

# BSI Chair - Companies and Sustainable Mobility: The Company Car Debate and Beyond WP2A proposal

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## **External tendencies and global trends influencing the demand for (and implementation of) sustainable company mobility: towards the « paradigm of the future ».**

Company mobility has to be considered in regard with its context (economic, sociological, demographic, technological, political and legislative factors) and evolutions. It is thus important to identify those factors and potential trends in order to evaluate their impact on company mobility.

Following WP1, focusing on a situational picture and definition of company mobility, the scope of WP2A is to specify and situate the above-mentioned factors within a short / mid-range timeframe (5-10 years) to highlight trends and tendencies, which can constitute a bedrock for WP2b/3 and their sets of scenarios.

### **1. Topics and methodology**

#### **a. Urban Planning and Mobility (LOUISE + COSMOPOLIS):**

*Main topics addressed:*

- *implication of urban revitalization strategies on mobility and residential environment for companies*
- *infrastructure connectivity and accessibility*

This work package will depart from a concise literature review that will link current trends in urban development and visioning to the company car phenomenon. It is e.g. clear that tendencies towards urban compaction leads to better accessibility of major employment centres by public transport, which in turn may affect companies' location choice behaviour. However, companies' accessibility is strongly related to current or future transport policies discouraging car traffic or promoting sustainable mobility.

Main questions are:

- How is the centrality of a company's location outweighed against the desire to be accessible first and foremost by car?

- How do cities deal with the growing awareness of its inhabitants regarding urban liveability and air quality?
- Are companies inclined (or not) to leave the city when contemporary mobility policy discourages the use of the car?
- How are companies encouraged to organize their activities in order to cause fewer local and regional traffic nuisance?
- How do urban revitalisation strategies in terms of mobility and in terms of attraction of new companies affect the development of neighbourhoods?

Additionally, these possible paradigm shifts associated with the position of the car in the city will be framed through changes in travel behaviour (to be developed in point b). Perhaps the most important trend in this respect is the 'peak car' phenomenon, which points to recent observations of quasi-stagnation of growth of car traffic volumes.

The questions above will be assessed through a limited number of case studies and best practices in and outside Europe.

LoUISE will be in charge of this topic and Cosmopolis will adopt a consultancy role.

## **b. Behavioural Changes related to mobility practices (CES + MOBI):**

*Main topics addressed:*

- *identification of global trends in commuting behaviour*
- *identification of global and regional economic, social, technological and demographic trends and their impact on commuting behaviour*

Building on the results of WP1 in terms of the analysis of the mobility behaviour of company car users, further analysis of existing data (MOBEL 1999, BELDAM 2010, Companies' Travel plans, Census 2011, Enquête sur les Forces de Travail...) will allow us to analyse the trends and evolutions in individual behaviour and daily mobility practices under stable policy conditions. We also plan to analyse the evolution of attitudes towards car ownership, travel mode choice and driving licence possession amongst the younger generations. More importantly, we will give an overview of trends in workers' residential choices and companies' location and their possible impact on mobility.

Furthermore, we propose to identify global and regional economic, social, technological and demographic trends and their effect on commuting behaviour on the medium to long term (5-10-30 years, to be decided). This will be done based on a literature review on trends in (car) mobility, commuting and the Brussels ecosystem. A longlist of trends and their expected impact on the future of Brussels car mobility will be composed and validated by experts through a workshop (that could, for example, be organised in collaboration with WP1). This consultation round with experts will allow us to create a short list of the three most important trends that might affect future Brussels car mobility. These three trends will serve as a basis for all further analysis in the work package.

CES will be in charge of this topic, with an active and collaborative role of MOBI

### **c. Policies and legal background (CES + MOBI):**

*Main topics addressed:*

- *evolution and role of company mobility policies*
- *legal policies context*

At the company level, we plan to analyse trends regarding company policies in terms of mobility. The federal mobility diagnosis (Diagnostic Fédéral Mobilité) and the company travel plans (Plans de Déplacements d'Entreprises – limited to the Brussels Region) both contain some data allowing us to give an insight in what companies are currently doing or are planning to do to promote sustainable mobility practices (teleworking, parking for bikes, organised car sharing, reimbursement of public transport costs...). Those data will be supplemented by case studies and interviews with dedicated companies in order to partially cover specific questions for which no data are available.

The legal policy context also plays an important role in shifting mobility practices and in company car use in particular. We plan to do a review of legislative trends and expected changes in terms of fiscal and environmental laws (binding international laws, sixth state reform implications...) as it is an essential part of the 'paradigm of the future' when assessing new trends in relation to mobility issues in Belgium. However, we do not have the internal competencies yet to explore this particular field. We will look for a skilled researcher to fill this important gap in our research topic.

CES will be in charge of this topic, with an active and collaborative role of MOBI

### **d. Impact of new technologies (MOBI + SMIT):**

*Main topics addressed:*

- *potential/expected impact of technology on mobility and infrastructure demand, mobility business models.*

In a last step, we want to forecast the evolution of the business models of the most important company stakeholders in the Brussels region within the next 5 to 10 years, taking into account the trends we have previously identified. The stakeholders whose business models will be investigated are selected during the project and should be representative. We will use established business modelling methodologies (see Wirtz et al. (2015) for an overview) to draft current business model and strategy configurations of the selected stakeholders. In a next step, we will use the results to fully explore the (near) future evolution of the documented business models. This approach would allow us to address the potential/expected impact of technology, technology providers and/or other trends on mobility and infrastructure demand and on the mobility business models (including new service development).

Secondly, we will estimate potential changes in roles of various actors in case new, ICT-based mobility services are introduced. Attention will be given to the relationship between new mobility services and other transport services, possible use of big data and the role of platforms that can

play a central role in providing Mobility services. The result of this work will be a value network analysis of the ecosystem, identification of key players in each section of the value chain, and identification of the new entrants, and the relationships between these stakeholders. Using this output we will be able to identify potential impact on how companies will provide mobility to their employees.

New technologies not only impact business models, but also impact other crucial domains such as the Brussels environment. We will use our knowledge and data on the use and evolution of different vehicle technologies in a Belgian urban setting (Hooftman et al., 2016) in combination with existing MOBI tools (Ecoscore methodology (Sergeant et al., 2012), range-based Life Cycle Assessment Tool (Messagie et al., 2014)) to model the impact of new technologies on the environment.

MOBI will be in charge of this topic and iMinds-SMIT with a consultancy role.

## 2. Description of research team

### a. CES

The Centre d'Etudes Sociologique (CES) collaborates since 2011 with Brussels Mobility on the consolidation of the Mobility Observatory of the Brussels-Capital Region. The objective of this Observatory is to strive towards a common diagnosis on key issues related to urban mobility in Brussels and its stakeholders. This research project has resulted in the publication of four *Notebooks* (Lebrun et al., 2012, 2013, 2014; Strale et al., 2015) and a forthcoming fifth one (Brandeleer et al., to be published in 2016). Furthermore, our team is currently working on a sixth publication on work/school related travel behaviour. Other works and publications include travel practices studied through national surveys; the measure of accessibility; the history, organization and impact of transport systems; the role of specific technical tools in shaping transport policies; etc.

The following people at CES will be particularly involved in this project. Prof dr Michel Hubert, sociologist, who has been working for a long time on several issues of transport and mobility and is also Chair of the Centre interuniversitaire d'étude de la mobilité – CIEM, Thomas Ermans, geographer (familiar, in particular, with working with the *Banque Carrefour de la Sécurité Sociale*), Céline Brandeleer, political scientist, Philippe Huynen, sociologist and data analyst and Kevin Lebrun, geographer.

## **b. MOBI**

The Mobility, Logistics and Automotive Technology Research Centre (MOBI) is nested at the Vrije Universiteit Brussel (VUB). MOBI is led by professor dr. Cathy Macharis & professor dr. Joeri Van Mierlo. It is internationally recognised for its vast experience and expertise related to vehicles power train design, battery research, environmental assessments, socio-economic evaluations and standardisation. The Battery Innovation Center (BIC), a division of MOBI, is the Belgian expertise center for research and development of energy storage systems for traction and stationary applications. MOBI has extensive expertise in evaluating the sustainability of logistics systems and in examining ways of reducing externalities in logistics. MOBI's main experience in this field covers research on intermodal transport, city logistics and sustainability impact assessment. Researchers at MOBI investigate the driving forces behind mobility choices at the level of the individuals and different groups of the society by analysing data on travel behaviour. The multidisciplinary team of over 50 specialists addresses the challenges that the transport value chain faces, by integrating engineering, economic, social and environmental sciences and policy issues.

The following people at MOBI will be involved in this project: Prof. dr. Thomas Crispeels, business modelling and innovation; Dr. Maarten Messagie, team leader environmental LCA, Dr. Imre Keseru, team leader urban mobility; and Nils Wuytens, research associate urban mobility.

## **c. COSMOPOLIS**

The Cosmopolis Centre for Urban Research is a research centre within the Department of Geography of the Vrije Universiteit Brussel and is dedicated to research and teaching in geography, spatial planning and urban design. Committed to pursuing both academic and practice relevant research, Cosmopolis actively engages policy makers, governments, citizen networks and other urban partners to transform knowledge into action. Over the last fifteen years, Cosmopolis has continuously grown in size and is now an established centre of urban research situated in the heart of Europe. Cosmopolis has extensive experience in the analysis of urban policies and urban development, ranging from local policy-oriented projects in Brussels to EU-funded research.

Today, Cosmopolis is a team of four tenured professors and approximately fifteen researchers with different disciplinary and national backgrounds. Cosmopolis has been an interdisciplinary group from the very beginning, partly due to the diverse backgrounds of its members (ranging from geography and planning to architecture, sociology, philosophy and cultural studies), but also as a result of its key role in interdisciplinary networks (such as the international MA's 4Cities and Polis and the UAB Urban Studies Network / Stadsplatform). Researchers publish extensively in international peer-reviewed urban studies journals, but a lot of attention is also paid to local involvement in citizen networks, engagement with policymakers, and opinion making.

Prof. Kobe Boussauw, affiliated with Cosmopolis, will advise this work package.

#### **d. LOUISE**

LoUIsE – Laboratory on Urbanism, Infrastructure and Ecologies is a research centre of the Faculty of Architecture of the Université libre de Bruxelles. Urbanism is the main research focus for LoUIsE, but its preoccupations go well beyond this discipline to take on environmental, infrastructural, and transport issues concerning cities and urban territories in the larger sense. Affiliated members are convinced it is flows, networks and infrastructures that make up the global framework from which urbanism's contemporary territories are organized.

The activity of LoUIsE takes shape first and foremost through research made in the context of the realization of doctoral theses and postdoctoral fellowship, financed by the National Scientific Research Fund (FNRS) and by the Brussels Innoviris research institute.

Next to this basic activity of fundamental research, LoUIsE also actively participate in ongoing debates on the development of the Brussels-Capital Region. Since 2010, Louise co-organises [pyblik] dedicated to the training of skills in the creation of public space and the bi-annual Brussels Architecture Masterclass (Rework 2012, End of Line 2013, Bridges 2015). Since 2015 LoUIsE is a partner of the Metrolab Brussels transdisciplinary laboratory for applied and critical urban research, formed by UCL and ULB, and funded by ERDF- Brussels 2014-2020.

#### **e. SMIT**

iMinds is an independent research institute founded by the Flemish government to stimulate ICT innovation. The mission of iMinds is the creation of highly competent human capital in different aspects of ICT through multidisciplinary demand<sup>3</sup>driven research. iMinds carries out this multidisciplinary research for the Flemish business community and the Flemish government. This includes all technological, legal and social dimensions of the development and exploitation of broadband services. iMinds comprises different research entities of which one of them will contribute in this project: iMinds-SMIT.

iMinds-SMIT (Studies on Media, Information and Telecommunication) was established in 1990 in the Department of Media and Communication Studies (Faculty of Economic and Social Sciences & Solvay Business School) at the Vrije Universiteit Brussel (Belgium). The research centre is specialized in fundamental, applied and contract research in the area of ICT and media, ICT users, markets and policy, with currently a staff of 75 researchers, over 750 scientific publications, and an annual turnover of €4,5M. Recently iMinds has been acknowledged by the Flemish government as the core partner for Living Lab research in Flanders, and it hosts the secretariat for the European Network of Living Labs (ENOLL).

Main people involved in this project: Nils Walravens

Nils started working for SMIT in August of 2007 as a researcher in the Media, Market & Innovation cluster. His main expertise is in the field of business modelling research in both the mobile and media industries and he has been involved in short-running consultancy assignments, national iMinds-projects and European-level FP6 and FP7 Integrated Projects. He has experience in the

mobile services domain, on high definition television and digital television business aspects, digital news and e-reading, and platformisation in the media and mobile industry.

In 2011, Nils started working on a 4-year Prospective Research for Brussels project, funded by Innoviris and the Brussels Capital Region. The aim of the project is to define policy recommendations related to business models and platformisation of mobile city services, in the context of the ever-evolving mobile sector.

### **3. Coordination method and planning:**

The research agenda will be spread across 12 months (1<sup>st</sup> December 2016 – 30 November 2017). The CES will coordinate this WP.

We plan to have a kick off meeting at the beginning of December in order to launch the different research teams. After that, we plan to gather every three months to present the research advancement for each topic.

In addition, meetings dedicated to specific topics will be organised and the researchers involved will stay in contact with each other according to needs.

We will also pay attention to the advancement of the other work packages (mainly WP1 and WP2b) to prevent overlap but also to share results ensuring coherence of the whole research project.

### **4. Stakeholders inclusion and dissemination strategy:**

Stakeholders' inclusion is an important asset in our research project as they represent a source of data and feedback (through discussions, meetings, interviews...).

Two general meetings are set up from the start.

- The first one will take place around June 2017 and represents the opportunity to give a first feedback (state of the art) on the research project and to adjust scenarios and tendencies to stakeholders' remarks and preferences.
- The second one could take place in December 2017 to present the full report of our research, with a broader audience.

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