

Shaping the mobility in university campuses throughout ICT solutions

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Keywords: ICT tools; Sustainable urban mobility plan; Med area; Campus University

Extended Abstract

Problem statement

Sustainable Urban Mobility Plans (SUMP) define a set of interrelated measures designed to satisfy the mobility needs of people. They consist of an integrated planning approach and address all modes and forms of transport in cities and their surrounding areas (Wefering et.al.,2014). A SUMP aims to create a sustainable urban transport system by addressing – at least – the following objectives: Ensure transport system accessibility for all, improve safety and security, reduce air and noise pollution, greenhouse gas emissions and energy consumption, improve the efficiency and cost-effectiveness of the transportation of persons and goods and enhance the attractiveness and quality of the urban environment (Veerle and Vincent, 2013).

University Campuses in MED Area, with a territorial average extension of 430.000 m² and an average of 35.000 between students and employees, are historically related with their urban area since they are always close to city center than built in the suburbs. A University Campus is then similar to an urban model and in most cases, it could be used as a test area for mobility policies related to public transport, multimodality or transport restrictions.

Focusing on university campuses, any effort that is made to achieve sustainability must consider that universities are unique places functioning in specific contexts (Tolley, 1996; Balsas,2003). Universities are characterized by the fact that they represent a cross section of the population from different socio-economic backgrounds and ages, generate irregular schedules and the constant movement of people throughout the day. This is even more noticeable in university campuses located in suburban settings: Daily commuting of the university population, longer distances travelled, and the predominance of private car use over non-motorised means of transport (Miralles-Guasch and Domenech, 2010).

Finally, considering that the present research focuses on ICT tools the term “Information and Communications Technologies (ICT)” is used to delineate the various Telecommunications and Information Technologies, which have been used in the field of Transport since the mid-80s. During the decade of the 90s notions such as “real time traffic monitoring”, were introduced for the first time to express the increasing intelligence and dynamic nature of those systems. After this and nowadays the “smart concepts” have been introduced in most of the fields; cities, mobility, transport and Campuses. A smart campus comprises from a smart classroom, which benefits the teaching and learning processes, to an intelligent campus that provides lots of proactive services in a campus-wide environment.

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Research objectives

The objective of the present research is to obtain an information system based on ICT solutions. More specifically, the main output will be the *Camp-sUmp e-Core* model which aims to enhance and improve sustainable mobility solutions at University Campuses with focus on campuses located in Med Areas. The e-core model relies on the analysis of technical requirements and of institutional settings for an integrated ICT platform model which will be performed including: Data ware house, DSS (decision support system, ITS (intelligent transport system), data collection, planning, management, monitoring, etc. In the present research innovative practices at university campuses and ICT existing tools for mobility management will be included in addition with a proposal of tools that should be involved in the development of an action plan.

Methodological approach

The methodological approach of the present research relies on the collection of information on ICT solutions based on different sources such as: scientific papers, research projects, ICT platforms, existing Sustainable Urban Mobility Plan. A separate section of the methodology concerns the development and implementation of a mobility survey. More specifically, within the framework of the present research a survey has been developed consisting of a questionnaire and an interview. It should be noted that the present work takes place within the framework of CAMP-sUmp (CAMPus sustainable University mobility plans in MED areas) project, a European research project co-financed by the European Regional Development Fund aiming to improve sustainable urban mobility planning instruments through innovative mobility strategies for students' flows inside the MED Area University Campus and their integration with the urban areas. Based on the above the overall survey took place in the following universities: University of Catanzaro, National Technical University of Athens, University of Malta, University of Valencia, University of Split, University of Cyprus and University of Bologna.

Results

The proposed model incorporates several sources of information such as the scientific literature, I+D+I related projects, platforms and good practice cases. Besides, the architecture of the system considers the results developed in the Camp-sUmp project, namely, SWOT analysis, a users' questionnaire, stakeholders' and experts' interviews and also an Action Plan and Road Map for Universities. It is worth to remark that results of these outputs indicate that ICT solutions play a crucial role in any campus sustainable mobility plan. It became apparent, the application of ICT tools is wider in some specific thematic areas, that have been studied thoroughly to develop the Camp-sUmp e-Core system, which integrates all the different transportation modes and strategies addressing sustainable mobility such as public transportation, shared systems, green mobility, and so forth. Finally, some indicative features that are included in the e-core system include that users could have feedback while doing a sustainable journey (CO² emissions, calories, kilometers traveled), car-sharing information tools, promotion of safe bike parking, Information and advice about travel options to travelers based on ICT tools, Electronic monitoring of parking spaces etc.

Acknowledgement

This paper is implemented within the framework of "CAMP-sUmp - CAMPus Sustainable University mobility plans in MED areas", a project co-financed by the European Regional Development Fund

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