

**Smart mobilities for a better territorial cohesion :**  
**the case of the Grand Lyon urban area with the Optimod’Lyon project**

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**Context and Objectives :**

In France during the last 15 years, urban transport policies have moved from the objective of offering a higher travel speed to an environmental friendly mobility seeking to optimise urban space consumption. This new focus on space land use leads to reconsider travel time gains. Time gains are no more the main objective of local public policies. Even if it is more a rationale of “traffic calming” than a “return to slowness”, there is clearly another set of priorities changing the relative share of public space attributed to the different modes of transport. The new preference for surface public transport network, with the implementation of tram-lines, has been done at road network expense. This policy reorientation aims not only to solve congestion problems but to impact spatial structures and land-use planning increasing densities (Genre-Grandpierre 2007). In this context, the concept of accessibility and namely gravity accessibility (Hansen 1959, Koenig 1980, Geurs 2004...) associating both travel times and land-use component, is pertinent to understand past evolutions and future challenges of urban mobility. Facing environmental and spatial constraints, an accessibility based analysis assesses urban dynamics on opportunities reached by individuals using the transport system and on urban spatial structure (Gutiérrez 1999).

**Methodology :**

The objective of the paper refers both methodology and analysis of the new tendencies of urban transport policies using methods and tools issue from geomatic, web-mapping and spatial economics.

- The first part presents the modelling platform “MOSART”. MOSART has been implemented as a Geographical Information Systems in Transportation producing accessibility analysis. It has been improved to a modelling platform for planning sustainable mobility introducing gravity-based analysis in a second version. A web-mapping application have been added for the accessibility modelling results. Many databases (Navteq), spatial or not, are integrated in the GIS. Integration of an urban transport model system associated to updated land-use data at a very detailed zonal division make easier dynamic analysis of different transport policy scenarios. An innovative aspect of MOSART refers to an analysis

on both urban speed issues and land-use patterns. Combining these two interrelated aspects, MOSART is well adapted to assess past and future transport policies.

The second part presents some example of accessibility analysis done with the platform MOSART in the Optimod project. The main purpose of the Optimod Project is to develop sustainable mobility with ITS systems in Lyon urban area. Facing the challenges of “sustainable mobility paradigm” (Banister 2008), what will be the next developments of the local transport policy? To address this issue, the Optimod project tests different transport policy scenarios using MOSART on Lyon Urban Area. It proposes alternative options for a sustainable mobility under environmental and financial constraints.

### **Results :**

The assessment of these different policies is made referring access measures to jobs in peak hour and off peak hour. Accessibility is measured for different transport mode users (car users, public transports users, bicycle users etc.). the accessibility modelling results use a webmapping application to visualize and to offer dynamic maps. The different accessibility maps are displayed based on a specific origin, time and the mode of transportation (By Car, Public Transport or Bike). The map grid data is presented with a series of interactive vector layers that are very small and optimized to enable quick layer switching as well as map animations. The grid data is classified and grouped together into individual layers by a simple database process. The map features advanced mouse-over and data tips functionality so that the end user can get information on the time calculations and ranges for any area on the map. The Optimod’Lyon project assert the positioning of Grand Lyon as a leader of major European metropolises active in sustainable development and urban mobility field.

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