

Dear Members of the EU Commission,

After reading your communication on: "A sustainable future for transport: towards an integrated, technology-led and user friendly system", I feel a certain need to react upon this altogether rather good document, because in my conviction it is missing some points, which are crucial in view of creating a sustainable mobility of people and goods. Indeed, "transport is a complex system depending upon multiple factors...", whence you rightly stated that "any intervention on the transport sector must be based on a long-term vision...", hence my following suggestion.

I do not understand that in preparing a white paper for the next decade(s) concerning a most fundamental human right and socio-economic asset at the same time, viz. our mobility, no interest, no attention, ... is paid toward the potentiality to create new modes of transportation!? One of the most important – if not the most important – reasons for today's traffic problems is related to shortage of capacity in relation to the ever growing demand for freight and passenger mobility. In your communication of course plenty of improvements in the field of existing transportation, traffic management and integration of modal networks are proposed in order to increase the transport capacity, true, but none of them is really capable to structurally improving the continuing degrading transport situation all over the world, but especially in Europe. The huge additional capacity we need in view of the further growth in world population, income and travel behaviour in the frame work of a global demand-driven economy, will only be guaranteed by creating one or more new "ways" of transport, as it has been the case during the last two centuries – think of the introduction of railways, pipelines, motorized cars, air transport, internetting, etc.

I recently prepared a vision article for "MOVE" to be published soon in the 5<sup>th</sup> Conference book, which comprises plenty of arguments to understand my point. I therefore include this short paper hereunder. If you like I am also prepared to defend my viewpoint by means of an extended power point presentation full of facts and figures.

Please accept my best regards,  
Willy Winkelmanns

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## Sustainable mobility: a dream or a necessity?

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Since globalisation is taking place the transport industry is one of the most rapid growing activities, that much that freight transport based upon the produced ton kilometers has been growing at higher pace than the underlying economic determinant – e.g. the GDP – at least since last two decades. One and another is the result of:

- Ø growth of world population and income per head
- Ø growth of economic activity due to globalisation and liberalisation
- Ø growth in terms of specialisation and diversification
- Ø growth in socio-economic flexibility as regards localisation (shifts), production (quantities) and consumption (habits)
- Ø growth of containerisation, telecommunication, internet, etc. representing new ways of transportation enhancing delocalisation or relocation of industrial plants and commercial firms.

Consequently, our civilisation is more and more confronted with negative external effects of transportation, such as horizon and air pollution, congestion and traffic accidents. This is occurring all over the world as a function of the continuous growth phenomena. The consequence thereof is an aggravating imbalance between the demand for mobility – both in terms of passengers and freight - and the supply of transport - mainly in terms of infrastructure. Traffic congestion on roads e.g. is becoming a real structural problem and is no longer just an accidental phenomenon. On the other hand the amount of necessary investments in infrastructure has been declining seriously since last decennia: in Europe e.g. on an average 3% of the GNP went to transport infrastructure in the seventies, whereas since the eighties merely 1% is budgetary reserved for such investments. No wonder that finally a disturbing discrepancy came into existence between demand and supply, i.e. between the ever lasting increase in demand for more mobility and the relatively shrinking available transport capacity.<sup>[1]</sup>

Social science states that absence of “equilibrium” sooner or later always creates undesirable side-effects. No wonder thus that especially in and around large cities traffic congestion and the related queuing or waiting times often cause a lot of discontent, whence intolerance, unhappiness and even social hostilities together with various accidents and fatalities arise amongst carriers and travellers.

According to the economic theory “price” can be considered as an instrument to keep balance between demand and supply. However in the field of transportation this is not that easy for plenty of reasons. The conviction that mobility is not just a private economic good but a public good as well – think of the idea of mobility as a human right – slowly but steadily has been creating a gap between demand and supply of transport, so wide that it cannot be bridged by “pricing rules” only. Moreover, the success of globalisation is largely depending upon “cheap transportation”! On the other hand it is true that sustainable mobility will only be achieved when transport users are confronted with the integral cost of their transport demand. Up to now this seems to be a dilemma. Hence, we need innovative thinking, even out-of-the-box.

Ultimately a modern mobility policy should take care of the urgent needs to increase the capacity of transport substantially, irrespective of the mode of transport, and the more because current measures to reduce speed on roads result into a lower traffic capacity as well.

Extension of transport capacity can be realised in various ways: by extending existing “roads”, by bringing into use larger vehicles, by re-organising transportation

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<sup>[1]</sup> Mind that the shortage in infrastructural investment is also responsible for failing intra- and inter-modal interconnectivity. Inland navigation and railway transport are by nature less ramified than road transport, but on top these environmentally friendly modes are weighed down by the existence of a high degree of dis-connectivity (cf. differences in rail tracks, blind waterway alleys, etc.).

spatially and timely (i.e. by disconnecting the (fast) passenger transport from the much slower freight transportation and by using all 24 hours per day), and by implementing technological improvements such as double stacked railway wagons, enlarged pushing convoys, OR ... by creating “new ways (modes) of transportation”! Because almost all surface transport capacity extensions are confronted by severe limitations in speed and size as a function of the density of population and the existence of biotopes, especially in and around towns and natural parks, surface transport does no longer really present a structural solution for the degrading mobility over land in Europe and the rest of the world soon. Hence, we believe that, given the continuing enormous transport expansion all over the world (in terms of vkm, tkm and pkm), a sustainable balance between demand and supply in mobility can only be achieved by the realisation of one or more new modes of transport.

The feasibility of a new transport mode depends of course upon its cost recovering potentiality. But first of all, let's not forget that every transport mode requires huge amounts of capital and in the end needs to excel in low energy consumption. Hence, a new transport mode therefore should ideally possess minimally following qualities:

- low spatial intensity, i.e. transport networks preferably to be developed in the air or underground;
- optimal market segmentation, i.e. dislocation of passenger and freight transportation as far as possible;
- highest possible safety and security guarantees;
- very high velocity whenever required;
- highest possible energy efficiency and
- lower and positive ecological footprints.

Over centuries new transport modes have come into operation: why should this no longer be possible right in a period, an age, of vigorous and energetic technological evolutions and innovations more effective than ever before? Today, there at least two new modes of transportation, which are fairly well ready to get installed gradually, i.e. “airships”<sup>[2]</sup> and “UTT” (Underground Tubular Transport).

Technologically and economically these new modes of transport have been studied thoroughly. Moreover, technologically neither construction nor maintenance of UTT today poses any problem: a new breed of (tunnel or tube) boring machines has been borne. The so-called “pipe-jacking” is an auto-guided drilling and building machine for tubes with diameters ranging from 1 to 7 meter up to 50 m underground. This kind of underground building incurs practically no nuisance worth mentioning

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<sup>[2]</sup> These hybrid aircrafts were first developed by the US army. They are now called “skyfreighter” and are ready to become commercialised by the Hybrid Aircraft Corporation™. They can transport general cargoes up to net payloads of 1000 tons at a speed between 188 and 222 km/h over a range w/o refuelling of 10,000 km!

above ground. Every two kilometres a “construction pit”<sup>[3]</sup> is built, from where the pipe-jacking will create fully finished tubes at a speed of about 1m per hour. In other words every 3 months a fully finished underground “road” of more than 2 km can be built!

Yet, what is needed is the establishment of specific pilot projects in order to demonstrate their fitness as a new mode of transport. Especially the concept of “Underground Logistics Systems” (ULS) deserves getting more interest given all the before mentioned mobility issues. The creation of a broad social basis and positive commitments by representatives of the government, the shippers and the carriers is therefore highly needed.

In this relation it is useful to understand the fundamental difference between tunnels and tubes: a tunnel is a “road” which allows above ground transportation to continue under water or under ground for a shorter or longer while. Tubes represent a new kind of infrastructure, allowing new (adapted) vehicles to operate underground.<sup>[4]</sup>

At the moment some relevant UTT-projects can be mentioned, which are more or less ready to be finalised:

1. “UNIT (URBAN) TRANSPORT by PIPELINE” or “OLS AALSMEER – SCHIPHOL” (The Netherlands), connecting the flower auction with the airport of Schiphol;
2. SWISSMETRO connecting all big cities in Switzerland by means of high speed trains running at a speed of 500 km/h in partial vacuum tubes by contact free magnetic induction motors;
3. UCM<sup>®[5]</sup> a tri-modal underground transport system connecting the Deurganckdok (Left Bank of the Port of Antwerp) with various container terminal gates at the Right Bank (incl. railway shunting yard and inland navigation berths) and if necessary other terminals outside the port.

In conclusion: if the necessary technical, ecological and economic feasibility studies prove to be positive – which for some has already been the case – and if one takes into account that many above ground transport infrastructures and constructions often require extra works to protect the surrounding environment - think of under tunnelling or bridging rivers, lakes, canals, ... and the baffle and wind screens - and knowing that above ground maintenance and operation costs are rather high, it can

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[3] Remark that these vertical shafts can be used as emergency exits as well as entrances for inspection and maintenance.

[4] Tubes are monolithic and therefore very solid and robust. Tubes with prefab concrete elements in combination with steel core plates are so sustainable that a 50 year guarantee on the construction can easily be given.

[5] UCM (Underground Container Mover) is the proposed codeword by the construction firm DENYS Company Lt.

be stated that UTT finally is not at all that expensive! On the contrary, on a life cycle basis it guarantees best of all modes a real sustainable mobility, the more because intrinsically it effectively possesses high valued advantages, such as:

- very small spatial implications
- preservation of all above ground opportunities (so-called double space use)
- very high performance in terms of frequency, speed, reliability and accurateness
- very good performance in terms of rotation times, capacity and capacity utilisation (cf. the absence of bad weather circumstances, congestion, etc.)
- extreme low social transport cost or life cycle cost, compensating largely the relative high construction cost.

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