Annex 1

Task 1.3:**Assessment of the research state at the local level related to the European trends and demand analysis**

Technology field:
Non-conventional vehicles

Specific technology / solution:
Application of other non-conventional vehicles

Description of the technology / solution:

There are European research projects related to autonomous vehicles, where these are mostly electric vehicles. IPN were involved in the European project CyberMove, which consisted in developing new transport alternatives. In the end of the project, the MOVE vehicle was demonstrated in different locations, intended to demonstrate that the technology can be applied in different markets and that this has a potential to be commercialized.The main advantages of MOVE are that it this vehicle does not need rails or support structures (a normal road can be easily adapted), the intelligence is located in the vehicle with the capacity of obstacle detection, is a vehicle with zero emissions, among others.

Another European project which is under running is the FURBOT which proposes a novel concept architectures of light-duty, full-electrical vehicles for efficient sustainable urban freight transport. The idea is to develop an electrically efficient vehicle, sustainable, modular and autonomous with the capacity of freight handling robotization. Special attention will be given to the modularity of the vehicle in order to develop architecture to transport freights boxes or ISO pallets. The vehicle will use the most advanced technologies in the field such as the regenerative braking.

Main applications:

The main application of using these kinds of vehicles is:

- Freight distribution in cities;
- Home delivery of supermarket sales;
- Private environments (hospitals, airports, etc.);
- Historical zones;
- Warehouses stock distribution;

Use and results of applicationsdone:

Rovisco Pais Hospital challenged IPNlas to adapt the MOVE vehicle to transport patients between different departments, and to transport staff equipment's. This solution helps the patients that have mobility problems or patients that are hospitalized in a building and have their physiotherapy in another one. The system is working since 2010 with 2 vehicles interconnecting the different buildings.The following results were obtained:

- The total time to transport the patients and staff equipment between the different buildingsis reduced;
- The system is available on extended hours, giving freedom of movement to users and staff, which can be used without prior appointment;
- Perfectly adapted for people with reduced mobility;
- Ensures lower operating costs (diesel engine maintenance-free and driver);
- Environmentally Friendly(zero emissions);
- Flexibility (easily to adapt these vehicles for different applications).

Perceived potential:

The autonomous electric vehicles can be used in a variety of different environments, where the main advantage of these is that they are environmentally friendly and have low operating costs. The main problem of the electrical vehicles is the battery life, where in the future should be assured solutions for this limitation.

RTD activities in progress

- Test and experiment new business models to introduce the Electrical Vehicles in the logistics chains;
- Development of new technology in the fields of vehicle autonomy and filling stations;