

Keeping Europe's cities on the move

EU-funded research to ensure urban mobility



STUDIES AND REPORTS

Driverless travel

Advances in control and guidance systems, sensor technology and interactive vehicle-to-vehicle and vehicle-to-infrastructure communications, many of which are at or near market readiness, will make the concept of driverless automated vehicles sharing public highways with conventional forms of transport a realistic possibility. Many aspects of what are collectively described as **automated transport systems** (ATS) are now being studied by researchers in the EU and throughout the world.

Automated metro trains and airport shuttles have been in service for a number of years. The potential benefits the newer kinds of ATS for city use include added flexibility and convenience to bridge the gap between private cars and public mass transport, more efficient use of road space, and reduced noise and pollution.

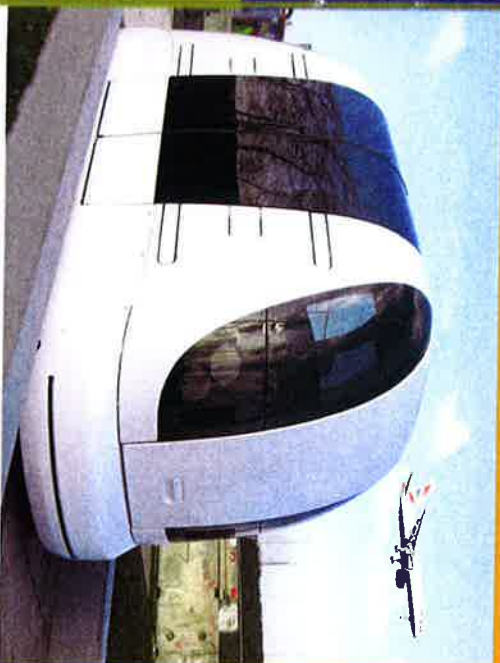
Since the late 1990s, there has been a strong resurgence of interest in the concept of **Personal Rapid Transit** (PRT), a form of demand-responsive ATS that was strongly promoted during the 1960s and '70s, but founded due to the lack of maturity of the technologies at that time. PRT uses small driverless electric vehicles – often called 'pods' – typically able to carry two to four passengers along dedicated rails or guide ways. At the time of writing, a world premier public demonstration of the Ultra PRT system developed in cooperation with the CITYMOBIL project series is undergoing extensive testing at Heathrow Airport, London. It is currently scheduled to commence commercial operation in autumn 2010.

In contrast to tramways and light rail systems, the principle is that users can summon a pod or join it at a convenient pick-up station, and instruct it to carry them in an unbroken journey to their selected destination.

To alleviate road congestion while maintaining a separation from general traffic, future **PRT networks** covering whole city areas can be envisaged as running entirely or partly on underground or elevated track ways, which are not massive structures and would require relatively modest infrastructural investment.

In the late 1990s, several projects supported by the European Commission developed a new concept which tries to fuse the concept of car-sharing with PRT: automated electric public vehicles known as 'cybercars', which can run on demand on existing urban infrastructures that also accommodate pedestrians, cyclists and even a limited numbers of cars. These can be restricted in terms of ownership (i.e. residents and public services) and/or speed.

The first such system operated in a long-stay parking lot at Schiphol Airport, the Netherlands, with four automated electric vans from Frog Navigation. These ran for several years from December 1997. Under the CITYMOBIL project, a new installation in Rome, Italy, will serve the city's large exhibition centre.



CITYMOBIL

Towards advanced road transports for the urban environment.

The CITYMOBIL project builds on the European and national projects to create automated city transport systems with vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication. It includes advanced city cars (with ADAS), and driverless PRT carrying up to four passengers, to micro-cars (with ADAS), and hybrid buses/tramways (cybercars) and hybrid buses/tramways. The project also includes manual control demonstrations with manual control. The demonstrations are already well advanced in Heathrow Airport (PRT), London, Rome centre (cybercars) and Castellón, Spain. The first European test track trials could begin in 2009. These will be followed by limited open-road trials. Europe-wide roll-out could be possible by 2015.

Showcase activities launched under CITYMOBIL continued in the follow-up CITYMOBIL2 project, which hosted events in Forcella, Italy, and Cluses, France, during 2009.

Coordinator: TNO – Netherland orga for applied scientific research (The Netherlands)

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EU funding: EUR 11 million

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Website: <http://www.citymobil-project.eu>