

INTRODUCTION OF LONGER & HEAVIER VEHICLES

IMPACT ON ROAD INFRASTRUCTURE

FOREWORDS

In USA: Transportation Research Program

"In US there are changing patterns resulting from the North American Free trade Agreement (NAFTA). To provide a seamless and efficient national highway transportation system, it is important to ensure that the criteria for roadway geometric design are appropriate for the current and anticipated fleet of heavy trucks on US highways.

Research is needed on the dimensions, performance and operational characteristics of the current and future fleet, so that these characteristics can be evaluated and accommodated on a consistent basis in geometric design standards."

(NCHRP report 505, "Review of trucks characteristics as factors in roadway design"- Transportation Research Board of the National Academies).



The European Commission is considering the relaxing of the permissible weight and length of the so-called “gigaliners”, vehicles measuring up to 25.25 m and weighing up to 60 tons, for the whole of the European Union transport network. Such trucks are already in circulation in Finland and Sweden due to the specifications and peculiarities of these States.

Studies funded by the E. Commission/NO Consultation of infrastructure providers:

ASECAP and its members have been informed on the results of two studies funded by the E. Commission on the introduction of heavier and longer vehicles on the European roads.

Both studies¹ examine the issue “statically” from the point of view of the automotive industry. In a rather oversimplifying model, the studies note that the direct effect of the introduction of gigaliners to the road transport matrix will be positive, i.e., less transport movements, less congestion, less environmental externalities, less energy consumption.

The studies stay silent on the fact that the above targets can also be achieved by a better use of the existing “conventional” vehicles, better transport management, better use of infrastructure, efficient use of cabotage opportunities, deployment of ITS instruments, use of logistics and of course the translation of the term “co-modality” in the real transport world.

ASECAP notes that the studies cover marginally and in a poor way the crucial parameter “road infrastructure”. They do not reflect the views of all major stakeholders since infrastructure managers were not even consulted. It is not a secret that infrastructure managers are the parties responsible for the operation of their infrastructure networks, able of assessing whether EU primary road network (mainly TEN’s) has potential for accepting new vehicle dimensions and under which conditions.

¹ “Effects of adapting the rules on weights and dimensions of heavy commercial vehicles as established within Directive 96/53/EC” and “Introducing Mega-Trucks, A review for policy makers”



Impact of 60 tones vehicles:

Facilitate Mobility for people and goods?

A new fleet, consisted of vehicles with different technical characteristics, must be built:

What is the real cost of such an investment at European level?



Introduction of this fleet requires

Appropriate road infrastructure network & innovative solutions

New infrastructure specifications and standards able to meet the new requirements must be defined. Such standards must be accompanied by a serious and reliable calculation of the cost of the needed investments in the road infrastructure network. These investments will be necessary to maintain the same transport quality (comfort, safety, average speed, infrastructure quality, etc)



To achieve clean, smart, safe & secure movements

After defining the problems to be solved, the policy makers must always examine the different alternatives, measure them properly and finally decide accordingly. All measures examined must be always accompanied by detailed benefit-cost analyses identifying all the relevant benefits and costs of all the transport stakeholders involved.



Impact of gigaliners on road infrastructural capacity

ASECAP considers that the policy makers, when examining the introduction of longer and heavier vehicles into the system, must first take into account the absorption capacity of the infrastructure sector.

More specifically, they must consider the following infrastructural aspects as key elements/inputs for their analyses:

Motorways built in Europe are designed to meet the existing standards of weights and dimensions which are valid for over 45 years. The existing motorways' network is not designed for longer and heavier vehicles. The basis for national and European regulations and therefore also for infrastructure planning & building is Directive 96/53/EC which sets out the maximum allowable vehicle loading dimensions in national and international road transport in the EU. A general review of these legislation would lead to massive investments and infrastructural adjustments:

- **Negative effects on bridges bearing structures;** bearing structures have to be massively reinforced due to the higher loads but also to maintain the current safety standard (in cases of a crash, higher dynamic stresses which are triggered by mega-trucks must be absorbed by crash barriers of greater dimensions. Since these dynamic forces must also be absorbed by the bearing structure, this too would have to be massively reinforced);
- **Negative effects on Tunnels;** several European countries have territorial characteristics (Alpine regions etc.) that consequently lead to remarkably high proportion of tunnels. Increasing the maximum authorized truck dimensions also increases the fire load (proportionally to the cargo which is carried). This requires massive structural changes to the tunnel cross-sections. The parking niches/breakdown bays and the dimensioning of the cross cuts have not been dimensioned for gigaliners. The safety



installations and the estimation of the potential for danger would thus have to be completely reassessed;

- **Access/Capacity limits to rest areas and parking lots;** as it is mandatory to conform to driving periods and rest periods obligations, mega-trucks would cause serious difficulties in terms of secure parking capacity;
- **Difficulties on links between primary and secondary roads** (ie.: junctions, roundabouts); applicable regulations and parameters for road construction refer to the "standard vehicles" which are currently in use. In this context it must also be stated that in almost all cases a journey begins and ends on the secondary road network. It is necessary therefore to take the structural conditions of this network also into account;
- **Lack of sufficient data and records on the impact of gigaliners circulating simultaneously on the same stretch.**



Impact on Road Safety

A general introduction of 60 t. vehicles is not compatible with the ongoing EU Road Safety targets. The following aspects must be carefully taken into consideration:

- **Impacts of accidents** would be more serious with a likelihood of an increased fatality rate;
- **Tunnels safety** at risk! Several European countries have territorial characteristics (Alpine regions etc.) that consequently lead to remarkably high proportion of tunnels on the primary road network. Tunnels cross-sections, parking niches/breakdown bays and ventilation ducts would need massive readjustments;
- The **psychological impact** to light vehicles' drivers behavior should not be underestimated;
- Existing standards for **guardrails/crash barriers** are not adequate for 60 t. vehicles;
- **Access limitations to emergency parking** in cases of breakdown; parking niches are not dimensioned for longer vehicles;
- To **retrieve gigaliners in cases of breakdown**: special equipment would be needed which is not a standard for fire brigades or breakdown services → high risk for emergency procedures following accidents;
- **Enforcement will become a problem** as the existing enforcement rules for Heavy Goods Vehicles are not conceived to control weights, load and general status of gigaliners → transgressions, a major risk for traffic safety - cannot be controlled or enforced;
- **Vulnerable users**, and in particular powered two wheelers, would be more at risk.



Conclusions

Taking into account that:

- a) gigaliners **require massive investments** on both sides of the road transport market, i.e. the road haulage industry and the TERN infrastructure network.
- b) the primary and secondary **road networks in Europe are not designed** for vehicles with weights of 60 t. and dimensions up to 25.25 m.
- c) if no infrastructure measures are taken, mega-trucks will be a **major risk** for EU's objectives in terms of accidents and fatalities reduction.
- d) the needed **investments on the TERN are far higher** than the ones assessed in the EU Commission funded studies which do not include important parameters.
- e) the following **indicative list** of additional issues has to be thoroughly scrutinized:
 - Incidents management
 - Noise limit requirements
 - Pavement damage

ASECAP asks the policy makers to re-open the studies and invite their authors to go beyond the limited group of stakeholders they have consulted and ask the scientific input of road infrastructure operators and their experts, in order to seriously assess whether the EU primary network is ready to absorb 60 t. vehicles traffic.

ASECAP reminds that the free circulation of gigaliners on the European motorways, tunnels and bridges would affect different elements of the transport industry and – mainly – infrastructure managers who provide a safe, secure and efficient mobility on their networks. For these reasons, ASECAP invites all the parties involved to re-examine every aspect related to the introduction of mega-trucks on European roads and consider under which conditions the structural capacity of the infrastructure network can accept such vehicles.

