

SUSTAPARK

Optimising price and location of parking in cities under a sustainability constraint

DURATION OF THE PROJECT
12/12/2006 - 31/01/2009

BUDGET
357.230 €

KEYWORDS
Mobility, Parking, Pricing, GIS, Urban transport, Sustainability

CONTEXT

Parking is an essential component of the transportation system. Vehicles must park at every destination. A typical automobile is parked 23 hours each day, and uses several parking spaces each week.

Parking facilities are a major cost to society, and parking conflicts are among the most common problems facing designers, operators, planners and other officials. Such problems can be often defined either in terms of supply (too few spaces are available, somebody must build more) or in terms of management (available facilities are used inefficiently and should be better managed).

A lot of cities in Belgium are struggling with parking problems. Having too much parking spaces for cars causes traffic problems, congestion, emissions, noise, and above all: over-consumption of expensive land. Too little parking has also disadvantages: the inner city is less accessible, and many people will keep search for the scarce parking spots and therefore might cause even more traffic related problems.

PROJECT DESCRIPTION

Objectives

The objective of this research is to develop a tool that can provide strategic advice on urban parking.

The instrument will consider issues as public versus private parking, on-street versus off-street, fees, time regulations, effects on welfare, city development, spatial competition, enforcement, housing, land use costs, congestion cost, etc. A spatial disaggregation into city districts will be provided to be able to also optimise the geographical aspects of parking management.

Both parking supply and demand will be modelled. Parking supply can relate to a change in either the price or the location of parking. Parking pricing has potentially a very substantial impact on urban auto travel. The tool will be able to

balance supply (location and price) and demand for parking in monocentric city centres under a sustainability constraint.

SUSTAPARK will use actual parking demand data to examine parking policy in terms of the price elasticity of demand of the parking market in a city centre.

Methodology

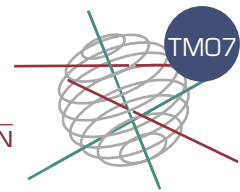
The growing demand for parking will be balanced with the environmental, economical and social constraints of a sustainability city centre. We propose to build a land use model that is able to manage different options of location, amount and price of public parking spots. Sub-parts of the research are:

- Modelling the spatial-temporally aspects of parking demand, including definition of population groups, income classes, trip purposes. Starting from activity-based, and person-based measures, a gravity model will be developed, taking into account accessibility, the demand for parking space and the competition for urban space.
- Developing a method for modelling of parking conception and location, based on users behavioural analysis. This analysis will focus on two dimensions: users journey strategies and users judgments about parking facilities. Data will be collected by the means of in-depth interviews (for the identification of journey strategies) and by focus groups techniques (for the identification of users criterion judgements).
- Development of an economic model that includes the reaction of users to pricing and availability of parking. This economic model will evaluate the effect of parking management strategies on urban transport, environment (land use, emissions, noise), user costs and revenues for the city.

Above subtasks will be integrated using agent-based modelling techniques.

Such a land use model can be used by cities that want to better optimise their parking management, as part of their general transport demand management.





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The results of the research will be tested in a case city in Belgium, to show and demonstrate the applications for policy based research and to illustrate the feasibility of the research results.

INTERACTION BETWEEN THE DIFFERENT PARTNERS

The SUSTAPARK project involves 3 partners who will need to co-operate closely together. Working methods thus need to be harmonized and integrated and in this respect, network management will be a critical success factor. This part of the work has been integrated into a specific work package. The project coordination is carried out by Transport & Mobility Leuven.

INTEGRATION OF CONTRIBUTIONS

Each partner researches part of components of parking behaviour, based on the core of their research activities. These different components need to be combined into one operational product. For this, WP 5, 6 and 7 have been set up. WP 5 is on model integration. WP 6 is on running the model and comparing

PARTNERS - ACTIVITIES

Transport & Mobility Leuven works for governments and businesses and supports their policies by research. TML research focuses on traffic management, transport economics, environment, traffic safety and the consequences for society. TML has gained large influence in the quantitative and model-based research in these areas.

The Spatial Applications Division of the K.U.Leuven offers considerable thematic expertise with respect to land, water, forest, nature and landscape management, agri-environment, urban and regional planning,

the results for 2 case cities. WP 7 is on conclusions and reporting.

The composition of the team of 3 partners allows for a common framework that leads to an integrated approach. Special attention will be given to data or other deliverables that need to be exchanged among the partners. Arrangements will be made early in the project about data, interface formats, and a common modelling platform.

EXPECTED RESULTS AND/OR PRODUCTS

The products developed during the SUSTAPARK project will be public available.

One of the core products of SUSTAPARK is the overall model design of the city parking model, coupled with an efficient policy assessment method. The model design will include detailed information on the various components of the integrated model and on the calculation algorithms. It will also include information on the data necessary for the implementation of the model and description of model estimation method.

traffic and transport management, socio-economic issues like tourism, housing.

The Centre for Urban Research of the Free University of Brussels has been developing a research niche in urban sociology, both theoretical and applied, comprising subject areas directly linked to urban life. It focuses on the study of space as a determinant of social practices. The CRU also has expertise in demographics, accommodation, housing and facilities within planning studies as well as the evaluation of urban policies.

CONTACT INFORMATION

Coordinator

Griet De Ceuster
Transport & Mobility Leuven
Vital Decosterstraat 67A bus 0001
B-3000 Leuven
griet@tmleuven.be
Tel:+32 (16) 31 77 30
Fax:+32 (16) 31 77 39

Promoters

Thérèse Steenberghen
Katholieke Universiteit Leuven
SADL
GEO-instituut Campus Arenberg
Celestijnenlaan 200E
B-3001 Heverlee
therese.steenberghen@sadl.kuleuven.be
Tel:+32 (16) 32 97 32
Fax:+32 (16) 32 97 24

Pierre Lannoy
Université Libre de Bruxelles
Centre de Recherche Urbaine
Institut de Sociologie
Avenue Jeanne 44 - CP 124
B-1050 Bruxelles
pilannoy@ulb.ac.be
Tel:+32 (2) 650 33 52
Fax:+32 (2) 650 45 97

Follow-up Committee

For the complete and most up-to-date composition of the Follow-up Committee, please consult our Federal Research Actions Database (FEDRA) by visiting <http://www.belspo.be/fedra> or <http://www.belspo.be/ssd>

