

# MOBLOC

## Mobilities and long term location choices in Belgium

### DURATION OF THE PROJECT

Phase 1: 01/01/2007 – 31/01/2009  
Phase 2: 01/02/2009 – 31/01/2011

### BUDGET

564.774 €

### KEYWORDS

Mobility, demography, location, accessibility, migration

### CONTEXT

Mobility and transport evolve with time and the passing generations. Interactions between daily mobility and household migration (the choice of house implying a change in municipality) are numerous. The evolution of the transport system have deeply modified the barrier of distance and opened the choices in term of choice of residence very widely. The tensions between daily and residential mobility have therefore increased, notwithstanding the recent rise in energy costs. This in turn generates unsustainable effects on society and environment. The proposed research project aims at analyzing retroactions between demographics and the evolutions of mobilities at different time-scales. In particular, location choice for household, daily accessibility and internal migrations appear to have strong interactions.

### PROJECT DESCRIPTION

#### Objectives

The project's objective is to investigate the cycle linking long-term society evolution, residential choice, transportation demand and resulting accessibility evolution. On the societal trends side, particular attention will be paid to the population aging effects, to the evolution of the family cell structure and inter-generational relationships, but other variables such as land-use and standards of living trends will also be considered for potential inclusion in the models. The project objectives include simulations of scenarii for the future in Belgium. On the transportation side, emphasis will be put on the evolution of transportation demand and resulting traffic conditions.

#### Methodology

The research challenges are real but suitable methodologies could be developed to deal with such challenges.

A first challenge results from the unfortunate observation that demographic and mobility approaches have historically been considered at very different levels of spatial aggregation. The first has favoured a more aggregate view. This has resulted from the general unavailability of migration data at a fine spatial level. On the other hand, accessibility and, more generally, traffic assignment problems have traditionally emphasized a very disaggregate approach.

A common ground must therefore be found for the two approaches to interact fruitfully. The project partners believe that an appropriate disaggregation level could be that of the 589 Belgian municipalities.

In practice, this will require the demographs to give particular attention to internal migration aspects, as they are obviously much more frequent at a finer spatial level than birth and death occurrences.

The mobility analysis will be, on its side, faced with the difficult question of forecasting transportation demand based on population evolution.

A second challenge is the proper modelization of the factors influencing migratory decisions and population characteristics. The most commonly ignored variables are the key events in the life cycle.

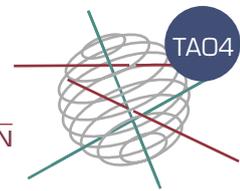
Further population characteristics are known to influence transportation demand such as education levels, socio-professional status or driving license ownership. The evaluation of these parameters must also be considered in the course of our project.

Finally, the integration of demographic and transportation models in an interacting loop is highly desirable, but practically nontrivial.

The developed methodology for this MOBLOC project will also take into account the parallel efforts undertaken for the MOBILLUX project.

The first phase of the project will be essentially devoted to the developments of the evolution models. In the second phase, a first part will be devoted to the developments of a residential localization model [long term mobility] and of an accessibility model [short term mobility]. This is a necessary first step for then modeling and analyzing the interactions





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between location and accessibility. When all this framework will be available, it could then be used for analyzing different scenarios about potential evolutions of the Belgian population due to relevant factors as aging, new family cell structures or inter-generation relationships and their impacts on location and accessibility and therefore on sustainable development.

The tasks will be shared between the partners as follows

- 1: Mutual information and global architecture (GRT-GéDAP-CEPS)
- 2: Evolution models (GRT-GéDAP-CEPS)
- 3: Intermediate reporting and consolidation (GRT-GéDAP)
- 4: Residential localization modeling (GRT-GéDAP-CEPS)
- 5: Accessibility model (GRT-CEPS)
- 6: Interaction between localization and accessibility (GRT-GéDAP-CEPS)
- 7: Scenario analysis (GRT-GéDAP-CEPS)
- 8: Dissemination and final reporting (GRT-GéDAP-CEPS)

## RESULTS

At the end of this first phase, an intermediate report will focus on the developed evolution models. The achieved methodologies will be described and the first forecastings for the Belgian population evolution will be presented.

At the end of phase 2, over the developed models and their methodologies, the final results will also included:

- population forecasts at municipalities level;
- a municipality based origin destination matrix for work/school and other purposes, with some indication of the modal split for each destination (for each period in the model);
- accessibility measures for each municipality and each period;
- effects of accessibility and migration interactions;
- analyses of scenarios chosen to clarify the roles of the population aging effects, of the evolution of the family cell structure and of the inter-generational relationships.

## PARTNERS - ACTIVITIES

The FUNDP Transportation Research Group (GRT) explicitly focuses on the behavioural analysis of travel and mobility of individuals, using aggregate and disaggregate models. The main active developments are a synthetic population description for Belgium and a comprehensive activity-based demand model.

The GéDAP's overall objective is to develop basic and applied research on demographic population dynamics, both from the temporal and spa-

tial points of view. The main issues developed are dealing with internal and international migrations, household evolutions, and small-areas demography, especially at the commune level.

The GEODE (department from CEPS) topics of research are spatial orientated, namely 1) households and housing issues, 2) public infrastructures and living environment, and, finally, 3) public strategies on spatial planning and development.

## CONTACT INFORMATION

### Coordinator

*Philippe Toint*  
Facultés Universitaires Notre Dame de la Paix (FUNDP) GRT  
Rempart de la Vierge 8  
B-5000 Namur  
Tel: +32 (0)81 72 49 17  
Fax: +32 (0)81 72 49 14  
philippe.toint@fundp.ac.be  
<http://www.grt.be>

### Promoters

*Thierry Eggerickx*  
Université Catholique de Louvain (UCL)  
GéDAP-SPED  
Place Montesquieu 1 bte 4  
B-1348 Louvain-La-Neuve  
Tel: +32 (0)10 472967  
Fax: +32 (0)10 474192  
eggerickx@sped.ucl.ac.be

*Philippe Gerber*  
CEPS/INSTEAD  
BP 48  
L-4501 Differdange  
Grand Duché de Luxembourg  
Tel: +352 585855601  
Fax: +352 585560  
philippe.gerber@ceps.lu

### 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>

