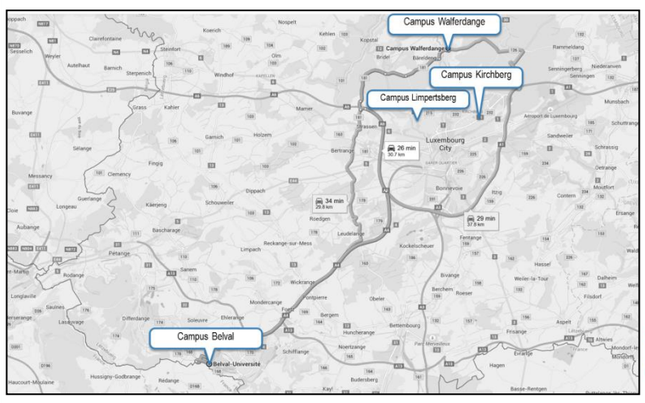
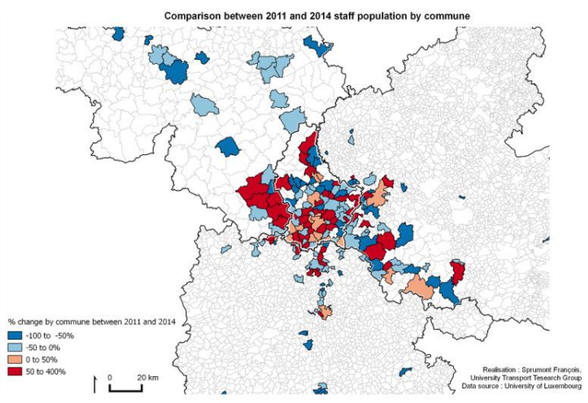
A smart multimodal mobility platform that jointly optimises travellers' needs and transport services

Summary
In this research we bring together the advantages of **multimodal and mode sharing solutions** with those offered by new **Information and Communication Technologies**, which enable to close the loop between services and users' activity-travel patterns. The main contribution is to **create services within social networks such as institutions or enterprises**, characterized by **correlations in activity-travel patterns**, hence facilitating the **organisation of sharing and demand-responsive services**.

Motivation

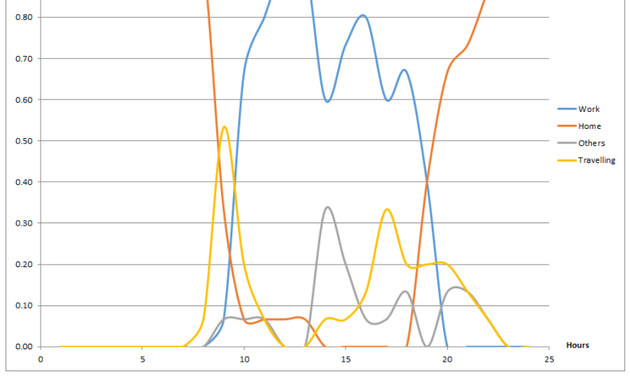
The motivation of this study is to address the university relocation problem to the new campus, located about 25km south-west of Luxembourg City. This will have significant impact on the university staff and students' daily mobility and life. New dynamics are being observed, and they are causing undesired shifts to the car mode, hence making it difficult to meet the mobility targets imposed by the national transport policy.





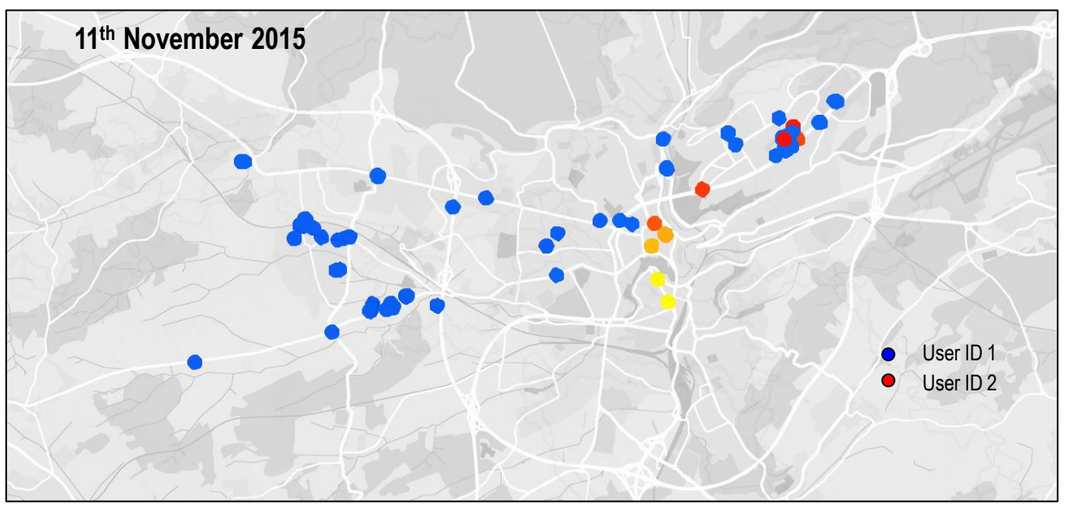
Analysing regularities and commonalities in travel patterns

Different data (commuting & multi-day survey, digital travel diaries, sensors data from smartphones and smartwatches) are being collected to understand correlations of activities-travel patterns and capture the potential opportunities for sharing systems and for optimising on-demand services.



We aim to acquire insight into

- Mode choice determinants related to daily and weekly activity schedules;
- The impact of transport policy measures to commuting mode choices;
- The spatio-temporal correlations between activities in social networks.

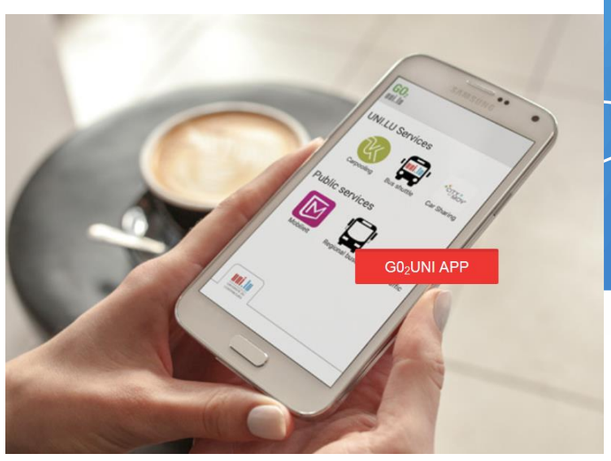


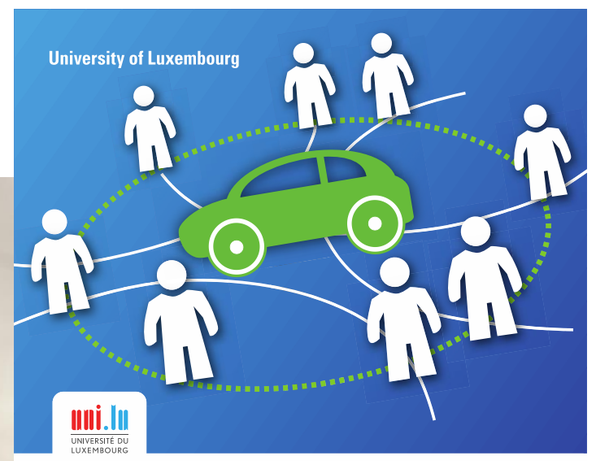
A smart integrated multimodal sharing solution

We adopt an integrated transport policy approach, where a combination of new corporate services and Travel Demand Management (TDM) measures such as parking pricing and public transport subsidy are implemented. The hypothesis is that this mixture will allow to alleviate the possible negative effects on the staff members' commuting behavior and foster a more sustainable and smarter commuting mobility.

The solution is being designed and tested at the University of Luxembourg. An integrated set of services is being introduced, including:

- A carpooling platform
- A corporate carsharing
- An intercampus shuttle





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All solutions are integrated in a personalised travel planner, which provides information on traffic, PT, and corporate sharing services, and offers the possibility to collect, process and exploit activity-travel data, and use it to:

- Provide personalised advises to the travellers
- Provide recommendations for improving the transport services
- Test different TDM solutions combining carrot-stick policies

More information please visit www.mobilab.lu and www.go2.uni.lu

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