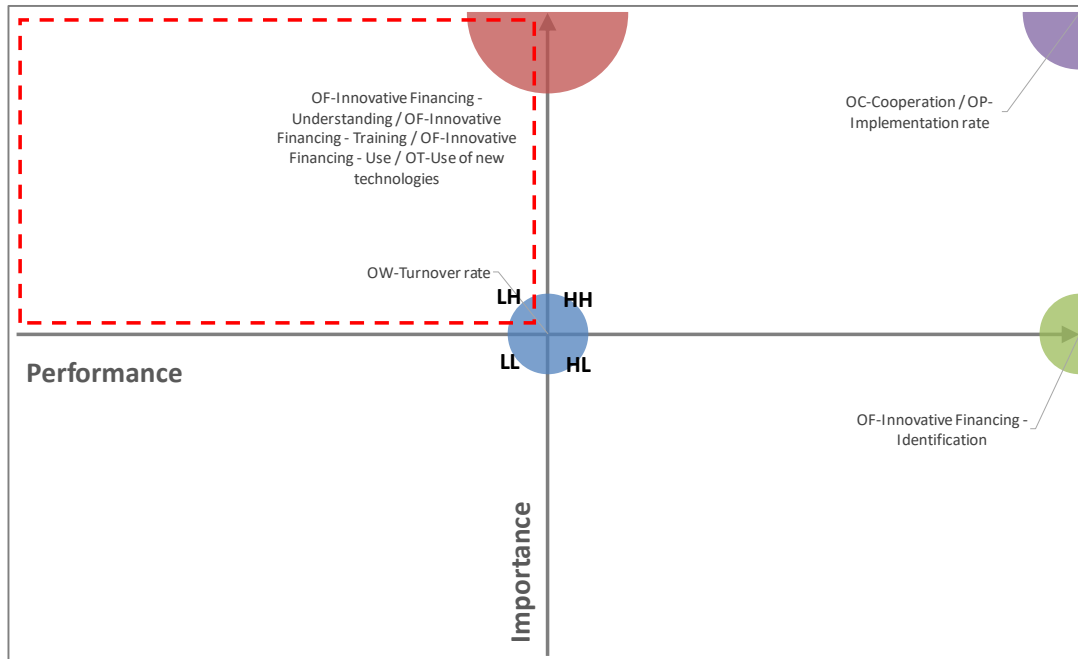Figure 34: City 7 - Frequency related indicators

Figure 35: City 7 - Level related indicators

Category	Indicator	Description
Organizational		
Financial resources	Innovative Financing - Understanding	An understanding of the benefits that innovative financing methods have on the financial capacity of the organization.
	Innovative Financing - Use	Organization's implementation of projects utilising innovative financing resources
	Innovative Financing - Training	The number of people in the organization who are trained in innovative financing
Technical/ Data Resources	Use of new technologies	Willingness to use new technologies for data collection
Working environment	Turnover rate	Reflects the stability in the composition of the team
Legal	Legal and regulatory framework	Contribution of legal and regulatory frameworks to efficient decision-making processes

Table 39: City 7 - Areas for Interventions

A.7.2 Mobility Measures

1. Improving the air quality and increasing the quality of life and stay in the inner city

Background and goals of the measure

City 7 has a traffic issue for years. Numerous measures have already been implemented in the past to change citizens' awareness when choosing transport modes and to put focus on public transport. City´s 7 ambition is to continue to reduce traffic which is mainly caused by commuters. A set of measures will be taken in order to reduce and calm down traffic in different inner-city areas.

- Access Regulation Schemes for different parts of the inner city
- Measures on traffic reduction
- Traffic-calmed zones, traffic-free zones
- Improvement of local and regional mobility offers and introduction of on-demand transport services
- Awareness campaigns to change the mobility behaviour of citizens
- Encouragement of sustainable modes of transport

In addition, measures will be taken in order to reclaim spaces for cyclists and pedestrians, like:

- Reduction of parking areas in public spaces
- Re-design of space to increase space for walking, cycling and strolling

SUITS Challenges chosen by the city	**Connected Indicators**
1) Citizen participation	1) None applicable*
2) Understanding legal and regulatory framework	2) None applicable*
3) Estimating the feasibility and acceptance of measures	3) None applicable*

Targets

1) Disseminate information to the citizens on the measures planned and implemented
2) Precise coordination of the possible measures with the legal basis
3) Develop a methodology for the assessment

2. Promotion of corporate and urban mobility management
Background and goals of the measure City 7 has been very active in the field of mobility management for years. Particularly in the area of corporate mobility management, great successes have been achieved. The city will continue planning and implementing measures that build on the successes achieved up to date and convince even more companies to help develop innovative offers that encourage employees to switch to alternative means of transport. The main challenge is to create incentives for the increased use of public transport, car-sharing, bicycle etc., especially in the area of commuter traffic.

SUITS Challenges chosen by the city	**Connected Indicators**
1) Interaction and cooperation with business partners - Citizen participation 2) Estimating the feasibility and acceptance of measures	1) None applicable* 2) None applicable*

Targets
1) Convince more companies to participate in the already very successful program of company mobility management 2) Launch further awareness campaigns to get people to use public transport to get to work

*None applicable: No important and low performing indicator was designated during the capacity assessment

Table 40: Measures City 7

When comparing all results, we observe that the mobility measures and respective challenges involve areas of intervention linked to aspects more related to **Political interests, Cooperation and Participation**.

It is noted that the city´s main objective is to encourage life in the city center, with less pollution and more sustainable alternatives to mobility. The results from self-assessment showed some correspondences between measures and transport offer assessment. In this sense, there are many aspects related to sustainable mobility that are or have already been implemented, such as the *(Automatic) detection and sanction of speeding*, the *improving the density and extent of the PT network* or the *Setting up public bicycle/bike sharing systems.*

A.7.3 Conclusion

City 7 should put its efforts on communication and dissemination activities for its measures. The enhancement of the technical background is also beneficial for the successful implementation of its goals.

A.8 City 8

A.8.1 Results of the capacity assessment

City 8 as a follower cities didn´t attend the capacity indicators survey. As a follower city they will work on the following measures in the frame of the project.

A.8.2 Mobility Measures

1. Supervision and regulation of private carriers' activities at the municipal level

Background and goals of the measure

In City 8 several different private operators are providing transportation services for the citizens. Currently, their services are not sufficiently regulated (there is no common scheduling system and there are transport delays among other issues). Therefore, it is difficult to provide a high-quality service.

The supervision of the activities of private carriers entails challenges associated to Interaction and cooperation with business partners. Co-ordination of private carriers requires close co-operation with business entities and the establishment of a consensus to ensure the needs of the population and create conditions for efficient business operation. Co-operation with the private carriers requires strong political will and position. Private carriers always seek to secure profitable activities, and the municipal administration must ensure the quality of services for the population, therefore there is a need to create rules and conditions that meet all expectations.

SUITS Challenges chosen by the city	Connected Indicators
1) Understanding political interests and affecting political decisions 2) Interaction and cooperation with business partners	1) None applicable* 2) None applicable*

Targets

1) Improve attitudes towards electric vehicles; survey on perceptions communications
2) Understand how to evaluate impact; identify KPIs and engage monitoring

2. Train teachers who will train future road users and encourage them to use clean vehicles

Background and goals of the measure

The idea of this measure is to integrate lessons about sustainable mobility in the education programme (primary school). But for this measure a close institutional cooperation of various public entities is very important. The measure is soft but its implementation and evaluation are complicated as the results are not easy to measure. Changes will only become noticeable in a few years' time. Consequently, the implementation of the measure poses many challenges.

SUITS Challenges chosen by the city	Connected Indicators
1) Institutional cooperation 2) Citizen participation 3) Estimating the feasibility and acceptance of measures 4) Sustainability Thinking	1) None applicable* 2) None applicable* 3) None applicable* 4) None applicable*

Targets

1) Establishing inter-institutional cooperation between educational institutions and the municipality administration as this will be the key in order to properly implement the measure.

2) Public co-operation and abandonment is needed in the implementation of the instrument, as well as the understanding that early education of road users will benefit in the future.

3) It is difficult to measure the result of this measure, since it depends not only on the latter measure, but also on many external factors. The aim is on the development of a suitable measurement strategy.

4) Implementation of the measure also requires the development of sustainability thinking, planners and people must begin to think about sustainable mobility, changes in the habits and attitudes of society are an important precondition. The aim is a higher focus on the underlying principles and it´s communication to the people affected.

3. Deployment of car-sharing points (at regional level, with private investors)

Background and goals of the measure

City 8 wants to implement a car sharing system with different stations spread over the city area. The main challenges are related to effective cooperation between the municipality administration and business partners, which should provide a satisfying security for the needs of the society and enable the business to work efficiently. This requires a high level of involvement of the population, which ensures the coherence of service and needs. Also, political decisions are needed that will allow private investors to enter the market, requiring appropriate business conditions. It is also important to ensure that there is no restriction of competition, since all measures relating to the involvement of business entities can very often be considered as specific conditions for certain business entities.

SUITS Challenges chosen by the city	Connected Indicators
1) Understanding political interests and affecting political decisions 2) Interaction and cooperation with business partners and 3) Citizen participation	1) None applicable* 2) None applicable* 3) None applicable*

Targets

1) Ensuring political support

2) Effective cooperation between the municipality administration and business partners.

3) High level of involvement of the population, which ensures the coherence of service and needs

4. Development of electric vehicle charging network

Background and goals of the measure

The installation of an electric charging network requires a lot of investment, so the main challenge is finding the right means of financing. The choice of appropriate spaces is also a major challenge, as a large part of the land or driver staging points belong to private businesses. Therefore, dialogue and cooperation with business partners is essential. In order to identify and select the best places for charging points, it is important to include the public in order to be comfortable with them. Public involvement is important as the drivers must be encouraged to switch from traditional fuels to more environmentally friendly alternatives. Good practice examples of other cities would be very valuable.

SUITS Challenges chosen by the city	Connected Indicators
1) Understanding and applying innovative financing methods 2) Interaction and cooperation with business partners 3) Citizens participation	1) None applicable* 2) None applicable* 3) None applicable*

Targets

1) Application of innovative financing methods for the investment.

| | 2) | Effective dialogue with business partners and private land owners to find and to agree on appropriate spaces for the implementation of the service. |
| | 3) | Raise public awareness for the use of the service |

*None applicable: The capacity assessment process was not applied in this city

Table 41: Measures City 8

A.8.3 Conclusion

City 8 wants to work on very demanding measures as part of the project. The city chooses a wide frame of challenges, in particular they want to focus on citizens participation, on political aspects in order to strengthen the political backing that was sometimes poor in the past also because of political changes, and the cooperation with business partners for the implementation of car sharing services and the installation of electric charging network. Especially with regard to the last two measures mentioned, the project need to encourage a strong exchange of experience with the City 7 that is already very experienced in this area.

A.9 City 9

City 9 comes on board later in the project. As a follower city they didn´t attend the contextualization survey and the capacity indicators survey. But in the framework of the project they will work on the following measures.

A.9.1 Mobility Measures

1. Planning and implementation of a new car reduced residential quarter
Background and goals of the measure City 9 is planning a new residential quarter in which the car will play a subordinate role. The planning process is characterised by citizen participation and has been a huge success so far. The following areas are in the focus of the planning for the quarter within the SUITS project: • Implementation of residential garages • Measures to strengthen the character of a car reduced residential quarter • Planning and implementation of a mobility station for bike-, cargo bike and car-sharing; connection with a mail and parcel service • Clarification of issues on freight delivery

SUITS Challenges chosen by the city	Connected Indicators
1) Application of research knowledge and adaption of Good Practice examples 2) Understanding and applying innovative financing methods 3) Estimating the feasibility and acceptance of measures	1) None applicable* 2) None applicable* 3) None applicable*

Targets
1) Increase the knowledge in this area through research finding and good practice examples
2) Analyze and evaluate innovative financing methods for residential parking garages and a mobility station in the residential quarter
3) Identify and consider experiences from similar projects for the concept

2. Capture of mobility data through Bluetooth sensors installed at different crossings in the city
Background and goals of the measure
City 9 is planning the strategic installation of Bluetooth sensors at selected crossings in the city. These data are to be used to analyze and understand traffic flows. Other considerations are to use this data later for dynamic traffic control. A big challenge is the development of a methodology for data collection, evaluation and application.

SUITS Challenges chosen by the city	Connected Indicators
1) Use of innovative technologies and data collection methods 2) Knowledge management / knowledge transfer	1) None applicable* 2) None applicable*

Targets
1) Visualize the sensor-data. Furthermore, knowledge should be increased regarding the application of the data for mobility planning and in a late stage maybe for the application of the data for traffic regulation.
2) No applicable

*None applicable: The capacity assessment process was not applied in this city

Table 42: Measures City 9

A.9.2 Conclusion

City 9 will work on two very interesting measures in the frame of the project. There is little experience of either measure in the city. As a typical small town with 50,000 inhabitants, the cooperation with City 9 on the measures will be very interesting, especially when it comes to understanding the information needs of small towns. In the first measure, the development of the car-reduced residential quarter, City 9 has already done very good preparatory work and carried out an exemplary citizen involvement process. The experience will be made available to the project. The second measure could be very interesting for other small cities as it offers a relatively inexpensive way of identifying traffic flows.

Appendix II

The tables show the results from the challenge rating the cities did at the City Partners Morning at the project meeting in Bucharest in May 2018. The cities were asked to rate the importance of the challenges derived in the project for each of their measures. In addition they chose 3 challenges they want to focus on each measure.

	Challenges	City 1		
		Improve Freight Distribution in the city centre	Progressive pacification of the speed of the transit in the center and other points of the city	Pedestrianization of different areas in the city center
1	Institutional cooperation	*10	9	*10
2	Interaction and cooperation with business partners	*10	*10	*10
3	Citizen participation	*9	*9	*10
4	Use of innovative technologies and data collection methods	9	7	8
5	Application of research knowledge and adaption of Good Practice examples	6	8	7
6	Understanding political interests and affecting political decisions	8	8	9
7	Understanding and applying innovative financing methods	7	4	7
8	Innovative procurement	7	4	5
9	Understanding legal and regulatory framework	9	9	9
10	Estimating the feasibility and acceptance of measures	9	*9	9
11	Sustainability Thinking	8	9	9
12	Effective project management and monitoring	8	8	8
13	Systematic staff deployment and –development	7	7	8
14	Knowledge management / knowledge transfer	7	7	8
15	Identification and utilization of synergy effects			

* Challenges choosen by the cities fot the individual measure

Table 43: Challenge rating for cities measures City - 1

	Challenges	City 2		
		Intelligent mobility system information on traffic conditions and parking availability	Smart pedestrian crossing	Installation of 150 smart parking slots system at 3 roads (on-street) with sensors
1	Institutional cooperation	8	8	*
2	Interaction and cooperation with business partners	9	3	
3	Citizen participation	*10	*10	*
4	Use of innovative technologies and data collection methods	*10	*10	
5	Application of research knowledge and adaption of Good Practice examples	*10	8	
6	Understanding political interests and affecting political decisions	9	8	
7	Understanding and applying innovative financing methods	8	5	
8	Innovative procurement	9	2	*
9	Understanding legal and regulatory framework	5	1	
10	Estimating the feasibility and acceptance of measures	8	8	
11	Sustainability Thinking	9	9	
12	Effective project management and monitoring	6	8	
13	Systematic staff deployment and –development	7	9	
14	Knowledge management / knowledge transfer	8	9	
15	Identification and utilization of synergy effects			

* Challenges choosen by the cities fot the individual measure

Table 44: Challenge rating for cities measures City - 2

	Challenges	City 3			
		Raising societies awareness	Improve public transport	Encouragement of cycling	Improve freight transport
1	Institutional cooperation	3	2	8	5
2	Interaction and cooperation with business partners	6	6	8	7
3	Citizen participation	6	5	*9	6
4	Use of innovative technologies and data collection methods	*8	7	8	8
5	Application of research knowledge and adaption of Good Practice examples	1	8	7	8
6	Understanding political interests and affecting political decisions	*8	*10	7	9
7	Understanding and applying innovative financing methods	1	4	*9	1
8	Innovative procurement	1	*10	*9	1
9	Understanding legal and regulatory framework	5	5	8	5
10	Estimating the feasibility and acceptance of measures	3	4	7	5
11	Sustainability Thinking	*8	*8	9	9
12	Effective project management and monitoring	6	2	8	8
13	Systematic staff deployment and –development	3	3	7	7
14	Knowledge management / knowledge transfer	3	3	8	7
15	Identification and utilization of synergy effects				

* Challenges choosen by the cities fot the individual measure

Table 45: Challenge rating for cities measures - City 3

	Challenges	City 4		
		Cycling Plan	Public Transport Plan	Freight Plan
1	Institutional cooperation	7	4	8
2	Interaction and cooperation with business partners	4	2	*8
3	Citizen participation	*8	*2	8
4	Use of innovative technologies and data collection methods	3	2	3
5	Application of research knowledge and adaption of Good Practice examples	3	2	4
6	Understanding political interests and affecting political decisions	*8	*7	8
7	Understanding and applying innovative financing methods	2	2	2
8	Innovative procurement	2	2	2
9	Understanding legal and regulatory framework	8	5	2
10	Estimating the feasibility and acceptance of measures	7	6	9
11	Sustainability Thinking	6	*7	9
12	Effective project management and monitoring	7	6	8
13	Systematic staff deployment and –development	7	6	8
14	Knowledge management / knowledge transfer	6	6	*9
15	Identification and utilization of synergy effects			

* Challenges choosen by the cities fot the individual measure

Table 46: Challenge rating for cities measures - City 4

	Challenges	City 5			
		Clean fuels & Low emission vehicles	Developing a fully integrated intelligent mobility strategy, capitalising on new technologies	Integration of car sharing systems	Safety and security - crash data analysis
1	Institutional cooperation	7	6	3	*10
2	Interaction and cooperation with business partners	7	6	2	*9
3	Citizen participation	*8	*8	*10	*8
4	Use of innovative technologies and data collection methods	*7	2	3	2
5	Application of research knowledge and adaption of Good Practice examples	5	2	4	8
6	Understanding political interests and affecting political decisions	4	3	3	2
7	Understanding and applying innovative financing methods	4	*6	1	3
8	Innovative procurement	4	2	1	3
9	Understanding legal and regulatory framework	4	5	3	5
10	Estimating the feasibility and acceptance of measures	6	*8	6	8
11	Sustainability Thinking	6	6	3	6
12	Effective project management and monitoring	*7	6	5	4
13	Systematic staff deployment and –development	5	5	3	4
14	Knowledge management / knowledge transfer	5	6	5	8
15	Identification and utilization of synergy effects				

* Challenges choosen by the cities fot the individual measure

Table 47: Challenge rating for cities measures - City 5

	Challenges	City 6		City 7	
		Freight logistics	Developing intermodality around the new interchanges for the underground and regional railway system	Improving the air quality and increasing the quality of life and stay in the inner city	Promotion of corporate and urban mobility management
1	Institutional cooperation	6	6	9	9
2	Interaction and cooperation with business partners	*9	7	5	*10
3	Citizen participation	6	7	*9	5
4	Use of innovative technologies and data collection methods	8	*9	5	9
5	Application of research knowledge and adaption of Good Practice examples	6	5	6	6
6	Understanding political interests and affecting political decisions	7	8	9	8
7	Understanding and applying innovative financing methods	*9	*9	6	8
8	Innovative procurement	8	*9	4	4
9	Understanding legal and regulatory framework	8	5	*9	9
10	Estimating the feasibility and acceptance of measures	8	5	*9	*9
11	Sustainability Thinking	*9	5	8	8
12	Effective project management and monitoring	7	6	7	7
13	Systematic staff deployment and –development	8	6	7	7
14	Knowledge management / knowledge transfer	6	5	7	9
15	Identification and utilization of synergy effects				

* Challenges choosen by the cities fot the individual measure

Table 48: Challenge rating for cities measures - City 6 & 7

Challenges		City 8			
		Supervision and regulation of private operators activities at the municipal level	Train teachers who will train future road users and encourage them to use clean vehicles	Deployment of car-sharing points (at regional level, with private investors)	Development of electric vehicle charging network
1	Institutional cooperation	7	10	7	*9
2	Interaction and cooperation with business partners	*10	*8	*10	*9
3	Citizen participation	7	*9	*9	*9
4	Use of innovative technologies and data collection methods	4	7	7	5
5	Application of research knowledge and adaption of Good Practice examples	8	8	9	9
6	Understanding political interests and affecting political decisions	*9	6	*9	8
7	Understanding and applying innovative financing methods	4	7	4	10
8	Innovative procurement	4	2	2	4
9	Understanding legal and regulatory framework	6	2	7	3
10	Estimating the feasibility and acceptance of measures	2	*9	2	4
11	Sustainability Thinking	4	9	5	8
12	Effective project management and monitoring	7	8	7	7
13	Systematic staff deployment and –development	5	7	7	8
14	Knowledge management / knowledge transfer	7	8	7	8
15	Identification and utilization of synergy effects				

* Challenges choosen by the cities fot the individual measure

Table 49: Challenge rating for cities measures - City 8