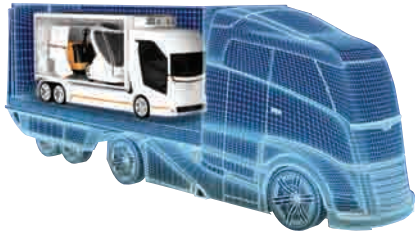


# SOLUTRANS

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INTERNATIONAL SHOW OF ROAD  
AND URBAN TRANSPORT SOLUTIONS



## NEW TRANSPORT MODES: WHAT IMPACTS AND CONSEQUENCES?

In spite of its longstanding history and experience, transportation by road, air, sea or rail has so far struggled to meet the dual objective of catering to increased freight or passenger volumes whilst reducing atmospheric pollution. Clean transport is consequently a key challenge which, fuelled by the explosive growth of technology, has given rise to new, more eco-friendly or alternative solutions: drones, delivery robots, electric two-wheelers, driverless freight shuttles, trams, Hyperloop, etc...

Because traditional modes of transport are no longer sufficient, new solutions today offer a glimpse of the future of world logistics.



## WHAT PROPOSALS FOR THE ECOLOGY TRANSITION OF TRANSPORT?

The vast majority of alternative solutions rely on non-polluting electric power but offer shorter ranges, thus reducing attainable distances compared with those of conventional transport modes.

Drones, for example, offer a way around the drawbacks of roads and make it possible to make deliveries in hard-to-reach areas over short distances. A multitude of projects and prototypes have resulted in the organisation of regular flights, in particular at DHL and Amazon. In China for example, DHL launched an urban delivery service in May this year out of its logistics centre in the city of Guangzhou, with drones capable of carrying parcels of up to 5 kg over an average distance of 8 km. In Europe, Mercedes is working on the integration of a drone or a delivery robot in its futuristic concept Vision Van. Elsewhere, autonomous robots could assist the deliverer in handling heavy parcels, or even automatically fill connected parcel lockers, for example.

Another point of interest is the development of environmentally friendly deliveries by electric bike or scooter which, while they remain negligible on a world scale, nevertheless create competition for some retail or food delivery services.

## ROBOTS TO OPTIMISE MOBILITY ON SITE



## THE CASE OF AUTONOMOUS SHUTTLES

With the advent of autonomous vehicles, shuttles are beginning to replace buses in some cities and could transport and deliver goods from urban depots. At the end of 2018, Renault unveiled its autonomous electric shuttle EZ-Pro, designed for goods deliveries in large cities. With DPDgroup (Chronopost), the manufacturer plans either to use a deliverer-planner if specific handling is required, or to operate the shuttle without human intervention. In the latter case, the shuttle carries boxes that the recipient unlocks using their smartphone. Here, the innovation is that the two shuttles can drive as a convoy, with the shuttle fitted with a cab acting as the "lead-out".

To support the deployment of autonomous shuttles for passenger and goods transport, the French transport minister Elisabeth Borne published a list on 24 April 2019 of the 16 autonomous road vehicle experiment projects (EVRA in French) approved under the "Investments for the Future programme" (PIA), subsidised to the tune of approximately 42 million euros in total. Among the selected projects, the Montpellier TwinswWheel scheme plans to deploy two logistics droids which will deliver either local products to local shops and restaurants in the city centre (with STEF) or parcels between logistics hubs and shops (with La Poste).

Logistics facilities are also witnessing the development through robotization of new means of transport for employees and goods. Gyroscooters, gyrowheels and electric bikes are used to optimise the movement of people around logistical platforms and reduce the use of combustion engine vehicles. In addition, robots travel unattended around the aisles of warehouses. Shuttles move around outside to ferry parcels to different order picking and loading points. These new handling modes act as assistance to people and take the strain out of physical tasks, whilst improving site productivity. They however also offer the adverse effect of reducing the number of people employed in certain job positions.

## FREIGHT METRO AND HYPERLOOP

Other innovative modes are under investigation, most notably at Siemens, which plans to incorporate an urban freight delivery function into its fully-automatic metros which could be used for courier services, online retail or fresh products. The aim is to combine passenger and parcel transport by incorporating robotic containers that can load and unload in the space of a few seconds. The future might also belong to transport capsules, as illustrated by the Hyperloop project which is making steady progress. Launched in 2013, this train running on magnetic levitation is a potential substitute to air travel, enabling the carbon-free transportation of people and goods at a theoretical speed of 1,200 km/h.



Hyperloop is still work in progress and requires massive investment, but in early June this year, the company Hyperloop Transportation Technologies presented the European Commission with the first set of regulations for the project. This series of directives, drawn up in association with TÜV SÜD, stems from the main safety requirements developed and presented by HyperloopTT. This is the first essential step in the launch of the Hyperloop system regulation process by the European Union.

## IMPACTS AND CONSEQUENCES



Currently, these new transport modes are still largely in prototype, proof of concept or test phase. Despite the strong development anticipated in alternative vehicles and solutions, their use should remain marginal over long distances. According to the Ministry of Transport in its outlook to 2050 which sets out several intermodality scenarios, using alternative modes would only cut road transportation by 4.5%.

However, new transport modes have more significant impact in urban areas and over short distances. They modify urban delivery patterns by placing greater emphasis on eco-friendly options, even if this might mean longer delivery times.

Using these modes will entail redesigning transport plans to factor in issues such as range, time and the availability of electric vehicle charging stations. Specific rules will have to be adopted on vehicles' roadworthiness to guarantee their compliance for goods transport and to clarify the issues of liability and insurance in the event of an accident. In its November 2018 report on new mobility, the French Senate recommended the loosening of legislation, the set-up of a new regulatory authority and the award of financial grants to promote new forms of mobility.

## NETWORKS TO BE BUILT



Beyond the vehicles themselves, substantial investment must be made to deploy the networks that are needed by electric and autonomous vehicles: charging stations networks, IT networks to guarantee the interconnection of all the systems and infrastructure exchanging data in real time, networks of automated drop-off or collection points, and urban warehouses.

Eventually, transport operators will be required to join together a number of modes to reduce their carbon footprint and extend their range of services. Their job will increasingly revolve around managing and controlling automated or remote-controlled transport systems, leaving robots with the task of driving and delivering goods.

### TO FIND OUT MORE



Transport economics (in French)

Senate report on new mobility (in French)



16 projects for the development of autonomous vehicles (in French)



Navya: autonomous shuttles



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