14 January 2008: Best paper award

28 May 2008: Honorary doctorate in Transportation Sciences
Awarded by Hasselt University to Prof. dr. Shalom Hakkert, professor in engineering sciences, transport and geo-information at the Israel Institute of Technology in Haifa.
Activities organized in 2008

Flemish Conference Traffic safety in collaboration with the Flemish Fund for Transportation Sciences, Brussels, 23 May 2008
Research reports

Traffic safety


**Logistics**


**Other**


Articles in proceedings of a scientific conference (C2)

Traffic safety

- Daniels, S., Brijs, T., Nuyts, E. & Wets, G. (2008) Roundabouts and safety for bicyclists: empirical results and influence of different cycle facility designs. TRB National Roundabout Conference, Kansas City, Missouri, USA.

Transportation

Articles in proceedings of a scientific conference (registered on ISI) (C1)

Traffic safety


Transportation


Logistics


Other

Articles in journals with international review board (A2)

Logistics


Other


Articles in journals with Dutch review board (A3)

Traffic safety


Published meeting abstracts, letters, ... (A5)

Transportation


Scientific publications

Articles in journals registered on ISI (A1)

Traffic safety


Transportation


Logistics


Other

Doctoral theses

In 2008 no PhD defenses took place within IMOB.
Involvement in policy and organization of education at professional level

**Transportation Academy**

Since the autumn of 2006, the Transportation Academy has been organized in collaboration with the Flemish Foundation for Transportation Sciences (VSV). The Academy offers a refresher programme for people who deal with the practice of traffic and transportation. The courses on offer are fine-tuned to practical questions and needs and, as much as possible, linked to recent scientific research. This makes it possible for the Academy to guarantee a topical, wide-ranging (from introduction to speciality), high-quality, and interactive offer of short-term training courses on clearly defined topics.

**In 2008, IMOB coordinated the following training courses (speciality courses):**

- 29 January 2008: Technology and infrastructure—roundabouts
- 14 April 2008: Policy and planning—parking policy
- 15 May 2008: Research—parking research
- 29 May 2008: Traffic and space—papers by MOBER’s
- 1 October 2008: Parking measures as part of sustainable parking policy
- 22 October 2008: Organization, exploitation, and management of parks
- 16 December 2008: Policy to accompany municipal mobility plans

A total of 143 participants took part in these training courses. You can find more information on the Transportation Academy on the IMOB website (www.imob.uhasselt.be).
Faculty of Business Economics (BEW)

In 2008, IMOB co-workers lectured on the following courses:

Business-information systems, business-process modelling, data mining, database management, decision support systems, distribution and retailing, e-business strategy, ERP systems, information systems analysis, information systems for management, integrated logistics, knowledge discovery management, management-information systems, research methods, design and development, operational research I/II, operations research, operational management, organization of production and services, and supply-chain management.

IMOB co-workers are closely involved with policy and organization of the educational programmes Transportations Sciences, Commercial Engineer, and Commercial Engineer in Management Information Systems. They serve as chair or member of the education management teams (OMTs) and as chair of examination committees.
Education

To bridge the gap between the academic world and practice, we appeal to education in addition to research. Education plays an important role. Therefore IMOB supports educational programmes at the university level (regular education) as well as at the professional level (transportation academy).

Involvement in policy and organization of education at the university level

Within the university, IMOB supports the Bachelor and Master Programme in Transportation Sciences. In addition, IMOB is closely involved in the Faculty of Business Economics (BEW). All professors affiliated to IMOB have a teaching assignment in these programmes. Ph.D. students and post-doctoral researchers carry out educational tasks. That way, IMOB supports these educational programmes scientifically.

Bachelor and Master in Transportation Sciences

The Bachelor and Master programme in Transportation Sciences is unique in Flanders; it was launched in the academic year of 2004–2005 at Hasselt University. The objective is to train future traffic specialists who approach the complex, problematic nature of transportation sciences from a multidisciplinary point of view. This is reflected by the training curriculum in which both intrinsic traffic aspects are treated and in auxiliary disciplines that guarantee scientific training with a broad social vision.

In 2008, IMOB co-workers lectured on the following courses:

Activity-based models, live traffic topics (capita selecta), general and traffic sociology, business-information systems, case study I/II, case study, collective transportation, sustainable mobility and general environmental science, manipulating behaviour, geographic information systems, goods traffic, impact infrastructure, infrastructure projects, introduction to (urban and rural) planning, intelligent transport systems, international project, management of transport companies, methods and techniques of spatial research, models of movement behaviour, design methodology, psychology, spatial planning, statistics for traffic specialists, urban management, transport and space, traffic and mobility behaviour, traffic and transportation models, transport studies I and II, transport research I–III, transport project, traffic planning, traffic flow, traffic technology, and traffic safety.
Other research projects

Within the core competence area of “logistics”, the following research projects were also undertaken in 2008.

- Under the authority of the Federal Government
    Decision support systems for intermodal transport policy (DSSITP), under the authority of FPS Science Policy (DWTC-SSD2), in collaboration with VUB, FUCaM

- Other
    Logistical flows, in collaboration with PHL
    Nike: sustainable logistics, under the authority of Nike, in collaboration with VUB, Vrencken Transport
    System and service network design in intermodal freight transport, under the authority of UHasselt doctoral fund

In 2008, two Ph.D. students were active in the core competence area of “logistics”:

- Caris, A., Simulation and optimisation of intermodal freight transport networks containing inland navigation (Promoter: Prof. dr. G.K. Janssens)
- Braekers, K., System and service network design in intermodal freight transport (Promoter: Prof. dr. G.K. Janssens)
(in conjunction with VUB and Vrenken Transport). Recently, IMOB acquired the research assignment of the Flemish Government for the preparation of development scenarios and implementation paths for a new Flanders Mobility Plan. This project is the start for the preparation of new freight-traffic modelling.

**Research topics within the core competence area of logistics:**

- Activity-based modelling of logistical flows
- Clustering of freight flows
- Management of empty containers in intermodal transport
- Planning trips in intermodal transport
- Effect of supply decisions on transport selection

**Logistics research projects**

**Cornerstones**

Since January 2007, the core competence area of “logistics” has been IMOB’s third field of research. An important development in 2008 for the expansion of this latest domain is the acquisition of the project “Preparation of development scenarios and implementation paths for a new Flanders Mobility Plan” (budget: €678,155,59), also a cornerstone within the core competence area of “transportation”. In addition to passenger traffic, freight traffic will increasingly colour the Flemish transportation landscape. That is why both topics will be explored in depth for the development of four possible future transportation scenarios. This project is being executed in conjunction with the Flemish Institute for Technological Research N.V., the Federal Planning Bureau, Buck Consultants International, Significance, and Radboud University Nijmegen.

The second cornerstone of the core competence area of logistics is the expansion of the research team. On 1 October 2008, Kris Braekers started as a new PhD student in this field of research. His research focuses on optimizing empty freight flows in intermodal transport. Additionally, in the autumn of 2008, two more vacancies for doctoral scholarship students were created that will be filled in 2009.
Core competence area 3: logistics

The core competence area of logistics focuses on external distribution logistics. Last year, a clear logistics research strategy was developed on the basis of opportunities in the domain and subsequently on the knowledge already gained within IMOB. The logistics research consists of two parts.

► Activity-based approach for modelling freight traffic

In the first part, an activity-based approach is developed to model freight traffic. IMOB has already developed an activity-based model for passenger traffic. Passenger and freight traffic are inseparable. Until now, no one anywhere has succeeded in devising an integrated activity-based model in this field of research. Consequently, this is a future challenge for the research institute. This innovative approach in the field of freight traffic is an opportunity to develop the research line of logistics.

► Studying planning problems using operational research

In the second part, planning problems are studied using techniques from operational research to increase the appeal of intermodal freight traffic. To achieve sustainable growth in freight traffic, it is necessary to promote intermodal freight traffic. This recent field of research in operational research offers many possibilities. Planning problems in intermodal transport are more complex because of the presence of several modes of transport, decision-makers, and types of load units. For the whole process to run smoothly, it is essential that the actors work together. However, few studies take into account several decision-makers or decision-making levels.

There will be increasing interaction between both sections. Developed algorithms and proposed simulation scenarios from this section can be tested using the freight/traffic model in the first section. Consequently, the second section supplies algorithms and sub-modules in support of a worldwide model for freight traffic.

Submitted and accepted publications show that this research strategy gives access to international scientific journals and conferences. Current and completed projects within the core competence area of logistics are the design of a decision-making system for intermodal freight traffic (in conjunction with VUB and Fucam), an exploratory study to map logistics streams in Limburg (in conjunction with Log-IC PHL University College), and the clustering of freight flow by shippers.
In 2008, ten PhD students were active in the core competence area of “transportation”:

- Awajan, Y. Design and development of a generic platform for hosting and benchmarking dynamic activity-based models, within the framework of Strategic Basic Research (Promoter: Prof. dr. G. Wets)
- Beckx, C., Development of an activity-based transportation model to measure exposure to air pollution, in collaboration with VITO (Promoter: Prof. dr. G. Wets)
- Cools, M., Prediction of inter- and intra-daily transportation behaviour, within the framework of Strategic Basic Research (Promoter: Prof. dr. G. Wets)
- Hannes, E., The role of perception of space in activity-based daily trips and the implications for modelling transportation demand (Promoter: Prof. dr. G. Wets)
- Kusumastuti, D., Supporting low-impact travel mode and route choices in congested urban leisure environments: a model based on individuals’ mental maps, within the framework of TUL-impuls fund, in collaboration with Maastricht University (Promoter: Prof. dr. G. Wets)
- Kochan, B., Development and calibration of an activity-based scheduling model based on activity-travel diary data, within the framework of BOF project (Promoter: Prof. dr. G. Wets)
- Nakama, J., Enriching travel surveys by means of synthetic datasets, within the framework of Strategic Basic Research (Promoter: Prof. dr. G. Wets)
- Tormans, H., Effects of mobility and traffic safety measures on activities and travel behaviour, within the framework of the Policy Research Centre for Mobility & Public Works, track Traffic Safety (Promoter: Prof. dr. Geert Wets)
- Van Bladel, K., Specification of a dynamic activity-based travel demand model for short-term rescheduling, within the framework of Strategic Basic Research (Promoter: Prof. dr. G. Wets)
- Vanhulsel, M., Benchmarking and development of a dynamic, activity-based model for transportation behaviour, within the framework of Strategic Basic Research (Promoter: Prof. dr. G. Wets)
• Under the authority of IWT Flanders
  o Wets, G. & Brijs, K.,
    Signalisation simulator: simulator research to correctly inform and guide traffic flows to avoid elevated accident risk, in collaboration with Groep C & Infranea

• Other
    Coaching local representatives with regard to sustainable transportation, under the authority of the Flemish Fund for Transportation Sciences
  o Wets, G., (01.10.2007 – 30.03.2008)
    Drawing up a school transportation plan for the educational institutes KHLim PHL, UHasselt and XIOS in Di-epenbeek and Hasselt, in collaboration with XIOS, PHL and KHLIM
  o Wets, G. & Bérênos, M.,
    Public Transport-potency cards, under the authority of Veolia Transport
  o Wets, G. & de Jong, M., (15.06.2007 – 14.12.2007)
    MIRA-T 2007 Environmental Report Flanders: actualization and further development of the background document ‘Transport’, under the authority of the Vlaamse Milieumaatschappij
  o Wets, G. & Bérênos, M., (15.08.2008 – 30.06.2009)
    Regional Public Transport assessibility consumerdriven, under the authority of foundation TRANSUMO
- Under the authority of the Federal Government
    A behavioural analysis and examination of environmental implications of multimodal transportation choice (ESTiMATE), under the authority of FPS Science Policy (DWTC-SSD2), in collaboration with VUB, ULB
    PROfessional MOBility and Car Ownersh ip (PROMOCO), under the authority of FPS Science Policy (DWTC-SSD2), in collaboration with VUB, FUNDP
    Bicycle Traffic indicatorS: identification and harmonization of data sources (BITS), in collaboration with. FUNDP, under the authority of BELSPO
    MEthods of estimating BElgian TrAffic abroad and foreigner traffic in Belgium (MEBETA), in collaboration with FUNDP, under the authority of BELSPO
    BELgian DAily Mobility (BELDAM), in collaboration with FUNDP, Facultés Universitaires Saint-Louis, under the authority of BELSPO

- Under the authority of the Flemish Government
  - Wets, G. & Donders, E., (01.09.2007 – 01.09.2009)
    Mobility Award, Price Mobile Enterprise (departement Transportation and Public Works), in collaboration with Mobiel 21, Vlaamse Stichting Verkeerskunde
  - Wets, G. & Janssens, D., (01.02.2007 – 01.02.2008)
    Form and content for the mobility effect report, under the authority of the Flemish Region, in collaboration with Tritel
  - Wets, G. & Thys, I., Youth positioned (01.02.2006 – 30.01.2008), under the authority of the Flemish Community, in collaboration with Mobiel 21, Vereniging Vlaamse Jeugddiensten en –consulenten
  - Wets, G. & Janssens, D.,
    Traffic models (Flanders and other provinces): further elaboration of a parking model, under the authority of the Flemish Community, in collaboration with Tritel
Other research projects

Within the core competence area of “transportation”, the following research projects were also undertaken in 2008:

- **Within the framework of the Special Research Fund (BOF):**
    Automated collection of activity-diary data to support dynamic travel behaviour modelling

- **Under the authority of the Fund for Scientific Research (FWO):**
    An activity-based approach for modelling travel behaviour as a result of road-pricing

- **Under the authority of the European Union (6 FP and 7 FP)**
  - Wets, G. & de Jong, M., (01.02.2007 – 01.02.2008)
    Public Transport Systems’ Accessibility for people with disabilities in Europe (PT Access), European Commission 6th framework, participant
  - Wets, G. & de Jong, M., (01.09.2006 – 30.08.2010)
    Urban Track: Urban Rail Infrastructure, European Commission 6th framework, participant
    Knowledge Base for Intermodal Passenger travel in Europe (KITE), European Commission 6th framework, participant
    Methodology for Describing the Accessibility of Transport in Europe (MEDIATE), European Commission 7th framework, participant

- **Under the authority of the European Union (outside of the Framework Programme for Research)**
    Bypad-platform, European Commission ‘Intelligent Energy Europe’, participant
    Locomoto Genk, European Commission EQUAL, participant
Since 2005, the Strategic Basic Research Project “An activity-based approach for surveying and modelling travel behaviour” (period: 01.04. 2005 – 31.03. 2009; budget: €2.267,342) has been one of the cornerstones of the core competence area of “transportation”. The project aims to develop an activity-based transportation model for Flanders. The data collection of transportation behaviour will be computer-aided, which is new. What is more, this model is set up dynamically. The advantage is that it is thus easier to respond to new activity twists and turns. This new activity-based transportation model offers quite a few possibilities to policy-makers and administrative departments for policy support and for transport and traffic companies. It enables them to take better decisions so the increase in traffic and transport does not necessarily have to be a problem for the economy or society. Partners in this project are the Free University of Brussels (VUB), PHL University College, the Flemish Institute for Technological Research N.V. (VITO), and Eindhoven University of Technology (TU/e).

The second cornerstone of the core competence area of “transportation” is the acquisition and start of the project “Flanders Research into Transportation Behaviour (OVG): support and control assignment and analysis assignment” (budget: €154,806.80). In Flanders, OVGs remain one of the most appropriate instruments for obtaining data on the mobility of persons. The need for these data is indisputable and pressing. Since these data are often the source of many applications, it is vital to ensure the quality and analysis of the collected data. By order of the Flemish Government, IMOB will be responsible for a period of five years for the analysis, review and supervision of the OVG.

The third and last cornerstone is the acquisition of the project “Preparation of development scenarios and implementation paths for a new Flanders Mobility Plan” (budget: €678.155.59). The acquisition of this project enables IMOB to also shape mobility policy in Flanders. The project aims to prepare the new Mobility Plan for Flanders. Four possible future scenarios are developed that describe how mobility will evolve in Flanders over the next 40 years. These scenarios will form the basis for the new Mobility Plan for Flanders. This project is being executed in collaboration with the Flemish Institute for Technological Research N.V., the Federal Planning Bureau, Buck Consultants International, Significance, and Radboud University Nijmegen.
Policy evaluation

By analyzing models of transport data, we can predict future developments in transportation behaviour and assess the impact of policy measures. As a result, research into policy evaluation is tied to research into transportation behaviour, but the research line of policy evaluation also produces supplemental scientific support for the specific questions of policy-makers (for example, the evaluation of bicycle and parking policy, research into multimodality, and the development of new decision-making instruments).

Research topics within the core competence area of transportation:

- Activity-based transportation models
- Congestion
- Environmental impact of transportation behaviour
- Route tracking through GPS
- Development of decision-making instruments
- Multimodality
Core competence area 2: transportation

Each day, millions of people go to work and to school, go shopping, or simply relax. Consequently, within the domain of transportation, IMOB mainly focuses on research into “transportation behaviour”. We also focus on “policy evaluation”.

Transportation behaviour

Reports from various international organizations show that the importance of traffic and transport is increasing. This is also caused by urbanization and globalization, which results in increased global trade and passenger traffic. To map this increase, long-term investments are needed. Another reason is that governments cannot afford to let transport limitations have a negative impact on the future competitiveness of their products and services. To achieve better long-term decisions, we can use traffic and transport models. On an international level, the activity-based transportation models are the standard for modelling transportation behaviour. IMOB also largely focuses its transportation research on activity-based approaches to study and model transportation behaviour. Automated systems are developed for the collection of activity data to support dynamic modelling of transportation behaviour.

The main characteristic of activity-based transport models is that the transportation behaviour of persons or families is derived from the activities they want or have to do. So, trips are no longer seen as an isolated fact in these models. This is a great advantage over classic models. Activity-based transportation models lead to more realistic and well-founded policy predictions. The advantages of these models are that we can more realistically describe the transportation behaviour of persons and better understand their transportation behaviour.
In 2008, eight PhD students were active in the core competence area of “traffic safety”:

- Daniels, S., Geometrical aspects of roundabouts and their influence on the traffic safety of different types of road users, within the scope of the Policy Research Centre for Mobility and Public Works, Track Traffic Safety (Promoter: Prof. dr. Geert Wets)
- Nambuusi-Bukenya, B., Development of a Flemish road safety explorer, within the scope of the Policy Research Centre for Mobility and Public Works, Track Traffic Safety (Promoter: Prof. dr. Geert Wets)
- Hermans, E., Developing a framework for traffic safety indicators using state-space models, within the scope of the Policy Research Centre for Mobility and Public Works, Track Traffic Safety (Promoter: Prof. dr. Geert Wets)
- Vanlaar, W., Multilevel modelling in traffic safety research: going beyond the boundaries of classical statistical-analysis techniques; in collaboration with TIRF, Canada (Promoter: Prof. dr. Geert Wets)
- Shen, Y., Developing and modelling safety indicators, within the scope of BOF – Measuring road safety impacts of traffic policy measures using travel demand models (Promoter: Prof. dr. Geert Wets)
- Van Hout, K., Road safety in an ageing population, within the scope of the Policy Research Centre for Mobility and Public Works, Track Traffic Safety (Promoter: Prof. dr. Geert Wets)
- Wilmots, B., International comparison based on indicators by working out a road safety target hierarchy, within the scope of the Policy Research Centre for Mobility and Public Works, Track Traffic Safety (Promoter: Prof. dr. Tom Brijs)
- Pirdavani, A., Modeling the road safety effects of traffic policy measures, within the scope of BOF - Automated collection of activity-diary data to support dynamic travel behaviour modelling (Promoter: Prof. dr. Tom Brijs)
Other research projects

Within the core competence area of “traffic safety”, the following research projects were also undertaken in 2008:

- **Under the authority of the Fund for Scientific Research (FWO):**
    Model-based knowledge discovery for the detection and analysis of high-frequency accident locations on the roads

- **Under the authority of the European Union (6 FP and 7 FP):**
  - Wets, G. & Daniels, S., (01.02.2006 – 31.01.2009)
    Campaigns and Awareness-raising Strategies in Traffic Safety (CAST, European project), European Commission 6th framework, participant

- **Under the authority of the European Union (outside of the Framework Programme for Research):**
  - Wets, G. & Daniels, S., (27.06.2006 – 27.06.2010)
    COST 358 - Pedestrian Quality Needs, European Commission COST, participant

- **Under the authority of the Flemish Government:**
  - Wets, G. & Brijs, T., (01.10.2008 – 31.03.2009)
    Evaluation of the effectiveness of the additional training course ‘On The Road’, in collaboration with the research group of Applied Social Psychology, Maastricht University

- **Other:**
  - Wets, G., (01.05.2004 – 01.05.2008)
    Safetynet, under the authority of the SWOV
The second cornerstone also refers to the continuation of the core competence area of traffic safety. Two new PhD students were recruited for the BOF (special research fund) project “Measuring the traffic-safety impact of policy using activity-based models” (period: 01.10.2007 – 30.09.2011; budget: €492,500). This research focuses on possible traffic safety consequences as a result of congestion (traffic-jams).

The third cornerstone is the start of the Strategic Basic Research Project “A model-based approach for the evaluation of the impact of traffic policy on traffic safety and the environment” (period: 01.01.2008 – 30.12.2011; budget: €2.169,702). The project is being financed by the Institute for the Promotion of Innovation by Science and Technology in Flanders (IWT). The main objective is to study the impact of traffic and mobility policy on traffic safety, the environment, and human health. Partners in this project are the Free University of Brussels (VUB), Flemish Institute for Technological Research N.V. (VITO), KU Leuven University (KUL), and the Dutch National Institute for Road Safety Research (SWOV). The PhD student recruited for this project is evaluating the effects of traffic safety policy using micro-simulation models.

The fourth cornerstone of the core competence area of traffic safety is the purchase of a driving simulator and a system for the detection of head and eye movements and physio- and biomechanical monitoring (budget: €324.159). This purchase occurred with the support of the European Fund for Regional Development (EFRO). This driving simulator enables us to conduct fundamental research into drivers’ behaviour. With the driving simulator, we can conduct research in a controlled experimental environment into the effects of physical, mental, and visual limitations and the effects of road design and environment on driving behaviour. For example, fundamental research was started into the driving performance of patients with multiple sclerosis (MS) for a student’s master’s thesis, the master’s training of the Ba/Ma Transportation Sciences in cooperation with BIOMED (Hasselt University) and the REVAL (PHL University College) research group. Also in 2008, with two companies, iNFRANEA and Connect, an IWT R&D application was submitted and approved to conduct research into plans for traffic signs during road construction.

The last cornerstone we specifically want to bring to your attention is the condensed training initiative “Road safety in Asian countries—Principles and approaches”. This VLIR-UOS education project (budget: €35.923,88) characterizes the core competence area of international traffic safety. From 12 to 14 October, 15 participants from nine countries attended this course. The participants were all professionally involved in the preparation, execution, and follow-up of traffic safety initiatives. Due to its great success, IMOB again acquired financing in 2008 from VLIR-UOS (budget: €36.495,71) to repeat this initiative in 2009.
Projects in the framework of the “Policy Research Centre for Mobility and Public Works, Track Traffic Safety” relate to data collection, infrastructure, accessibility, innovation and ICT, evaluation methods, risk assessment, policy organization and monitoring, and sustainable transportation. Below is a summary of the ongoing projects of the Policy Research Centre in 2008.

- Wets, G. & Brijs, T., (01.01.2007 – 31.12.2011) Reference database for research into traffic safety in Flanders, in collaboration with VUB
- Wets, G. & Brijs, T., (01.07.2007 – 30.06.2011) Development of a sustainability monitor for traffic safety, in collaboration with VUB
- Wets, G. & Brijs, T., (01.07.2007 – 30.06.2011) Managerial organisation of a sustainable traffic safety policy
- Wets, G. & Brijs, T., (01.01.2008 – 30.06.2011) Calculation model impact traffic safety effects of measures

The following project of the Policy Research Centre will start after 2008:
Research topics within the core competence area of traffic safety:

- Analysis and detection of hot spots
- Analysis of the impact of transportation and traffic policy on traffic safety
- Development of performance indicators to compare traffic safety in various countries
- Impact of infrastructure and environment on traffic safety
- Impact of weather conditions on traffic safety
- Administrative organization of traffic safety policy

Traffic-safety research projects

Cornerstones

Within the core competence area of “traffic safety”, the following cornerstones can be mentioned in 2008:

The first cornerstone is the continuation of the “Policy Research Centre for Mobility and Public Works, Track Traffic Safety” (period: 01.01 2007 – 31.12.2011; budget: €2,412,500), an initiative of the Flemish Government. By order of the Flemish Government, this Centre for Policy Relevant Research intends to conduct policy-relevant scientific research into traffic safety in Flanders. IMOB (Hasselt University) coordinates this centre. Partners in this centre are the Free University of Brussels (VUB), PHL University College, the Flemish Institute for Technological Research N.V. (VITO), and Ghent University (UGent).
IMOB conducts research into the core competence areas of “traffic safety, transportation and logistics”.

Core competence area 1: traffic safety

As social interest in traffic safety has increased in recent decades, so also has scientific research, especially in the last 10 years. IMOB conducts traffic safety research along two research lines: “strategic analysis” and “risk and evaluation studies”. IMOB is involved in traffic safety matters on the Flemish level. Local governments cooperate closely with the institute to further increase their knowledge about traffic safety and to translate scientific insights into practice. Furthermore, IMOB is involved in national and international traffic safety projects.

- **Strategic analysis**

  The research line of “strategic analysis” mainly concentrates on instruments and models that allow for analysis of traffic safety for strategic purposes, such as planning and policy support. For example, research is conducted into macroscopic prognosis models that are used to formulate expectations about future traffic safety. Through software development that includes these macroscopic models, policymakers can analyze scenarios and trends to scientifically support their decisions and make projections of future developments in traffic safety. Also, in the research line of strategic analysis, research is conducted into traffic safety indicators. A traffic safety indicator is a quantitative or qualitative benchmark that is derived from a series of observed facts and presents large volumes of information in a clear and simple way to be used in policy-making. For example, indicators are drawn up with respect to the most important risk domains of traffic safety, such as the use of the safety belt, speed, alcohol, etc. These indicators are brought together in a traffic safety monitor that indicates the most important policy bottlenecks.

- **Risk and evaluation studies**

  The research line of “risk and evaluation studies” mainly concentrates on the relationship between infrastructure, environment and behaviour and their impact on traffic safety. Risk models are also used for this. They reveal the relationship between characteristics of the infrastructure, environment, behaviour and the risk of accidents. We verify the effectiveness of preliminary and follow-up studies of the measures taken.
Educational objectives

IMOB supports education in traffic safety, transportation and logistics on three levels.

- Fundamental research in the areas of traffic safety, transportation and logistics, conducted by about 25 PhD students.
- Participation in the academic programme bachelor and master in Transportation Sciences offered by Hasselt University. This unique programme trains future traffic specialists who take a multidisciplinary approach to finding integrated solutions for numerous problems with traffic safety, transportation and logistics.
- Organization of modules on topics relating to traffic safety, transportation, and logistics. In so doing, the institute addresses persons who are professionally involved in traffic safety, transportation, and logistics. In this way, we meet the need for lifelong learning.

Service objectives

- Supporting and cooperating with prominent players in the areas of traffic safety, transportation and logistics, including authorities (federal, Flemish, provincial, and municipal), police services, welfare organizations, interest groups and consultancies.
- Contributing to the identification of problems relating to traffic safety, transportation and logistics. We aim to find practical solutions through research.
- Organizing and participating in activities that are closely linked to traffic safety, transportation and logistics.
Strategic plan/mission

Mission

The mission of IMOB is to develop sustainable solutions for problems in the areas of traffic safety, transportation and logistics. IMOB intends to achieve this goal on a national and international level by

- Conducting scientifically substantiated fundamental and applied research
- Offering training in traffic safety, transportation and logistics
- Providing services on various levels

For each of these cornerstones, IMOB presupposes specific objectives that shape its mission.

Research targets

- Striving for improvements in knowledge in the fields of traffic safety, transportation and logistics by conducting multidisciplinary research and developing new and improved research methods
- Contributing to the development of a framework within which we can work on sustainable transportation. In so doing, IMOB promotes well-founded and new solutions that support a long-term vision and serve as an instrument (or guideline) for transportation management within the various professional sectors.
- Conducting scientific research to support policy on traffic safety, transportation and logistics
- Participating in international and national research projects to achieve knowledge integration
- Actively participating in international and national scientific conferences
- Publishing research reports and scientific publications
Overview staffmembers

- Professors and guest professors
  Prof. Ir. Bérénos Mike (gastprofessor), Prof. dr. Brijs Tom, Prof. dr. Janssens Davy, Prof. dr. Janssens Gerrit, Prof. dr. Karlis Dimitris (gastprofessor), Prof. dr. Ruan Da (gastprofessor), Prof. dr. Timmermans Harry (gastprofessor), Prof. dr. Vanhoof Koen, Prof. dr. Wets Geert.

- Senior researchers, postdocs, researchers and visiting scientists

- Junior researchers (PhD students and teaching assistants)

- Administrative and technical staff
  Dewalque Tamara, Dom Suzanne, Donders Edith, Habex Hilde, Hertogs Kristel, Hustinx Luciane, Jacobs André, Kerkhofs Gretel, Roox Dirk, Smeyers Nadine, Thys Isabel, Vanderhallen Joke

- Voluntary scientific staffmembers
  De Haan Pieter, Devisch Oswald, Diependaele Manu, Engels Dirk, Kok Gerjo, Nuyts Erik, Vanlaar Ward, Van Cleempoel Koen
students started the Master’s in Transportation Sciences. Also, more and more international students are enlisted as part of various PhD projects. More than 15 nationalities are represented at IMOB. The trend toward the internationalization of research also continues. In 2008, IMOB invited various professors. For example, Hasselt University awarded an honorary doctorate in Transportation Sciences to Shalom Hakkert, professor in engineering sciences, transport, and geo-information at the Israel Institute of Technology in Haifa. The participation of IMOB in various international research programmes also increased.

Thank you for the interest you have shown in IMOB. I hope that you enjoy reading this activity report.

Prof. dr. Geert Wets
Director IMOB
transportation policy in Flanders even more. These are: “Flanders Research into Transportation Behaviour (OVG): support and control assignment and analysis assignment” and “Preparation of development scenarios and implementation paths for a new Flanders Mobility Plan”. In 2008, the research activities were also continued as part of the SBO project “An activity-based approach for surveying and modelling travel behaviour” and various national and international projects brought in earlier through a wide range of financing channels such as the European sixth and seventh framework programme, the federal and Flemish governments, BOF, FWO, etc. In that way, IMOB participates in the European MEDIATE project, in which the accessibility of the transport system takes centre stage.

Lastly, the domain of “logistics”, an important part of the promotion plan of the Faculty of Business Economics, further strengthened its basis in 2008, mainly through the functioning of the project mentioned above, “Preparation of development scenarios and implementation paths for a new Flanders mobility plan”. This research project, which fits in with the fields of “transportation” and “logistics”, not only focuses on the component of “passenger traffic”, but proportionally also on the component of “freight traffic”. Additionally, this field of research started in 2008 with an expansion of the research team, which resulted in the start of new doctoral projects in 2008.

With respect to educational matters, IMOB plays an important role in the educational programmes Transportation Sciences (in 2008, the first master students in Transportation Sciences started their final year), Commercial Engineer, and Commercial Engineer in Management Information Systems of the Faculty of Business Economics. Numerous IMOB staff members are involved in various training courses in the fields of transportation, logistics, and management information systems. Several students also closely participate in research executed at the institute.

In addition to the regular bachelor’s and master’s courses, IMOB and the Flemish Foundation for Transportation Sciences continued to develop the Transportation Academy in 2008. This initiative offers various short-term, practice-oriented training courses on transportation to persons already active in the transportation sector.

It was also an important year for the internationalization of IMOB, both in the field of education and research as well as in HR policy. In 2008, the first international
Dear Reader,

You are holding the activity report of the Transportation Research Institute (IMOB). IMOB is one of nine research institutes of Hasselt University. IMOB engages in fundamental and applied research and in education. In the policy targets of its research activities, IMOB focuses on traffic safety, transportation, and logistics.

Scientifically, 2008 was a successful year for IMOB, with 70 publications in scientific journals and proceedings and 6 research reports. They are outlined in this activity report. We also gave numerous lectures at international conferences. With respect to project activities, 2008 was also a successful year.

For example, within the domain of “traffic safety”, research activities were continued for large-scale projects such as the “Policy Research Centre for Mobility and Public Works, Track Traffic Safety” and the BOF (special research fund) project “Measuring the traffic safety impact of policy measures using activity-based models”. 2008 also saw the start of the new SBO (strategic basic research) project “A model-based approach to evaluate the impact of policy on traffic safety and the environment”. Another important research development in this field of research was the acquisition of the driving simulator, with support of the European Fund for Regional Development (EFRO). It enables us to create a research environment in which realistic traffic situations can be simulated. In 2008, the driving simulator was used to simulate new traffic situations. Also, a project was started to study the driving ability of MS patients.

In 2008, the domain of “transportation” also scored a number of indisputable successes. The acquisition of two important new projects enables IMOB to shape
Content

Foreword 03
Policy and strategy 06
Research 09
Education 25
Scientific output 28
Activities organized in 2008 35
Prizes, citations, realised application 36