Supporting Urban Integrated Transport Systems: Transferable Tools for Local Authorities (SUITS)

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Supporting Urban Integrated Transport Systems: Transferable Tools for Local Authorities (SUITS)

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Abstract

SUITS is a European Project aimed at fostering capabilities of cities in implementing Sustainable Urban Mobility Plans (SUMPs) measures. A survey was implemented at the beginning of the project to characterise nine cities within the consortium through three main activities: an expert assessment based on a set of quantitative indicators related to the actual offer of transport, a self-assessment on the level of actions of the city stakeholders regarding different aspects linked to SUMPSs implementation and an assessment of the areas on which most support is needed. The first two assessments pointed to the same bipartition of the cities in two sets which can be labelled as "leader" and "follower", on the basis of the relative performances in the different ambits. Both leader and follower cities show needs in areas such as non-motorised transport, intermodality or electric mobility, whereas the most urgent needs when considering policy priorities are related to non-motorised and public transport, urban logistics, mobility management and electric mobility.

Keywords: SUMP; Sustainable Urban Mobility Plan; City characterisation; CIVITAS; H2020

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1. Introduction

SUITS is a European Project funded under the H2020 programme aimed at increasing the capacity of local authorities to develop and implement sustainable, inclusive, integrated and accessible transport strategies, policies, practices and measures (http://www.suits-project.eu/). Within such a broad scope that is shared with sister projects belonging to the CIVITAS initiative, SUITS particularly focuses in fostering capabilities in some of the key areas related to the implementation of Sustainable Urban Mobility Plans (SUMPs) measures: innovative financing, procurement, integrated data processing and knowledge discovery for both passenger and freight traffic flows. Additionally, one distinct trait of SUITS is to focus on the mindset and working environment of people working in local authorities, in order to make them change agents within their organisations. A cultural change is in fact needed to fully exploit the opportunities that technology applications are making available at a faster and faster pace. A capacity building programme will therefore be set up to foster the active and long-standing engagement of local authorities and support the mobility transformation. The SUITS consortium is made of 21 partners, including representatives from the following 9 cities: Alba Iulia (Romania), Coventry (UK), Erfurt (Germany), Kalamaria (Greece), Palanga (Lithuania), Rome (Italy), Stuttgart (Germany), Torino (Italy) and Valencia (Spain). SUITS was launched on December 2016 and it will last 4 years.

Against such background, the objective of the first phase of the research is the provision of a baseline assessment of each city regarding the existing situation in terms of mobility and transport and the identification of the needs of cities in terms of support towards the implementation of the above mentioned SUMPs measures. To this effect, a survey was proposed to the cities delegates. This paper presents preliminary results related to the characterisation of the different cities in terms of differences in mobility contexts, with special emphasis on the existing offer of transport services. The identification of needs of the cities in terms of SUMPs measures implementation is the second goal of the activity. This will make it possible to understand on one side which cities are already leaders on some of the above aspects, on the other which ones need help in improving their capabilities.

The above introduced activities have been designed at the beginning of the project by considering the state of the art in this research sector related to both the scientific literature and the ongoing activities in different European programmes. Eltis, the main European observatory on urban mobility, has promoted a rather complete work to collect and "to consolidate the existing knowledge, materials and recommendations regarding the development and implementation of Sustainable Urban Mobility Plans", as found in ELTISplus (2012). This report aimed at informing the development of a further document, providing useful and complete guidelines for those practitioners involved in SUMP development and implementation (ELTISplus, 2014). The development of SUMPs is in fact an actual and challenging topic involving, or having involved, many projects at European level, with the goal of providing important support to the cities in designing and increasing their knowledge on this procedure. Different aspects have been addressed so far: for example, ADVANCE aimed at assisting the cities to set up and improve the quality of SUMPs and policies (http://eu-advance.eu/), CH4LLENGE focused on cities participation, cooperation, measure identification as well as monitoring and evaluation (http://www.sump-challenges.eu/) while POLY-SUMP worked on sustainable mobility planning in polycentric regions (http://www.poly-sump.eu/). Other projects, instead, were more active in creating specific tools and materials used to train the cities subjects on the development of SUMPs, as in the case of QUEST (http://www.quest-project.eu/) or BUMP (http://www.bump-mobility.eu/). At the end of 2016, three new sister projects were launched along this stream as part of CIVITAS SUMP projects: SUITS, SUMPs-UP and PROSPERITY. Complementing the objectives of SUITS, SUMPs-UP aims at creating an innovative acceleration mechanism for the up-take of SUMPs all around Europe, while the main goal of PROSPERITY is the increase of the number of cities active on SUMPs through the inclusion of ministries into the project, in order to enhance the visibility of the project at the national level.

The measure of the "sustainable" attitude of a city is fundamental in order to better understand those fields where specific policies have to be developed. This is usually done through the use of indicators, namely "variables constructed to describe a situation or a time trend about a particular concern" (Toth-Szabo and Várhelyi, 2012). Since sustainability at a city level covers a wide range of fields and different kind of actors, a rather wide literature is found proposing a multiple variety of indicators. For example, Toth-Szabo et al. (2011) present a list of them covering three dimensions of sustainability, i.e. economic, environmental and social, with a further categorisation in six different aspects: efficiency, accessibility, safety, liveability, emissions, resources use. The

interesting work proposed by Zito and Salvo (2011) aims at defining a set of sustainable transport performance indicators that could be used to evaluate the effect of policy measures adopted in the city. The challenging point is the creation of a "Normalized Transport Sustainability Index" that allows the comparison at European level of the sustainability of such measures. The definition of such index gives remarkable hints that could be used in the following to implement a procedure to measure and to compare results among different cities. Other useful suggestions for indicators allowing the evaluation of city attitude towards sustainability could be found in Litman (2005), Kumar (2014), Gillis et al. (2015) and WBCSD (2015). Obviously, a selection of the material found in such documents has been done. In fact, those indicators cover a rather wide range of frameworks, including aspects such as environmental and health issues, economics and mobility systems performances. However, as said previously, the characterisation of the existing offer of transport services is the focus of this preliminary work in the SUITS plan. As a consequence, the project focused on those indicators describing transport systems, including for example "Mode share of PT (of total daily trips)", "Percentage share of PT fleet on clean fuels", "Average PT fleet age (years)" (Kumar, 2014), "Percentage of continuous bicycle paths of total bicycle path length", "Number of bicycle parking/capita" (Toth-Szabo and Várhelyi, 2012).

SUMPs typically cover a wide range of actions at the whole city level, ranging from the promotion of behavioural change through breaking "bad" mobility habits to intervention in the transport offer or pricing and policy measures. Thus, the preparation of the above mentioned survey was inspired by a variety of different sources. Beyond the aforementioned ones, useful hints derived also from the already cited European Project named ADVANCE (Auditing and certification scheme to increase the quality of sustainable urban mobility plans in cities). This project was co-funded by the Intelligent Energy Europe Programme of the European Union and has run from 2011 to 2014. The main goal was to increase the energy efficiency of urban transport and the reduction of the demand for transport in European cities. This is done developing, testing and applying "an audit scheme for cities that helps to set up and improve the quality of Sustainable Urban Mobility Plans and policies" (ADVANCE, 2013). The Audit tool implemented in ADVANCE aimed at identifying the current sustainable mobility planning of a city, with its strengths and weaknesses in order to provide indications for improvement. This tool is available online (http://eu-advance.eu/docs/file/advance_final_questionnaire_en.xls) and has been used as a basis for the implementation of the city characterisation survey. The synergy created with CIVITAS SUMP sister projects allowed the sharing of materials that has been used to prepare the survey. As already said, one of the main aims of SUMPs-Up is the increasing of the knowledge and diffusion of SUMP all across Europe. One of the first tasks of that project is, therefore, the investigation of the current state of transport planning, needs for support and innovative approaches. Thus, SUMPs-Up partners implemented a survey with the specific interest in understanding what support city administrations need to be able to develop and implement SUMPs. Those questions have been also recalled in the SUITS survey, with the aim of maximising synergies among the sister projects.

This paper is structured as follows. The next section describes the experimental activities related to the planning and administration of the survey. City assessment activities are then reported in the following three sections. Namely, section 3 contains a summary of results from the expert evaluation of the transport offer in the different cities that was developed through the consideration of a disparate set of indicators describing the actual mobility systems. Section 4 describes the results related to the opinion of the respondents on the level of action that best characterises the city on certain aspects related to SUMPs, which were consolidated into an evaluation based on an algorithm that is described in details. Finally, questions deriving from the "need assessment questionnaire" of the sister project SUMPs-UP are provided to the respondents in order to have an overview of the SUMP experience in the considered cities (section 5). The final section discusses some conclusions to the activity.The paragraphs continue from here and are only separated by headings, subheadings, tables, images and formulae. The section headings (1st order-head) are arranged by numbers, using Times New Roman bold and 10pt, with 12pt spacing before and after. The section text (body-text) should be Times New Roman 10pt. Further instructions for authors follow below.

2. Survey administration and field work

The survey questionnaire that was designed at the beginning of the SUITS project consists of nine sections, each of them placed in a different worksheet of the spreadsheet that was provided to respondents. In the following, we present a short summary of the questionnaire contents by using the original names of the sheets for simplicity. In "1_Contacts", information on who filled the survey was requested, since it is important to keep into consideration the different viewpoints that were expressed through the questionnaire. For example, different departments

within the same city council such as Environment, Land Use of Transport might have different views and priorities related to the issues at stake. "2_Socio_Demo" gathers basic information on city demographics, social trends and main economic figures. Each of the following questionnaire sections "3_Passengers_Mobility", "4_Car_Related", "5_Freight_Transport", "6_Public_Transport", "7_Active_Modes" group together questions related to the characteristics of such mobility aspects and transport modes. Sections "8_SUMP" and "9_Mobility_Measures" are, instead, more focused on the actual and intended mobility planning and measures. The survey has been proposed to the city delegates which were in charge of completing the questionnaire. These delegates have been contacted by the Associated Partners (APs), that are part of the SUITS consortium and which could be supportive in the survey completion (helping in information collection, translations etc.).

Information on the different aspects have been elaborated and summarised in order to create useful city profiles. Some of the data coming from sections "3_Passengers_Mobility", "4_Car_Related", "6_Public_Transport" and "7_Active_Modes" have been used to operate a quantitative analysis of the mobility offer in the cities (see section 3 for further details). Other questions asked for an evaluation on the level of action observed in the city on specific mobility aspects, mainly in sections "4_Car_Related", "5_Freight_Transport", "6_Public_Transport", "7_Active_Modes" and "9_Mobility_Measures". On the basis of the gathered data, section 4 presents the procedure developed to summarise the responses provided and to understand the level of performance of the cities on different sustainability issues. In section "8_SUMP", instead, the questions prepared by the sister project SUMPs- Up were included to investigate the SUMP knowledge and development in each test site.

The surveying period started on the 16th of February 2017 in the 9 cities participating in the project and lasted around a month. Each city consolidated the contributions coming from different survey respondents that were in the best position to answer specific questions into a unique data sheet. About 18 experts where involved across all cities, including 6 managers and 3 officers from mobility departments of the municipalities, 3 officers from other departments, 2 officers from mobility agencies and 1 external consultant. The whole questionnaire is available in Pirra et al. (2017). As said previously, the analyses on the resulting dataset are presented in the following sections, while we summarise some key characteristics of cities related to both socioeconomics and to the offer of private and public transport in Table 1. The last line of the table shows if a SUMP has been implemented, and in this case who has mainly developed it (namely, some staff from cities, some external consultants or a mix of the two). This latter information is an initial indication of the operational capabilities of the different cities that will be duly analysed in the subsequent development of the capacity building programme.

Table 1. Key characteristics of SUITS cities.

	Alba Iulia	Coventry	Erfurt	Kalamaria	Palanga	Rome	Stuttgart	Torino	Valencia
Socioeconomics									
City population*	63,536	359,262	184,100	91,518	15,620	2,617,175	582,220	872,367	792,054
City extension (km^2)	103.65	81.29	58.00	6.40	79.00	1285.29	104.18	130.17	134.633
Population trend	Growing	Growing	Growing	Growing	Shrinking	Stable	Growing	Shrinking	Stable
GDP per capita in PPS (€)	10,900	23,300	19,700	16,800	13,100	28,600	35,200	26,600	21,500
Employment trend	Growing	Growing	Growing	Shrinking	Stable	Shrinking	Growing	Stable	Growing
Transport-related									
Private veh./1000 inh.	262	490	402	652	397	611	471	619	431
Car sharing availability	No	Yes	Yes	No	No	Yes	Yes	Yes	No
Public transport network** (*km*)	157	n.a.	87	23	n.a.	2031	n.a.	1200	900
Bike lanes (*km*)	15.0	44.0	192.0	0.4	18.4	241.0	180.0	180.0	123.0
Bike sharing availability	Yes	Yes	No	No	No	No	Yes	Yes	Yes
SUMP-related									
Who developed the SUMP?	City staff with consult.	No SUMP	No SUMP	No SUMP	Consult.	No SUMP	City staff	City staff with consult.	City staff with consult.

* Data from census 2011; ** Extension within the city boundaries

3. Expert assessments on quantitative measures related to the transport offer

A first stream of analyses focused on a disparate set of indicators, which are broadly speaking consisting of quantitative measures which are related to the transport offer in the cities and which are customarily considered in many multidimensional evaluation exercises. Four main mobility aspects were considered at this stage: one embraces general passenger mobility, whereas the other three are mode specific (car, public transport, active modes). A list of indicators characterising the transport offer was defined for each aspect, as shown in Table 2, and their values were provided by each city through the above introduced questionnaire. As explained in the introduction, a great variety of indicators is available in the literature. The selection leading to the creation of the final list in Table 2 was based on the data provided by respondents and on the need of general and repeatable information on the mobility offer of the city. In fact, the comparison of the current situation among different sites is the goal of this preliminary work. Thus, a greater importance is given to those relative indicators that "normalise" information by referring a given measure to a population or area unit.

Table 2. Key characteristics of SUITS cities.

Aspect	List of indicators
General passenger mobility	Number of different public transport services (out of a list of 10)
	Availability of a bike sharing system (Yes/No)
	Availability of a car sharing system (Yes/No)
	Availability of sidewalks (Yes/No) and bike lanes (Yes/No)
	Multimodality degree (number of available modes out of: public transport, bike sharing and car sharing)
	Service to mobility impaired (number of available dedicated modes out of: demand responsive and taxi)
Car	Number of private vehicles / 1,000 inhabitants
	Car ownership trends in the past 5 years (increasing or decreasing)
	Availability of a car sharing system (Yes/No)
	Number of car sharing providers
	Car sharing fleets size / 1,000 inhabitants
	Availability of a car pooling scheme (Yes/No)
	Market penetration of car pooling for systematic mobility (from 1 – Not at all significant to 5 – Extremely significant)
Public transport	Total extension of public transport lines (km)
	Total extension of public transport lines inside the city (km)
	Total extension of public transport lines inside the city / 1,000 inhabitants
	Total extension of the network of local trains (km)
	Average age of road public transport fleet (years)
	Breakdown of propulsion systems of the road public transport fleet (conventional/gas/electric/hybrid)
	Single ticket price / 100 km public transit network (€/km)
	Number of different kinds of ticket (up to 9)
	Number of concessionary fares categories (up to 7)
Active modes	Extension of bike lanes (km)
	Extension of bike lanes / city area (km/km^2)
	Extension of bike lanes / 1,000 inhabitants
	Parking spot availability for bikes mobility (from 1 – Very fair availability to 5 – Very good availability)
	Bike Sharing availability (Yes/No)
	Bike sharing fleet size / 1,000 inhabitants
	Pedestrian area / city area (km^2/km^2)
	Pedestrian area /1,000 inhabitants
	Pedestrian paths length / 1,000 inhabitants

Due to the disparate nature of the considered indicators and the low sample size (nine cities), it was deemed not appropriate to summarise them through some sort of mathematical computation. An expert's assessment process was rather implemented, by involving a pool of researchers within the SUITS consortium that expressed an overall judgement related to the level of development and the environmental performance within each of the above four aspects, on the basis of the numerical values of the indicators in Table 2. Such judgment was expressed through the following three-points semantic scale: "Fair", "Good", "Excellent". Table 3 collects the overall evaluation for the four mobility offer domains listed in rows. Those judgements try to follow a reasoned approach that considers the dimensions and the potentiality of the cities themselves too. For example, the absence of shared mobility services, such as car pooling or car sharing, is rather predictable in a town while this could be detrimental to the mobility offer of a metropolis. Similarly, the public transport extension should consider the dimension of the city: a bigger one is expected to have usually more chances and resources to provide a wider offer compared to a medium-sized one. More in general terms, given the spatial heterogeneity of the different cities, the expert judgment was used since it is not possible to directly compare the value of those indicators, even if they are already relative rather than absolute values.

Table 3. Results for the technical indicators evaluated in the cities.

Aspect	City A	City B	City C	City D	City E	City F	City G	City H	City I
General passenger mobility	Good	Excellent	Excellent	Good	Good	Good	Excellent	Excellent	Excellent
Car	Fair	Good	Good	Fair	Good	Good	Excellent	Excellent	Good
Public transport	Good	n.a.	Good	Good	Fair	Good	n.a.	Good	Excellent
Active modes	Good	Good	Good	Fair	Good	Fair	Excellent	Good	Good

It can be seen that the nine cities can be divided in two groups, one having ratings either excellent or good (cities B, C, G, H and I) and the other having ratings either good or fair (cities A, D, E, F). All three mode-specific aspects are associated with relatively poor performances in some cities. Although such analysis is rather sketchy, its aim was only to provide an initial comparison of the relative performance of the different cities, as a form of feedback for them. It was also useful to focus the attention on those components of the transport system that might need additional attention during the project, as it will be shown in the remainder of the paper.

4. Self-assessments on aspects related to sustainability and mobility policies

An additional analysis focused on the evaluation provided by respondents on the level of action observed in the city on specific mobility aspects. The three mode-specific mobility aspects that were analysed in the previous section are still considered, namely car related aspects, public transport and active modes. Two additional were considered: freight transport in cities and mobility measures.

For each of these topics, several different statements are proposed and the involvement which best characterises the city is asked to be assessed. More in details, 17 statements were proposed for each of the three mode-specific aspects, plus additional sets of 8 statements for freight and 22 statements for mobility measures. The respondent could answer to each statement "Not applicable" or provide an evaluation through a semantic rating scale ranging from "Level 1" to "Level 4". The lowest rating refers to a low level of action of the city in those fields, with very little or sporadic performances, while the highest reveals a regular, innovative and systematic implementation of those operations. Therefore, this kind of questions involves a self-assessment of the cities, rather than being based on objective indicators that were introduced in the previous section, so that the two evaluation exercises can be seen as complementary and consistency among the two can be checked.

Moving one step forward, information coming from the above 81 statements was also used to understand the level of performance of the cities concerning specific issues related to SUMPs implementation. 12 different issues were considered through the following labels: Data analysis, Engagement of stakeholders, Environment, Equity (for people), Financing, Innovation, Management, Multimodality, Participation of citizens, Planning, Safety & Security and Sustainability. The adopted procedure is the following:

- Each statement is tagged with a maximum of 4 labels

- The rating scale is converted to a numerical scale where 0 indicates not applicable, 1 refers to level 1, 2 to level 2, 3 to level 3 and 4 to level 4
- The following value V_r is computed for each of the 12 above listed issues:

$$V_r = \frac{S_r\text{-}min * N_r}{max * N_r\text{-}min * N_r}$$

where N_r is the number of statements to whom the r-th issue is assigned, *min* and *max* are the minimum and the maximum values of the converted rating scale (1 and 4 in our case), S_r is a value specific for the r-th issue and it is in turn computed as follows:

$$S_r = \frac{\sum_{i=1}^{n_r} R_{r,i} * N_r}{n_r}$$

where $R_{r,i}$ is the rating of the i-th question of the r-th issue and n_r is the number of questions, corresponding to the r-th issue, which have been rated (thus it holds $n_r \leq N_r$).

- A final evaluation for the level of action in each city and for each indicator is provided according to the following table:

Table 4. Final evaluation for indicators in the city assessment.

Final evaluation	Values range
Fair	$V_r \leq 0.30$
Good	$V_r \geq 0.30$ & $V_r \leq 0.75$
Excellent	$V_r \geq 0.75$

The following example might be useful to understand the workflow. Let us consider that the evaluation of the statement "Traffic calming zones with speed limits 10, 20 or 30 km/h" involves issues related to "Sustainability", "Safety & Security" and "Planning", thus these are the three "tags" assigned to that question. Then, we can assume that the issue "Safety & Security" is also pertinent to the two questions "(Automatic) detection and sanction of speeding" and "Ensure free flowing traffic by low speed driving on main streets". Considering that the previous 4-points rating scale related to the level of action is used, let us finally assume that the following ratings are collected from two cities X and Y:

Table 5. Ratings for the questions related to "Safety & Security".

Questions	City X	City Y
Traffic calming zones with speed limits 10, 20 or 30 km/h	3	3
(Automatic) detection and sanction of speeding	3	0
Ensure free flowing traffic by low speed driving on main streets	1	3

Table 6 shows the calculations of the above procedure that allows giving a final evaluation of the two cities in the domain of "Safety & Security":

Table 6. Manipulations to compute the evaluation of indicator "Safety & Security".

City	N_r	n_r	$\sum_{i=1}^{n_r} R_{r,i}$	S_r	*min*	*max*	V_r	Final evaluation
City X	3	3	3+3+1=7	7	1	4	0.4	Good
City Y	3	2	3+0+3=6	9	1	4	0.7	Good

The overall results observed in the cities can be found in Table 7. These were obtained in a two-step process, first computing the set of 12 V_r within each of the five main fields (car related, freight transport, public transport, active modes, mobility measures) for each city, and then considering their mean values. The five distinct sets of V_r values are analysed in Pirra et al. (2017) in order to put them in relation with the expert judgment analysis that was introduced in the previous section.

Table 7. Synthetic self-evaluation of activity levels on key aspects related to SUMPs implementation.

SUMP aspects	City A	City B	City C	City D	City E	City F	City G	City H	City I
Sustainability	Good	Good	Good	Good	Good	Good	Good	Good	Good
Financing	Good	Good	Good	Good	Good	Good	Excellent	Good	Fair
Equity	Good	Good	Good	Fair	Good	Good	Excellent	Excellent	Good
Environment	Fair	Good	Good	Fair	Fair	Good	Excellent	Good	Good
Innovation	Fair	Good	Good	Good	Fair	Fair	Good	Good	Good
Safety & Security	Good	Good	Good	Fair	Good	Good	Excellent	Good	Excellent
Data analysis	Good	Good	Good	Good	Good	Good	Excellent	Good	Good
Management	Good	Excellent	Good	Good	Fair	Good	Good	Good	Good
Multimodality	Fair	Good	Good	Fair	Good	Fair	Good	Excellent	Good
Participation	Good	Good	Good	Fair	Good	Good	Good	Good	Good
Planning	Good	Good	Good	Good	Good	Good	Excellent	Good	Good
Engagement	Good	Excellent	Good	Good	Good	Good	Excellent	Good	Good

It can be noticed that the three aspects in which we have the highest occurrence of relatively lower activity levels are environment, innovation and multimodality, while sustainability, data analysis, planning and engagement show activity levels that are good to excellent for all cities. Since these latter also constitute some of the main lines of action of SUITS supporting activities to cities, the 9 cities within the consortium probably represent a good testbed for the tools that will be developed during the project.

By comparing Table 7 with Table from the previous section, it emerges that the same classification in two sets according to their marks (either “fair” to “good” or “good” to “excellent”) can be found here, with the marginal exception of City I which in the following will be considered as belonging to the latter group. This result is an indicator of a good degree of consistency between the two exercises, despite their totally different nature, and it helped the project consortium in identifying a set of “leader” and a set of “follower” cities, therefore better structuring the subsequent activities to tailor them according to this set membership. Additionally, the SUMPs aspects in which follower cities perform relatively bad are “environment”, “multimodality” and “innovation” (3 out of the 4 follower cities scored “fair” in each of these criteria). By considering the distribution of “fair” judgments across Table 3 and Table 7, it can be seen that the two cities A and D having less positive indicators on “car” also show lower levels of actions related to environment and multimodality.

5. Assessments of needs

The above reported expert judgment and self-assessment analyses constituted the starting point towards the identification of the areas where support from SUITS is needed for a more effective implementation of sustainable mobility measures, in terms of focusing the action on specific components of the transport system (freight, passenger, public transport…) or those specific issues related SUMPS implementations that were previously introduced. However, these analyses are based on the contingent situation, which could be only weakly correlated with the policy priorities and needs for the future. For example, a “fair” evaluation on a given aspect might not constitute a problem if such aspect is not deemed important in a given city. On the other hand, stakeholders might wish to further improve on some aspects even if they already perform very well, given their strategic importance.

Therefore, these factual analyses need to be complemented with an investigation of the actual needs, according to the judgment of the technical and administrative staff working for the city administrations or mobility agencies. An additional set of questions was therefore included in the questionnaire to investigate the kind of support, if any, which is sought by the city representatives to implement mobility policies in different areas of intervention. Additionally, it was asked to prioritize the three areas where the strongest support is needed. The resulting information is presented in the following table.

Table 8. Support needed in mobility policies in the cities (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").

Area	City A	City B	City C	City D	City E	City F	City G	City H	City I
Public transport	T	P S F T*	0	T*	S*	F T*	0	0*	F
Non-motorised transport	S T*	F*	S	T*	S*	F	S*	P	F
Intermodality	P S T	P S F T	S	T	S	S F	P F	P	S F
Urban traffic safety	P S	F	0	T*	P	F	0	P	0*
Road transport (including parking)	T	F*	0	T*	P	F	0	P	0
Urban logistics	S T*	F	0	T	P	P S*	S T*	P*	0*
Mobility management	P S*	F	0*	T	S*	F	F	P*	0
Intelligent Transport Systems (ITS)	0	F	0	T	P*	0	F	P	P S F T
Electric mobility and clean fuels	0	F	T*	T	S	S*	F T*	P	P S F T*
Shared mobility	0	F	0*	T	P	0	0	P	P S F T
Automation in car traffic and public transport	0	F	0	T	S	P S	0	P	P S F T

* Area where support is most needed

From the table it can be seen that some sort of support is sought by all cities, although to a varying degree. Almost all cities need support in areas such as non-motorised transport, intermodality or electric mobility, while top priorities seem to go to non-motorised and public transport, urban logistics, mobility management and electric mobility.

Recalling the previously introduced classification of "leader" and "follower" cities, we can see that the former group can be additionally split into leader cities that need support (cities B and H), leader cities that need support in fewer areas (cities G and I) and only one cities that need almost no support (city C). Therefore, also cities that are scoring relatively high both on quantitative measures such as mobility indicators and on subjective assessments of their levels of actions feel the need for a continuous improvement of their transport systems. This is a good indication of the degree of ambition of the cities participating in this project, that will be considered in the subsequent definition of the above mentioned capacity building programme. Additional more detailed considerations related to the fact that some lead cities feel they need support and other do not feel it have been carried out within the consortium, but are not reported here to avoid confidentiality breaches, nor are felt particularly relevant for the subsequent phases of the project.

6. Conclusions

The present paper has summarised the main activities that took place in the initial phase of the SUITS European project. The goal of the analysis was the characterisation of the nine cities within the consortium through a multi-dimensional evaluation activity. The latter considered an expert assessment based on a wide set of mobility indicators which represent quantitative measures related to the actual offer of transport, a self-assessment on the level of actions of the city stakeholders regarding different aspects linked to SUMPSs implementation and an assessment of the areas on which most support is needed. The first two assessments pointed to the same bipartition of the cities in two sets which can be labelled as "leader" and "follower", on the basis of the relative performances in the different ambits. Such distinction can help the project to better design and differentiate the workflow according to the real conditions of the cities. The assessment of needs on the other hand helps in understanding how the cities are willing to evolve, which are their priorities and most urgent issues. Both leader

and follower cities show needs that should be covered by the project, particularly in areas such as non-motorised transport, intermodality or electric mobility, whereas the most urgent needs when considering policy priorities are related to non-motorised and public transport, urban logistics, mobility management and electric mobility.

The analyses that have been summarised so far, together with additional information retrievable from the survey concerning the socioeconomic characteristics of the different cities, helped in the definition of a synthetic profile for each city participating in the project, which can be found in Pirra et al. (2017). This will form the basis for the actual design of the capacity building programme in subsequent phases of the project. This programme will be developed by defining a set of topics, in particular by making a difference between issues related to freight and to passenger transport which were here jointly presented and analysed. It is in fact clear that both policies and possible range of actions are quite different in the two cases. Related activities will be carried out to ensure replicability of results beyond the cities participating to the project. In particular, the above survey contents, related analysis protocols and city classification schemes will be made available to any city that is willing to understand how to improve its own skills related to SUMPS implementation by defining its own capacity building programme.

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