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# Issues on social and technical transition concerning the participatory planning process in the context of Sustainable Urban Mobility Plans

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## Abstract

Community engagement in urban planning process consists of theoretically established parameters in order, for the proposed interventions, to be successful. Recently, Sustainable Urban Mobility Plans (SUMP) have been introduced to the planning process as optimal tools to face vital urban challenges related to city and transportation planning as well as pollution, providing a holistic planning approach. SUMP development procedures require high level of public engagement and therefore the integration of the public opinion in several stages is considered, due to the fact that the proposed interventions are expected to impact on the quality of life.

This paper deals with suggestions on how public participation could be encouraged towards the implementation of SUMP in the Greek environment, taking into consideration both the suggestions of the European Committee and the common utilized practices of community engagement in Greece, as well as the technological development, that allow researchers and local authorities to observe and tune in with the perceptions and suggestions of the citizens. The study presents a holistic methodology in combining common tools and methods, in order to achieve higher public engagement in conducting SUMP in Greek cities. The methodology includes both traditional as well as innovative tools. However, emphasis is placed on web-based tools and crowdsourcing practices. In that way, the importance of new technologies is underlined, as a means of simplifying procedures, saving resources and activating citizens.

Key words: Sustainable Urban Mobility Plans (SUMP), community engagement, participatory planning, crowdsourcing

## **Introduction**

Through the last decades, rapid urbanization challenges have triggered structural changes in cities, worldwide. Cities tend to increase their structural and functional complexity (Tsiotas and Polyzos, 2017) and, due to the relatively new phenomenon of urban sprawl, have faced various problems related to traffic congestion and environmental degradation (Verani, et.al., 2015). Such urban diffusion phenomena are evident in many cities throughout Europe, which tend to distort their traditional compact form that reflected to the economic city model. In this context, urban fragmentation phenomena between the various spaces where people live and work, are observed and as a result, the transport needs and car usage increase.

In order to reverse the situation and alleviate congestion and environmental degradation problems, European Union has been urging its Member States to implement policies in favour of the compact city, where the use of the car shall be limited to the necessary trips, and public spaces will be more comfortable and efficient in social and economic terms (Beria and Grimaldi, 2014; Bakogiannis, et.al., 2015). The above policies are being promoted through the implementation of Sustainable Urban Mobility Plans (SUMP), which are new planning documents that aim to address transport related problems in a more sustainable way and thus, to improve the quality of life in cities by ensuring a reliable and effective environment-friendly urban transport system (Okraszewska, et.al., 2018).



Figure 1. The SUMP planning cycle (ELTIS)

According to the “Guidelines: Developing and implementing sustainable urban mobility plans” document from ELTIS (2013), a SUMP is implemented in 4 phases and includes 11 steps, as described in Figure 1. In the various implementation phases of a SUMP, it is proposed that planning should be done in cooperation with the citizens. In this way, citizens are invited to get informed about the planning goals, and to ratify with their consent the proposed interventions (Kyriakidis, 2012), as well as to participate in the data collection process when possible (Somarakis and Stratigea, 2014).

To achieve this threefold purpose (information, consent and participation), it is not enough to involve the public in traditional consultations, used as a common tool of community engagement in Greece, but also demands the engagement through additional and more innovative tools, such as web applications, crowdsensing elements and crowdsourcing techniques, implemented mainly through mobile appliances like smartphones and pads (Bizjak, 2012 in Papadopoulou and Stratigea, 2014).

The aim of this paper is to propose such innovative methods that will work in conjunction with traditional techniques. The aim is to develop a technique for the ideal use of traditional and innovative methods that will help to increase the number of participating citizens in the SUMP implementation process. The following section analyzes in particular each methodological tool.

## **Methodology**

So far, experience in the implementation of SUMP's across Europe has demonstrated the importance of public awareness and involvement in the process of their implementation. In addition to anticipating the public participation, the reason it is highly promoted is related to the importance and scale of interventions. Indeed, there are not few cases where it is necessary to remove many available parking spaces, or to shift roads that drivers perceive as key motorized traffic channels.

Such examples are observed in Greece where, in recent years, due to the need for harmonization to the policies of the European Union, there has been a shift of urban and traffic policy towards the direction of sustainable mobility. The questions raised include: How can the proposed interventions be accepted in Greek cities within the framework of SUMP's, and how can citizens become active and even help the planning process? The answer is through public participation. However, how can maximum public participation be ensured? To investigate this question, a series of case studies were examined, which are frequently used as research tools in the areas of urban planning and mobility research (Jennings, 2001). Greek cities with a SUMP in progress were studied in particular. These cities are either provincial or belong to the functional part of Athens' urban complex. In particular, the studied cities include; the municipalities of Zografou and Kallithea in Athens Metropolitan Area, and the municipalities of Rethymno, Kozani and Drama all over Greece. The progress of each SUMP in the aforementioned cities is different, as in the case of Kozani planning is almost complete, while in Kallithea it is taking longer. In all cases of the above-mentioned case studies, several methodological tools were used for the communication with the public and its engagement to the planning actions. The aim is to investigate their results so far, so as to evaluate the efficiency of these practices in the ongoing phase. In this way, the degree of success of the proposed blending of communication and participation practices can be assessed.

### **Tools for promoting public participation on a SUMP process**

Research on the participation processes of the public in the implementation of SUMP's in the studied case studies cities has led to the identification of some common tools. Their successful implementation lies in both public awareness and active participation in planning. In addition to traditional techniques such as questionnaire surveys and interviews, a number of innovative tools have been implemented in all the above-mentioned cases. Particularly:

- Direct data collection process by volunteers (crowdsensing- crowdsourcing techniques): Crowdsourcing techniques are common practices, in the past few years, for collecting information, in a cost-effective manner. Indeed, the European Union has financed projects that are based on crowdsourcing in which people have been used as "sensors" (Pödör, et al., 2015). Although the term crowdsourcing refers mainly to posting and publishing information, it often functions in a wider context that includes also the collection process, described by the term crowdsensing. According to Ganti, et al. (2011) and Xiao, et al. (2013), smartphone is the most common tool that helps converting people to "sensors" (Pödör, et al., 2015). Indeed, in many recent projects across Europe, public contributes to the provision of information, usually through the usage of smartphones, without bearing any costs to

the institutions/bodies that evaluate and analyse it (Schweizer, et al., 2011). These projects are largely associated with the collection of environmental data as a result of the ratification of the Aarhus Convention (UNECE, 1998).

The above constituted the framework of organizing the research concerning the implemented SUMPs. In fact, the call for volunteers to collect environmental data has been a practice already applied in the Municipalities of Kozani, Drama, Kallithea and Zografou, integrating the interested parties in the analysis team of the current situation, based on the European Directive 2003/35/EC, in which the need of public participation in procedures and interventions with an environmental footprint is stated.

More specifically, this practice was applied to collect data on noise and air quality. In both cases free applications available for mobile phones were used. In the case of noise data recording, the Sound Meter app was used, (Bakogiannis, et al., 2017a; Bakogiannis, et.al., 2017b), while in the case of air quality data recording, the free HackAir app was used. The number of volunteers participated in each city varied according to the specific characteristics of the city, as well as due to research time constraints. The collection process in the afore-mentioned cases was chosen to be relatively systematized, allowing a degree of flexibility for the volunteers to focus on frequently visited areas such as their neighbourhood and their work area. In their recordings for noise data, they were also asked to post data to applications such as Open Street Map and Google My Maps, so that data would be available at all times for interested citizens. These data were later processed by the study group and cartographic illustrations were presented showing the levels of acoustic and atmospheric pollution in the study areas. At the end of the recording process, volunteers completed a questionnaire concerning their participation in the collection of the information. A large proportion of the volunteers said they would be involved again in other similar action, and would even be willing to encourage their friends/families to participate in the survey. Almost all volunteers assessed the process as easily achievable. The part rated as the most difficult one was learning about the process of digitizing the data with the help of various applications. However, in any case, volunteers managed to learn the overall process as part of one training session since, most of them were smartphone and PC users.

It should be noted that at the end of this step, the quality of the collected data was evaluated to establish its reliability. This was very easy to do in the case of noise data in the municipalities of the metropolitan complex of Athens, for which an official noise mapping had been preceded in 2015 (Bakogiannis, et.al., 2017a). The conclusions drawn from the volunteer survey were relatively similar to those resulting from the official mapping, which reflects the effectiveness of the method. In fact, the degree of credibility of the results seems to increase, when the number of volunteers increases (Bakogiannis, et.al., 2017a). Therefore, the result of the studies carried out so far, within the framework of the abovementioned SUMPs, is the need to attract the largest possible number of volunteers. In this direction, conventional media promotion can contribute to increasing the attracted volunteers as well as social media, which, according to Dimitriadis and Tzortzakis (2010), are essential tools for the successful completion of modern information campaigns.

- Development of a crowdsourcing web-platform: This action can be another crowdsourcing practice. Citizens are not required to collect data, but to provide

information or ideas on the plans to be implemented in their city. In particular, the goal of this action is to make this platform a means of communication between citizens and decision makers, since the latter ask the former to present their own ideas on how they imagine the future image of their city. In this way, citizens recognize specific problems and envision an ideal way to resolve each problem. More specific, the platform provides citizens the chance to express their views and ideas through a label, followed by a short description as well as an image and an attachment (optional). Proposed ideas are organized under specific thematic categories. The user can select the category that suits best to her/his idea. Indicative categories to submit an idea are; walking, cycling, public transport, urban green spaces, fleet management, e-mobility, mobility management, urban planning, smart technologies, transportation pricing, etc.

Such a platform was designed for all the cities studied in this paper. With the exception of the city of Rethymno, where the platform has not yet been put into operation, in all other studied cities, citizens have already submitted their ideas. Most ideas were posted on the platform for the municipality of Zografou (61 ideas for a total of 77 users), followed by Kozani (42 ideas for a total of 76 users), Kallithea (41 ideas for a total of 92 users), and Drama, where only 22 ideas were expressed in a total of 19 users. Except for the case of Drama, where the users who submitted ideas were almost all the users of the platform, in most of the other cases there was a high degree of dissemination of information. In fact, in the case of Kallithea, the number of platform users is almost twice as high, compared to the number of those who participated actively submitting a specific idea. As a result, more people were informed about the actions planned in the city. In any case, the conclusions drawn in the previous section is similar to the one in the case of the platform; Approaching a larger number of users is the key element for the success of interventions. However, what is clear from the above pilot actions is that all users of the platforms assessed them as handy and intelligent tools, which could help their opinions to be heard in a rather radical way, compared to conventional engagement methods.

- Map-based questionnaires: Common questionnaire surveys do not fit into the category of innovative methodological tools, since they constitute the most traditional passive techniques of gathering information (Dede, et.al., 2012), which predetermine the respondents' point of view for a series of issues regarding the study area (Kyriakidis and Siolas, 2014). This particular traditional technique may evolve, paying more attention to the spatial reporting of the recorded information by the respondents through map-based questionnaires. Such questionnaires have the potential to identify SUMP related issues with a strong geographic reference. In the future, this action could be combined with the web-platform, as the platform could serve a multi-purpose website for the SUMP research.
- Workshops-Training Sessions: Another complementary tool to the above-mentioned action is the implementation of specific workshops in the context of planning implementation. Such workshops, which are common participation practices abroad (Kyriakidis, 2012), can be carried out in different phases of the planning cycle and can be combined with other events, such as the European Mobility Week and various consultations. The purpose of these workshops is information raising about a series of scientific and theoretical urban and territorial approaches in a simple and coherent way for residents' understanding and considerations. Such was the case for

the city of Drama, where these practices were adopted within the framework of the European Mobility Week, aiming at informing children and the youngsters. Presentations and games were used as learning tools.

In several occasions, such meetings may include learning specific study and research tools, so that the public can easily join the information gathering process. Such typical cases were the training sessions that took place in different cities, with volunteers being trained on the importance of collecting geospatial information, sustainable development goals and the UN agenda, and finally learning to use environmental collection data as well as digitizing it to open source software.

The degree of public participation and process evaluation have been encouraging elements for the promotion of such actions, since most participants felt they gained knowledge, made good use of their time and were willing to participate again in a similar information program.

The above innovative methodological tools were used in conjunction with consultations, questionnaires and interviews, ensuring a satisfactory degree of public participation. In order to inform the public, a social media campaign was also organized in most cases. Social networking sites, like Facebook, made a significant contribution in informing and raising public awareness. Through these network channels, the public was prompted to actively participate in the various actions and was informed of the intention to change their city's physiognomy.

However, it should be noted at this stage that, given the fact that some of the SUMP's of the studied cities have not yet been completed, it is difficult for the studied surveys to draw concrete conclusions regarding the level of public participation and, above all, satisfaction from the cooperation with the decision makers. However, the conclusions up to this point are indicative of the potential of these new technologies to enhance social cohesion and pluralism in spatial planning. Based on this, it could be said that a suitable methodology should use a combination of methods in order to: (a) triangulate the information gathered, resulting in an analysis of the current situation as realistic as possible, and (b) increase the degree of public participation in the process, thus increasing the chances of accepting and easily adapting to the proposed interventions.

## **Conclusions**

SUMP's are a planning tool for the cities' public spaces with an emphasis on transportation choices, which has been significantly promoted in recent years in the framework of the European Union's policies for a compact city. In Greek cities, SUMP's are another challenging new concept that, although accepted in theoretical terms, in practice they have not yet been implemented through the application of specific and organized interventions. For this reason, the current timing is the most appropriate for exploring a series of issues related to how citizens should be involved in the planning process.

In this paper, five cities currently implementing SUMP's were studied. These cities are small provincial ones (Kozani, Drama and Rethymno), as well as functional units of the Athens Metropolitan Area (Municipalities of Zografou and Kallithea located in Attica Prefecture). In all five cases, a blending of tools to promote citizen participation was used. This mixing is related both to the use of traditional techniques and more innovative tools. All these



methods were presented above in the context that such a blend can be an ideal method of citizen participation in the implementation of SUMP in Greece.

Particular attention was paid to more innovative tools. These tools can be integrated into the crowdsourcing process, which means the active participation of the public in the collection of information and the evaluation of the existing situation in their area. Indeed, in the case of the presented cities, volunteers were invited to participate to the collection of environmental data by using their smartphones and providing open source data for their city. At the same time, a web-platform was developed for each city where interested citizens could present their ideas of how they imagine their city, thus making a number of problems they can identify less acute. The above is a first approach for the use of the tools that could be further developed in the future. A typical example is the inclusion of a web-map-based questionnaire, which is currently being conducted using traditional techniques. Even in this way, it is an innovation, since surveys using map-based questionnaires are not yet common. Correspondingly, another accompanying action is the use of extended workshops and engaging citizen meetings. Currently such workshops are taking place through actual meetings, which is positive, as social cohesion is being strengthened. However, web-training sessions could also make a significant contribution to the increase of the number of participants in the actions.

To sum up, the need for integration of new technologies into the participatory planning process is evident. Continuous technology progress and integration of various tools into the everyday life of residents is believed to evolve existing capabilities and create new ones to enhance the active role of citizens in city planning. Even simple tools, such as social media, should not be despised but directly be integrated as information channels and promotion of actions, just as it has been done in the analyzed case studies. Research on the issues under consideration is therefore not completed at this stage, but is expected to serve as a starting point for the further integration of new tools into today's participatory planning methodology.

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