

cities for mobility

E-Mobility

The future of transport





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Cities on the move to the solar age of mobility

Promotion of renewable energies in transport within city networks

For all organisations striving for sustainable urban mobility, the past two years have been surprisingly rewarding when it comes to the shift of public and political awareness concerning the need to drastically alter our fossil fuel dependant mobility systems. What has made change – at least of minds – happen so swiftly?

Cities on the forefront

Unprecedented fuel prices and atmospheric temperatures have definitely increased the willingness of politicians, managers and consumers to act more decisively towards the increased use of renewable energies in all relevant fields, including transport. But where does change really happen on the ground? It is mainly the most innovative and farsighted cities and regions that engage first in the implementation of those energy efficient and pollution free transport technologies that sleepy transnational corporations should have already offered years ago. Why are (some) cities predestined to be pioneers in such future oriented developments? Two main reasons can be identified: firstly, local authorities are not so much under pressure from conservative lobbyist groups as national governments, and secondly, at local level, a specific political culture has survived among a greater number of local executives that acknowledges that decision makers should be held accountable by citizens for what they are doing and deciding in order to prepare cities for the great challenges of the future.

In their attempt to pioneer the development of environmentally and socially friendly mobility systems, besides the ever more precarious financial conditions and sometimes discouraging national legal and tax systems in transport, cities have to face another big challenge: they need massive know-how and organisational capacities to cope with the beginning shift of paradigms regarding transport technology and mobility management. For a few decades now, local governments have been increasingly using a powerful tool to overcome

such difficulties: they have started to cooperate internationally and in public-private partnerships in order to get access to, and exchange know-how within transnational city networks.

The project network CO2NeuTrAlp

Amidst heavy disputes among scholars, engineers and politicians about the advantages and disadvantages of biofuels, electric mobility and the limits of both approaches to move away from fossil fuel dependent transport, the *CO2NeuTrAlp* consortium gathered 15 partners from 5 different countries of the larger Alpine region in order to test in 13 pilot projects different alternative vehicle technologies, mainly based on endogenous sources of renewable energy.

The project with a volume of roughly 3.3 million Euros follows a two-level networking strategy which has been developed for promoting effectiveness within transnational city network cooperation. On the first level, full project partners cooperate transnationally, directly benefiting from EU funding (INTERREG IV B Alpine Space Programme).

A second level has been established to make sure that the developed solutions will be spread and applied beyond the limited area covered by each partner. Therefore, around each of the 13 pilot projects, a so called "Local Implementation Network" (LIN) has been established. Each LIN comprises neighbour municipalities, relevant local and regional agencies, departments or companies from the public sector, private businesses, NGOs and universities or other research and teaching institutions. The LIN serves as a basis for participatively implementing the respective pilot project to guarantee its general acceptance and overall success. Moreover, it serves as a platform for disseminating the applied solutions and for replicating them within a broader region beyond the project partners' location. In the framework of CO2NeuTrAlp, this two-level networking concept has proved to be very



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efficient in raising the overall level of transnational cooperation effectiveness through enhanced local impacts and in geographically spreading the innovations beyond the partners' location.

E-Mobility in a Two-Level System

Sceptics of the e-mobility hype are right in claiming that **a mere shift of unsustainable mobility patterns from conventional to electric cars will neither really solve the growing environmental problems of worldwide increasing mobility demands nor the deficits in urban development** caused by exaggerated individual motorised transport as e.g. the lack of space and a diminished quality of life. Therefore, it is vital for political decision makers at all levels to understand individual electric mobility as an integral part of a more sustainable overarching two-level system. The divide between the two levels is somewhere around 50-100 km of one-way travel distance. Above this threshold, public, mainly rail-bound means of (electric!) transport shall serve the demand for inter-city mobility. Comfortable and economically attractive bike, scooter or car sharing, respectively rental models, shall guarantee that the user can easily cover the last mile at the final destination of travel. Below this threshold, especially in rural areas, individual motorised electric mobility will guarantee energy-efficient, comfortable and flexible mobility offers for daily short distance travel. In urban centres a dense network of (mainly electric) public transport can have clear comparative advantages over individual motorised (car) mobility. Its attractiveness will be unique when local and regional governments manage to offer local public transport at attractive flat rate tariffs, or even better, free of charge, financing it by a general local mobility tax.

E-vehicles: the lighter, the better

As long as e-mobility concepts just foresee to replace a combustion engine by an electric power train we will not be able to escape from the unsustainability trap our current mobility systems are caught in. The general rule for future mobility policy has to determine that each type of mobility

Location	Pilot Project
Graz (AT)	Biogas & Public Transport Fleet
Pays de Romans (FR)	PPO-Mobility & Waste Collection
Villard de Lans (FR)	E-Mobility & Winter Tourism Transport
Safari Park Peaugres (FR)	E-Mobility & Summer Tourism Transport
Lago d'Idro (IT)	Solar Boat & Intermodal Lake Transport
Interporto Padova (IT)	E-Lorry & City Logistics
Belluno (IT)	E-Mobility & Public Authority Fleets
Padova (IT)	E-Mobility & Pedelec Rental System with Solar Charging
Cinque Terre National Park (IT)	E-Mobility & Accessibility to Steep Terraces in Agriculture and Tourism
Torino (IT)	E-Mobility, Solar CNG Compression & Public and Private Transport
Litija (SI)	Awareness, E-Mobility & School Transport and Commuting
Maribor (SI)	Intermodal E-Mobility & Public Transport and Tourism
Allgäu (DE)	E-Mobility & Decentralised Pedelec Rental System

need shall be satisfied with the lightest and thus most energy efficient vehicle that is available. For short distances, travelled by a single person, Light Electric Vehicles (LEV), as pedelecs and, to some extent, also e-scooters shall have highest priority. LEVs are already available on the market at accessible prices. They have the potential to attract further car users who were not yet willing to use a regular bike. Moreover, LEV are unrivalled by any other motorised form of individual transport when it comes to energy and also material efficiency. To keep one person mobile with a pedelec or an e-scooter instead of an electric car, not 500 kg of Lithium-Ion batteries and 1.000 kg of steel and other increasingly scarce raw materials are needed but only 5 to 15 kg of batteries, respectively 10 to 100 kg of steel. Only for medium distances, the carrying of goods or several persons and also for adverse weather conditions, the use of electric cars or vans may be more meaningful. Here, the design of a new generation of light-weight cars with intelligent GPS based road safety technologies is essential for improving road safety for all road users, not only for the drivers of heavy SUVs but also for LEVs, cyclists and pedestrians.

Pilot projects of the CO2NeuTraIP Consortium

