WHAT ARE THE PRIORITIES IN THE DEVELOPMENT PROCESS OF A SUSTAINABLE URBAN MOBILITY PLAN? THE CASE OF BUMP PROJECT.

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ABSTRACT

The process to develop a Sustainable Urban Mobility Plan (SUMP) is not devoid of problems due to the fact that it is necessary to identify what measures are suitable according to citizen´s behaviour and what will be their real impact once they will be totally implemented.

This paper presents a new methodology, named Mutual Learning Workshop (MLW) for joint work between experts that allows them to assist in the process of developing a SUMP. A total of 4 MLW were organized and 12 different urban mobility topics were approached. Discussion processes were moderated by experts in urban mobility from 9 countries, who were leading the worktables and role playing activities.

Using such methodology, the results of the 36 topics discussion and 12 role play activities are presented as important topics detected in the development of SUMPs and best practices found throughout Europe.

KEYWORDS: Urban Mobility, Sustainable Urban Mobility Plans, Mutual learning Workshop.

INTRODUCTION

High population densities that are being concentrated in cities around the world shows an upward trend over time. This high population causes the surface area of these cities to grow and the daily mobility demand to increase. In this scenario, cities need to react quickly in order to offer sustainable transport services that can reduce the use of private vehicles and the associated environmental problems.

The exponential evolution of pollutant emissions released into the atmosphere in the past years is an indubitable fact and it is starting to be taken into account at all institutional levels. According to the European Environment Agency, terrestrial mobility has a great impact, being responsible for the emission of more than 25% of these pollutants in Europe and 14% of the total amount attributed to mobility within cities [1,2]. In relation to motorized transport in urban areas, it presents other problems in addition to the carbon accumulation in the atmosphere and resulting impact in climate change, considering that some of the generated emissions are solid particles that take up the lower layers of the atmosphere causing poor air quality in cities, and consequently, problems for residents.

This exponential escalation coincides with massive accumulation of people in cities and especially with the intensified use of private cars as intra- urban daily mobility choice. This, has not only led to the previously mentioned environmental problems, but also to the appreciably deterioration of residents' quality of life. Excessive traffic congestion or massive accumulation in public spaces dedicated to traffic are some of the issues beyond mere pollution, becoming a major concern, and the first order of business in institutional agendas.

According to [3], sustainable development requires significant changes in existing transportation systems for increasing economic efficiency, equity, and environmental security. Lastly, current transport models only worsen this serious energy dependence of fossil fuels situation (98%) that Europe is going through, being transport accountable for the 60% [4].

Thus, local authorities initiated an important process in favor of sustainability in urban transport, in order to restrain inefficient traditional transport methods and encourage more innovative and clean ones such as cycling, public transport or alternatives like electric mobility or car sharing.

In European Cities and according to the transport white paper, the public transport sector has to reduce greenhouse gases emissions up to 20% below 2008 levels by 2030 and one of the priority measures to do that must be to develop a non-polluted urban transport system in cities [5].

The aim of this paper is twofold. It firstly proposes a new methodology, called Mutual Learning Workshop (MLW), for the discussion and sharing of best practices among experts in sustainable urban mobility planning. On the other hand, it puts this methodology to the test by applying it to a real case where experts from 9 European countries take part. In addition, the main and most interesting results of the method application are also presented.

The MLW here proposed is a mixture of several joint working methodologies widely used in various disciplines and have already been used previously also in processes related to sustainable urban mobility planning. Particularly, MLW is a methodology that combines an effective mix of focus groups, workshops and role playing among experts in sustainable urban mobility and more specifically in developing sustainable urban mobility plan (SUMP).

As a result of years of study, nobody doubts that one of the most crucial and effective tasks when developing a SUMP is the involvement of stakeholders and citizens in the process itself. Therefore, jointly working through mega focus groups, focus groups, workshops, public meetings, etc. have been declared successful methodologies in the vital work of involving stakeholders in sustainable urban mobility planning. Consequently, many cities are presently putting into practice these methods to help them achieve more eco-friendly cities.

Working techniques mentioned above have already been proposed as an effective stakeholder and citizen involvement methodology, but they have never been tested for this purpose: capturing knowledge from experts and transnationally transferring best practices to improve urban mobility planning process.

These joint working methodologies' validity is established since these approaches have been the base of the creation of institutional documents, with the aim of provide guidance in the planning phase, for instance: Decision-Makers' Guidebook on developing sustainable urban land use and transport strategies [10].

City planning depends on the participation of professionals from a variety of disciplines, and often is influenced by popular acceptance and management support [11], so it is necessary to promote collaborative work of multidisciplinary teams if an appropriate planning is pursued.

There is also evidence that best practices benchmarking between cities is a widely used method of comparing performances and practices in order to learn from the best. Due to this, it is suggested that benchmarking is a valuable tool that may indeed help to move forward the transport policy agenda towards sustainability [12, 13]. In addition, it is also well known the significant role of transferring best practices in mobility.

According to [14], "academic researchers have for example advocated best practice approaches for urban transportation planning and employer mobility policies, non-governmental organisations have published best practice guidelines on cycling policy and the reduction of transport-related energy consumption, national governments have sponsored best practice schemes for achieving sustainable freight distribution and transport integration, and supranational bodies, such as the European Commission and the Organisation for Economic Cooperation and Development (OECD), have issued publications on international best practice in road safety and greenhouse gas abatement policies for transport". Hence, transferring best practices, as it is provided in the MLW this paper introduces, has often positioned itself as an effective method to transfer successful mobility policies and learning achieved by applying effective measures already tested in cities with less experience in development of SUMPs [15].

The mentioned transferring of best practices is very common in sustainable urban mobility planning, to illustrate and according to [15], there are not only clear examples of successful transition of measures between cities, but it has also been considered which are the optimal conditions to satisfactorily apply them in other cities.

Therefore, it seems obvious that the new methodology proposed in this work, able to make the most transferability in their measures, using benchmarking between cities and promoting tools as focus groups or supervised workshops, really beneficial for stakeholder and citizen involvement, can be a really valuable solution for the present urban transport revolution towards more sustainable and socially responsible models.

This work is structured in four sections. Once the topic has been introduced, and the scientific interest and its novelty have been stated through the literature review, the following paragraph proposes the new MLW methodology. The third section shows the characteristics of the

empirical test that took place towards the end of 2014 and the main results obtained by applying the methodology. Last of all, there is a final section devoted to the conclusions reached by the completion of this work.

PROPOSED METHODOLOGY

Before thoroughly explain the methodology proposed by this work, some key concepts that make up this joint work new method should be briefly mentioned.

First, the World- Café Session is a methodology based on the work in focus groups that aims to gather several experts around a table (5 to 10) to discuss during a short period of time a specific proposal while being supervised by a moderator. Experts present their specific experience and acquired knowledge in particular cities in order to propose solutions to be discussed among the experts around the same table. Last, the moderator has to be able to write a brief report with the main conclusions of every session.

Another novelty here presented is called role-playing, a technique which consists of simulating a real life situation that could take place when developing a SUMP, for instance: the first meeting dedicated to the negotiation and agreement on the main features the SUMP will include. By practicing this technique, adopting the role of a particular character and setting up a real life scenario, participants are able to imagine and train their behaviours and decision making processes. Furthermore, it is also proposed as an interaction measure for 10-20 experts that would gathered in groups, playing a key agent in urban mobility planning process, for example: a bicycle users association. Each group makes up an internal common stance that will be presented and debated by all attendants, reaching interesting conclusions. Thus, this is especially useful to let the group understand how someone in a particular situation may react to some event and to embrace the key scenarios that are vastly common in sustainable urban mobility planning. The starting point of the activity usually is a successful case unknown by all attendants. During the role play, a moderator will guide the session with the aim to maximize its results.

Once defined in detail the two main techniques used in our MLW model, Figure 1 summarizes the model and the actual implementation on the joint work with experts. Firstly, three working groups are organized around three tables (three groups around three tables for each topic approached during the MLW session).

For about 30 minutes, all participants will explain their vision about the topic and their related specific experience. Experts will rotate to every table, repeating the process for each topic. As a result, every participant will have the opportunity to reflect on the three proposed subjects. In order to ensure the debate, exchange of knowledge and networking among attendants, the topics and methodology should be sent in advance. The tables will be overseen by an expert on the particular topic that does not rotate, and a moderator will also be appointed. Both of them will be in charge of drawing conclusions on the subject dealt with in their table. Finally, moderators of each subject (table and topic), will share conclusions to produce a common results proposal, which will be presented to all participants during the brief capitalization meeting.

Once the first event is finished all participants will divide into three working groups, each one of them will meet around a table, and the role play will take place. The topic moderator of the previous activity will become the real case moderator. For one hour and half, experts will play several roles that will be performed in teams and a real case will be presented. Roles will be assigned according to participants areas of work. In the first place, each team (experts with the same role in the table) must achieve a common position as a result of a 20 or 30-minute debate. During the last hour of negotiation, the whole group will reach a common position to

solve the case. The aim of this activity is to promote empathy among the attendants, in order to be able to understand other negotiations parties that could take part when discussing key aspects of a SUMP.

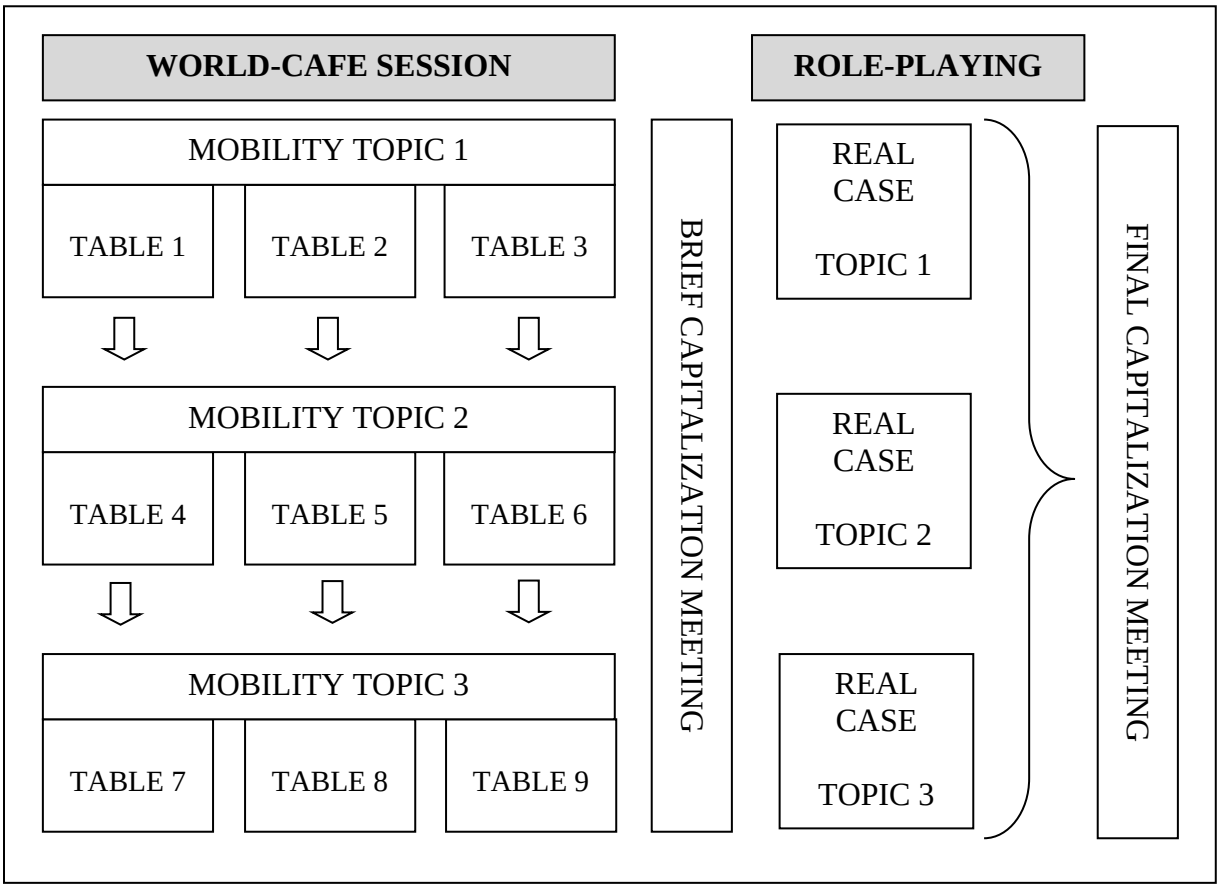

Figure 1. BUMP MLW model.

At the end of the activity, the three topic moderators will produce a final revision of the common solution reached in their table and the process to achieve it. Finally, a last workshop presenting this last activity results will take place. The results will be integrated with the World- café conclusions already presented, providing a joint and global vision of the activity.

MAIN RESULTS

A presentation of how a MLW should be organised is described below using the practical application and the main results carried out in European BUMP[1] project [16]. With the aim of identifying the barriers and the most suitable measures to be considered in a SUMP, an international MLW activity was organized. This activity engaged 216 public authorities, local technicians and mobility professionals, from 90 cities located in Italy, Germany, Bulgaria, Spain, Romania, Poland, United Kingdom, Czech Republic and Hungary. A total of four two-day events were organized, each taking place in a different country and dealing with a different set of topics related to sustainable mobility planning and management, as shown in the Table 1.

[1] The BUMP project (Boosting Urban Mobility Plans) aims to support local authorities in developing SUMPs by facilitating networking and sharing of experiences across countries. The project was founded for European Commission in the Intelligent Energy Europe 2012 funding.

The common MLW model for the four events entailed on the first day workshop for selected experts only and on the second day an international conference open to the public. The MLW held on the first day allowed participants to share expertise and viewpoints on mobility planning and management issues through a series of interactive activities (a world-café session in the morning and a role-play session in the afternoon) aimed at fostering exchanges among participants coming from different countries. All these interactive tasks organized during the MLW created an informal environment, allowing participants to discuss freely and share experiences and solutions adopted at a national and international level.

Table 1. Topics, dates and locations of BUMP MLW.

Date and location	Topics addressed
24-25 September 2014, Trieste (Italy)	▪ How can we make home-to-school travelling more sustainable? ▪ What are the best options to foster economic, social and environmental sustainability in home-to-work travelling? ▪ Including tourist mobility patterns in SUMPs.
20-21 October 2014, Sofia (Bulgaria)	▪ How important is it to involve stakeholders in mobility planning? and What are the best techniques to secure effective participation and proactive cooperation? ▪ Parking policies as a tool to foster urban sustainable mobility. ▪ Secrets of people's behaviour: Interpretation of the elements affecting citizens' choice of transport mode.
5 -6 November 2014, Szentendre (Hungary)	▪ Integration of measures to restrict traffic in urban centres. ▪ Which elements should be necessarily addressed in carrying out a preliminary context analysis to prepare an effective sustainable mobility planning tool? ▪ Public participation and public acceptance in the planning of the sustainable mobility.
19-20 November 2014, Dortmund (Germany)	▪ Boosting bike use in medium-sized cities. ▪ Organizing effective public transport in medium-sized cities. ▪ Strategies of local authorities for energy-efficient urban mobility.

In the following sections the main results are briefly reported from each of international events, this is the effective product of the successful implementation of MLW methodology.

Trieste (Italy)

Participants provided the following solutions to make home-to-school travelling more sustainable:

- Introducing a '*pedibus'* system, an alternative travelling system that allows children to walk to school together with other children and accompanied by an adult who is responsible for their safety.
- Increasing the presence of local police around schools at rush hours, especially near zebra crossing and dangerous intersections, as well as the presence of volunteers.

- Promoting the introduction of a car-pooling system among parents and introduce new school-bus stops at park-and-ride facilities in suburban areas in order to limit traffic in school areas.
- Investing in cycling infrastructure to discourage the use of private vehicles.
- Introducing flexible clock-in and clock-out times in schools that fit parents' schedules, as well as making periodical surveys to monitor the impact on students and parents of the implemented mobility measures, and adjust them to their needs.
- In cities were public transport is lacking, co-funding the public transport company to have more routes available for children at rush hours.

Participants selected the following solutions as the best options to foster economic, social and environmental sustainability in home-to-work travelling:

- Offering incentives or other rewarding schemes to employees who can prove they get to work in a sustainable manner (for instance using car-pooling).
- Offering discounts to those using sustainable means of transport (for instance free parking);
- Offering favourable conditions to buy seasonal tickets.
- Setting up cycle-to-work schemes (for instance offering loans for the purchase of bikes).
- Implementing measures such as staggered hours.
- Promoting schemes to help reduce displacements when the specific features of the company allow it (allowing employees to work from home, hold meetings using videoconference etc.).
- Appointing motivated persons as opinion leaders to promote sustainable mobility.
- Offering support to transport companies in order to optimize routes (for example providing data on commuters or on numbers of employees in each shift, etc.).

Participants provided the following interesting insights to including tourist mobility patterns in SUMPs:

- Non-tourist destinations, nonetheless, face similar problems on the occasion of events (exhibitions, fairs, concerts) and can use similar solutions. In addition, cruise destinations are often only transit cities and tourists are taken elsewhere.
- Having a dedicated city council's office for mobility is crucial for effective management, but internal (horizontal) cooperation with other city council offices and outside the city council (vertical) with regional authorities is just as crucial.
- The city councils should try to exploit this resource better, for instance increasing pedestrian areas, providing good cycle paths and a bike-sharing facility, managing tourist flows to the benefit of the city's economy.
- The cities of Rivas-Vaciamadrid (Spain), Burgas (Bulgaria) and Piola Podlavska (Poland) were selected as individual best practices for their efforts in SUMP regional integration, intermodality and support to cycling respectively.

Sofia (Bulgaria)

Through MLW, the activities in Bulgaria provided the following stakeholders to take into account in the process of planning sustainable mobility:

- Representatives of citizens' NGOs.
- Representatives of different social groups.
- Representatives of different professions.

- Representatives of different neighbourhoods.
- Representatives of different business branches.
- State bodies.
- Key decision makers with political power: mayors, municipal councillors, prominent experts in urban science, transport, mobility.
- Representatives of the health institutions.

In terms to propose parking polices as a tool to promote urban sustainable mobility, the main issues arisen and solutions provided among the participants are:

- Planning parking spaces by zones.
- Offering discounts to those using parking and public transport facilities (for instance free public transport tickets).
- Offering favourable conditions to pay for the parking.
- Limiting the access to the city centre by limiting the parking time.
- Parking schemes for residents (annual tax for parking).
- Providing support to transport companies in order to optimize routes (for example providing data on commuters or on numbers of employees in each shift, etc.).

In the other hand, the secrets of people behaviour remain a mystery for mobility planning. While in more economically developed countries people start to prefer public transport for travelling to short destinations, however, many citizens still consider the car as an indicator of their position in society, business success and wealth and use it every day for short city trips. This is one of the most important barriers to develop more mobility scenarios without cars. Nowadays a strong change of perceptions in mobility is needed and sharing the 'successful western models of travelling' and information are crucial elements. Information needs to be made available for residents about the possibility of moving in the city by public transport, as well as about the difficulties to find parking place in the city centre and how a good inter-modality will cut back the use of private cars.

Szentendre (Hungary)

The first discussed topic was restricting traffic in urban centres: common problems and measures to implement. The key points of an ideal policy are traffic restriction in peak hours, improving the parking policy in the outside of city centre and increasing the public transport. However, the more interesting and innovative results of this discussion were the final suggestions provided by participants:

- Progressive approach – start in a smaller zone and then expand.
- It could be useful not closing completely the city centre: flexible management (maybe cars can even go in but don't stay there long).
- Integration with other policies (noise, pollution, health, less accidents etc.), finding synergies.
- Project based: being aware of contradictive measures.

The preliminary context analysis in the development of SUMP is an effective measure that is present in many European guides with the aim to increase the utility of planning [17]. In this sense, the experts propose a general model in three steps for this important task:

1. Understanding and analysing the local situation: studying the actual situation with real data, taking into account no only mobility aspects, but also analysing economic and social indicators.
2. Clarifying the needs and planning the background: Fixing the real needs.
3. Having a vision on the future of the city and its mobility and start the planning process: Being able to translate the vision to goals.

In the topic of citizen and stakeholder involvement, the starting point was to continue with the labour initialized in Sofia, when the expert proposed the stakeholders to take into account in the process of planning sustainable urban mobility. Therefore, the more important results obtained with the application of MLW were: First, the objectives were clarified on public participant and stakeholder involvement:

- To inform and involve the stakeholders in some problems/proposals.
- To identify and address the stakeholders' concerns about the problem within their area of competence.
- To provide opportunities for the stakeholders to identify priorities and determine alternatives for solving the problem, as well as the relative qualities of community mobility management behaviours.

Second, the attendants discussed and selected the optimal process for this task, which it has 3 phases: 1. Planning: Stakeholder identification & analysis. 2. Participation: Establishment of consultative structure and development of proposal. 3. Results analysis.

Dortmund (Germany)

The first key question concerned appropriate elements of a local strategy for energy efficient mobility: What needs to be included within a SUMP?

- Being aware that the main aim is tofocus on the improvement of the citizens' quality of life.
- It is necessary to integrate the urban planning and transport system by a common approach.
- It is very important to show what the real potentials of innovation and technology are and what their state of the art is (e.g. electric buses).
- How to teach people (citizens, children) what sustainable mobility should look like.
- Considering that local authorities may be afraid of the development of "big plans". It is more promising to implement small plans and approaches.
- Many cities have signed the Covenant of Mayors: SUMPs should be linked and coordinated with SEAPs (Sustainable Energy Action Plans).
- National funding has to be focused on the real needs of society.

In addition, the participants were referred to the limitations of medium sized cities in supporting energy efficient urban mobility, because there is a lack of methodologies to evaluate the impact of applied measures.

In the next topic, referred to boosting the bike use in medium-sized cities, the participants were introduced to common problems about bike use in cities, such as medium-sized cities are in general rather car-oriented (private households own often two or more cars, there are few parking restrictions and plenty of space for car parking). Also in this type of cities the

levels of cycle use are generally low (bikes are mainly used mainly by children and for leisure activities).

With the aim of improving the situation and breaking down the barriers, the following measures for boosting bike use were identified:

- Improving infrastructure (quantity and quality).
- Re-allocation of road space from motor vehicles to cycles.
- Increasing the bike hire systems.
- Improving cycle parking and storage (also in terms of security).
- Workplace facilities for employees.
- Integration with public transport.
- Safety cyclist improvements.
- Improving the perception of cycling among potential cyclists.
- Improving the perception of cycling among key decision-makers (political support).
- Education and financial incentives for bikers.

In the discussing of last topic, first the experts selected the more important barriers for the successful development of public transport in medium-sized cities:

- Short distances in medium-sized cities, only few passengers (low demand, but elder people cause problems at peak hours), no concentrated mobility relations.
- Routes of workers and commuters cannot be covered by public transport due to spread regional settlement structures; conflict between accessibility (many stops) and rapid relations (needed for commuters and young people).
- Traffic jam and cars in the city centre, no car restrictions (politically not accepted).
- Low budget; cities are often not owner of public transport companies.
- Public transport companies: no change wanted, paid for kilometres, not for transporting people.
- Lack of political support; only particular interests (especially when elections are soon). user perception of public transport: fear of negative reputation of public transport among users older than twenty years.

There are many main effective measures to improve this situation discussed and approved by participants, but the key conclusions are four:

- The sustainable urban mobility has two key points to take into account. Concentrating on pupils, elderly, poor (small level of service) or addressing broad range of users with well-equipped facilities (fast service relations, internet available, e-ticketing…).
- The decision about the type of company (public or private) is difficult; it depends on the involvement of the mayor and on the special features of the municipality. Public companies are not necessarily better than private operators.
- In many occasions public transport is not profitable; income from car restriction is needed to improve the public transport system and also an emotional marketing strategy would be required.
- The system needs smart marketing: support of well-known and important people and especially addressed to show individual benefits: it is necessary to highlight the economic, social and environmental impacts of public transport.

CONCLUSION AND DISCUSSION

Mobility planning processes, aiming for the achievement of new more sustainable scenarios that improve the citizens' quality of life, are increasingly common among European local authorities. European institutions have found in SUMPs a really valuable tool to reach the ambitious European targets regarding environment and sustainable transport. Consequently, there are plenty of national regulations including clauses with the strong recommendation of elaborating a SUMP in medium-sized and large-sized cities.

As a consequence of this institutional phenomenon, this paper proposes a new methodology of joint working to improve the current mobility planning processes, in order to be able to create new ones that take advantage on the acquired know-how and best practices in recent years along Europe. To illustrate the effectivity of the model here presented, it has been tested in four international events, which congregated 216 public authorities, local technicians and mobility professionals from 90 cities around this new method implementation. It is worth mentioning, that counting on so many professionals in the launching of this new methodology provided the collection of current and significant information about twelve topics always present in any sustainable urban mobility planning process. The main advantage of the results here explained, lies on the design of the proposed measures, since it is been done from the experience on its implementation in different cities, and not from a set theoretical framework unable to integrate the common and like difficulties that need to be tackled.

Although the model shows relevant contributions as the new methodology of joint working and best practices transferring, there are two main limitations that need to be weighed when studying its replicability. On one hand, its implementation on different countries has an important drawback: language. The results maximization will depend on a large extent on the fact that the working groups are able to linguistically communicate. It seems obvious that the results achieved during the 30-minute debate will be reached more easily and more effectively if the entire working group has the same linguistic capacities. However, integrating experts from several countries increases the scope of measures to implement, which will significantly raise the novelty and validity of the results. In this particular case, the barrier of language was to a certain extent overcome, since the tables' operational design was based on the participants' linguistic capacities. Therefore, it allowed the full advantage of the international nature of the event. On the other hand, the transferability of the suggested measures itself, could pose some difficulties due to its implementation in different working settings and cities.

According to [15] there are some additional limitations to learn the degree of applicability and operation of the suggested measures. In this specific case, the proposed measures, as results to be applied from the different MLW that took place, were considered weighing such restrictions. Nevertheless, it could be interesting, as a future research area, the integration of these limitations in the MLW model, taking into account the different studied settings and contributing to increase the validity of the results achieved through its implementation.

It is also notable, in Europe at least, that cities do not look to academia for information on new policies [17], therefore, this work should effectively contribute to further improvements in guidance on the development of SUMPs. It is clear that such guidance will only be fully effective if cities can be encouraged to adopt a more robust mutual learning culture. The proposed methodology is a clear example that the research community can help to tackle both of these issues by stimulating interactive learning in urban transport policy. The results of the methodology application can be useful to help many European local authorities, which are now involvedin the process to elaborate a new SUMP or checking some existing plan, continuing the European trend towards the sustainability.

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