

Mobility2.0 Final publishable summary report

EXECUTIVE SUMMARY

Mobility2.0 has developed and tested an in-vehicle commuting assistant for FEV mobility, resulting in more reliable and energy-efficient electro-mobility. In order to achieve a maximum impact, Mobility2.0 takes an integrated approach of addressing the main bottlenecks of urban FEV mobility: ‘range anxiety’ related to the limited FEV range, scarcity of parking spaces with public recharging spots, and the congestion of urban roads. Our integrated approach means the application developed by Mobility2.0 utilises co-operative systems to simultaneously consider these bottlenecks, so that such an optimisation can be achieved which still guarantees reliable transportation for FEV owners. Mobility2.0 focuses on assisting the daily urban commute, which represents the bulk of urban mobility.

The ‘Mobility2.0’ proposal name is meant to express that the co-operative electro-mobility technology targeted by this project is a next level concept for personal mobility.



OBJECTIVES

In the context of electro-mobility, the main objective has been to develop a commuting assistant application for FEV owners. FEV-specific guidance aspects include the integrated reservation of a suitable FEV recharging spot, while also prioritising FEVs with low battery levels for the reservation, and making optimal use of the available public transportation along the journey. The at least partial modal shift will result in very significant energy savings - in direct proportion to the reduced driving mileage - which can be achieved seamlessly only via an integrated co-operative process, enabling efficiency gains without sacrificing the FEV driver’s comfort. The project has focused on the specification and standardisation of the messaging interface for the co-operative commuting assistant, such as the reservation of EV recharging spots, and has validated this co-operative application end-to-end at two test sites.

By focusing on the development of co-operative commuting assistant for FEVs, Mobility2.0 has been aiming to provide the FEV users and municipalities with the following results:

- **Optimise the overall commute time**
- **Intelligently manage priorities at public recharging spots**
- **Facilitate traffic peak mitigation through dynamic electricity pricing**
- **Support the complementary use of FEVs and public transportation**

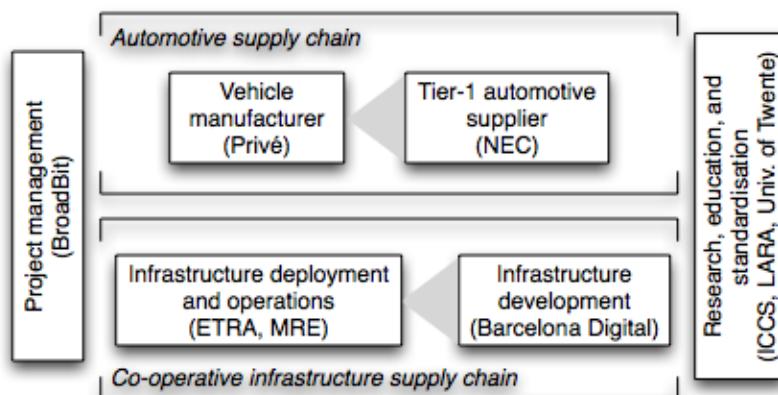
THE PROJECT CONSORTIUM AND WORK PLAN

Project duration: September 1, 2012 - February 28, 2015.

The following figures show the project consortium according to the role of partners and by business domain. The Mobility2.0 partners cover the essential parts of the supply chain on both FEV side and co-operative infrastructure side.

Participant no.	Participant organisation name	Participant short name	Role
1 (Coordinator)	BroadBit Slovakia	BB	Coordinator
2	ETRA	ETRA	Infrastructure supplier
3	Fundació Privada Barcelona Digital Centre Tecnològic	BD	Transportation management SW supplier
4	ICCS	ICCS	Research institute
5	Municipality of Reggio-Emilia	MRE	Municipality
6	LaRA Joint Research Unit / Armines	ARM	Research institute
7	University of Twente	UT	Research institute
8	Privé	PR	Vehicle manufacturer
9	NEC Europe Ltd	NEC	Automotive supplier

The project work has involved nearly 300 person-months of total project effort. The work has begun with collecting Use cases and requirements, and then proceeded to specifications and prototyping. The final phases of the project involve system integration of prototyped components with existing EV recharging infrastructure at the test sites and public transportation databases, as well as extensive validation at the test sites.



POTENTIAL IMPACTS

The system-optimised assignment of public re-charging spots extends the FEV range - in comparison to driving round-trip without re-charging - and this extension is prioritised for

those FEVs which need it most. Through the use of co-operative communications, it shall be possible to perform in a scalable way the real-time updates of the re-charging spot availability and assignments. The time-of-day based dynamic electricity pricing further improves FEV energy efficiency by mitigating traffic congestions.

Furthermore, the seamless multi-modal FEV commuting assistance shall establish an easy to use complement between private FEV driving and public transportation usage. In parallel, prediction of an accurate range estimation while driving is considered as a powerful tool against FEV drivers range anxiety.

KEY ACHIEVED RESULTS

The main results achieved by the project include the following:

- The smartphone-based commuting assistant application has been developed - along with its corresponding server-side component - for the ergonomic and seamless assistance of EV commuting
- Development of city-wise optimised algorithms for EV re-charging spot assignments
- Integration of the prototyped Mobility2.0 system with existing transport infrastructures at the Barcelona and Reggio Emilia test sites
- Assessment and validation of the integrated Mobility2.0 results through driving tests by external EV drivers.
- Contribution of the EV re-charging spot reservation protocol for standardisation at the ETSI ITS group, and active management of its standardisation process
- Arrangement of a final demonstration day for showcasing the integrated Mobility2.0 system at the Barcelona test site.

The public project website is found at www.mobility2.eu.