

LOCAL ENVIRONMENT MANAGEMENT & ANALYSIS (LEMA) – TRANSPORT & MOBILITY

MARIO COOLS

Research topics

Research axes

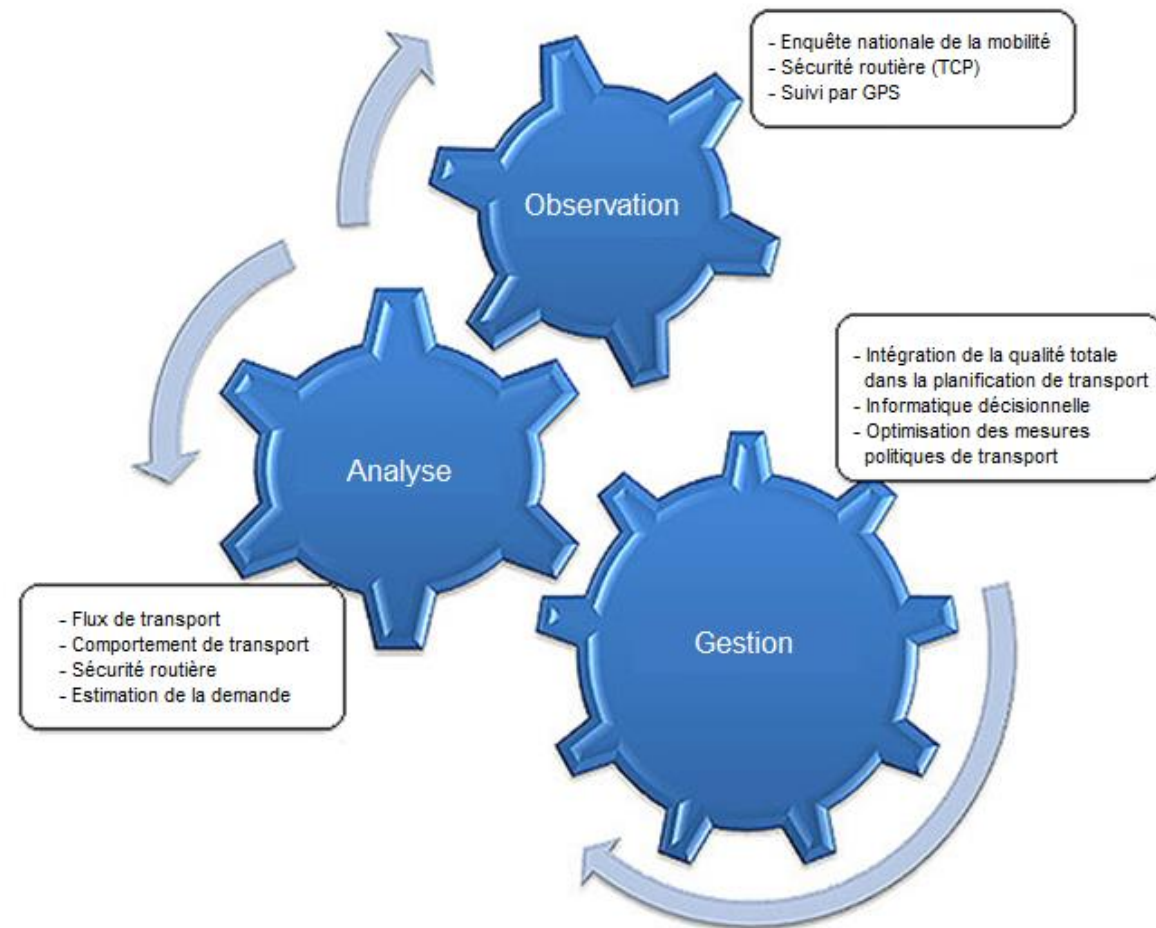
- Information collection
- Development of analytical frameworks

Focus

- Travel demand of persons
- Road safety

Topics

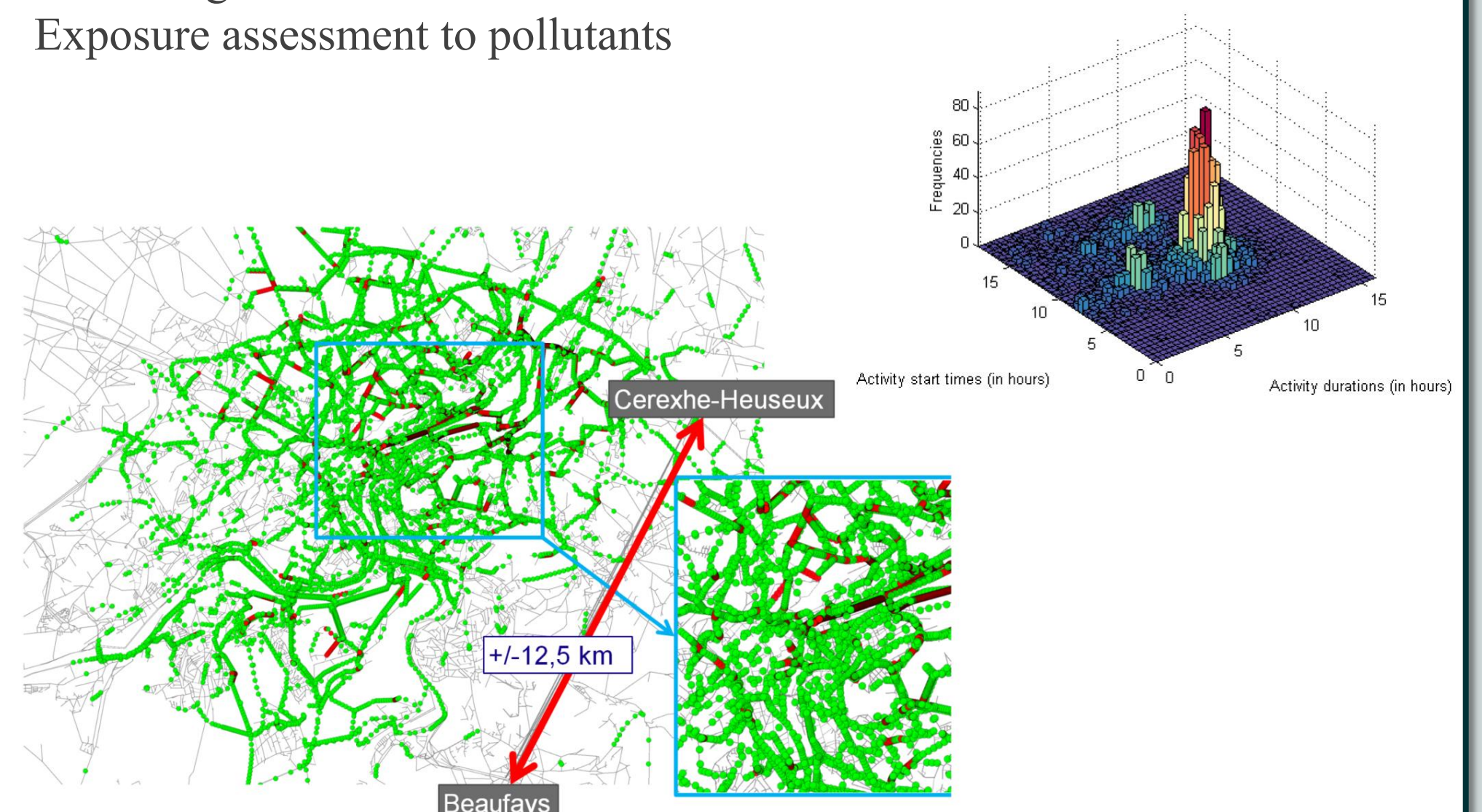
- Transport policy
- Travel demand modeling
- Multi-criteria analysis
- Big data
- Accident modeling
- Route choice
- Q-methodology
- Travel behavior
- Mobility



Example 1: Agent-based travel forecasting

Agent-based simulation of transport and land-use

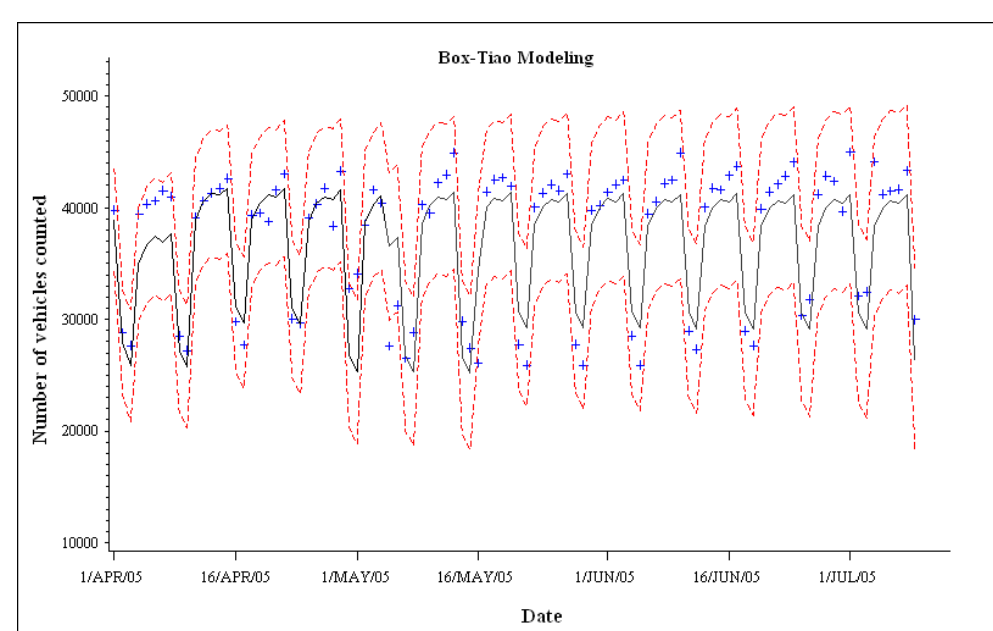
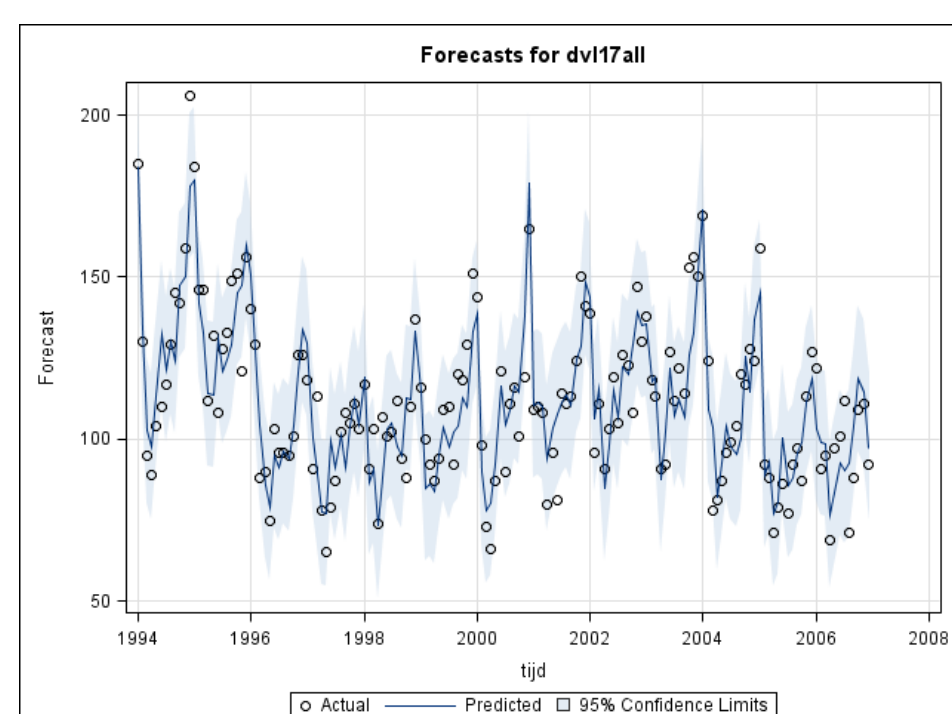
- Policy evaluation in the occurrence of river floods
- Risk mitigation in the context of terrorist attacks
- Exposure assessment to pollutants



Example 2: Time series analysis of transport phenomena

(S)ARIMA(X) models, spectral analysis, smoothing models

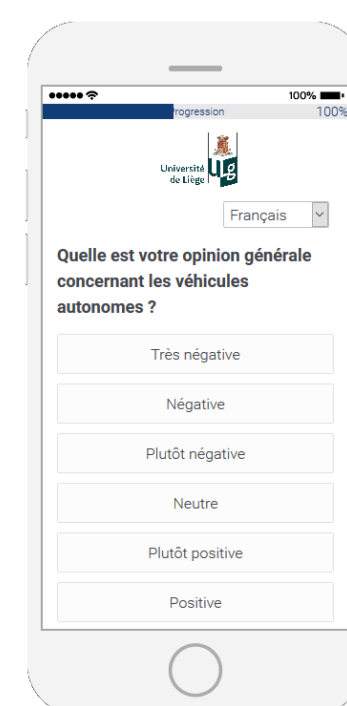
- Traffic flow forecasting and data imputation
- Impact of graduated driving licensing programs
- Evaluation of traffic safety programs



Example 3: Autonomous vehicles

Stated adaptation experiment

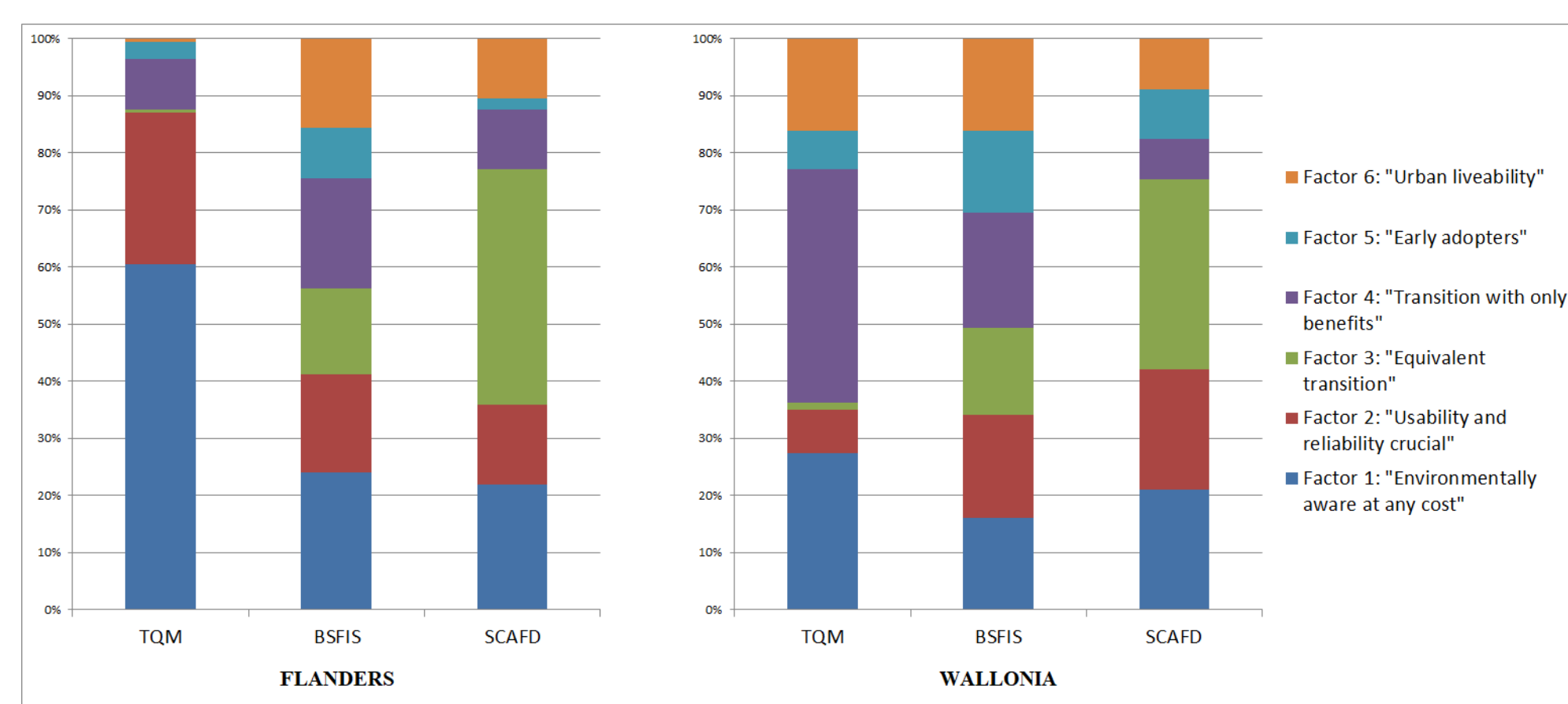
- Waiting time
- Sharing of autonomous taxi
- Sharing of personal agenda
- Private car ownership
- Willingness to make detour



Variable	Descriptive Statistics	
WaitingTime	Mean: 12.96, Std. Dev.: 8.80	
Ownership	Yes: 60.45%	No: 39.55%
Sharing	Yes: 47.14%	No: 52.86%
Detour	Yes: 63.43%	No: 36.57%
SharedSchedule	Yes: 47.45%	No: 52.55%

Example 4: Adoption of electric vehicles in Belgium

Market shares of 6 factors identified by the original Q-study



Key words

