

THE EU'S RULES ON WEIGHTS AND DIMENSIONS AND THE REALITIES OF SUSTAINABLE MOBILITY

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Abstract

This paper describes the position of Heavy Goods Vehicles within the EU Commission's evolving transport policy. The paper commences by establishing the continued upwards trend in freight growth, made more so by the accession into the European Union of the ten central European States. It discusses Co-Modality, the maximisation of the efficiency and effectiveness of each transport mode, acting individually and collectively, from the backdrop to the Commission's recently launched 'Logistics action Plan', which included the highly controversial topic of truck 'weights and dimensions' limits, as dictated by Directive 96/53. The paper presents the study that was launched in December 2007 that aims to give answers to this issue.

Keywords: Freight transport growth, Co-Modality, Sustainable mobility, Action plan on logistics, Truck weights and dimensions legislation, Modular concept.

Résumé

Cet article décrit le rôle des poids lourds dans l'évolution de la politique des transports de la Commission Européenne. Il commence par rappeler la tendance haussière continue de la croissance du fret, due à l'entrée dans l'Union européenne des dix états de l'Europe centrale. La co-modalité, l'optimisation de l'efficacité et de la capacité de chaque mode de transport, considéré individuellement et collectivement, sont présentés dans le contexte du plan d'action sur la logistique lancé récemment par la Commission, qui intègre le sujet hautement controversé des limites de poids et dimensions des camions fixées par la directive 96/53. L'étude lancée en décembre 2007 qui vise à apporter des réponses à cette question est présentée.

Mots-clés: Croissante du transport de fret, co-modalité, mobilité durable, plan d'action sur la logistique, réglementation des poids et dimensions des camions, concept modulaire.

1. Transport growth

The following background to freight transport in the EU is extracted from the Commission's Common Transport Policy White Paper review—"Keep Europe Moving" and the recent public consultation by the Commission concerning 'Internalisation of Transport Cost externalities'.

Transport services play a central role in modern society and economy. They account for 4.3% of EU's value added and employ about 8.5 million persons.

Over the past decades, transport has increased in line with economic growth. Thus, freight transport growth has been 2.8% per year on the period 1995-2005 while the real GDP grew by 2.3% per year on the same period, at the same time passenger transport has grown 1.9% per year. Freight transport demand has increased more strongly for modes offering greater flexibility, in particular road transport.

The EU enlargement has had an important impact on all the drivers of transport demand; the size of the Union has expanded by almost a quarter with enlargement. Up to 2006, i.e. before the Accession of Bulgaria and Romania, enlargement had similar effects to the previous enlargement to Spain and Portugal, with rates in cross-border traffic with the new Member States growing at 10% per year.

Table 1. Freight total growth (in %).

| Growth (1998-2004) | Road | Rail | IWW | Pipelines | Sea | Total |
|---------------------------|-------------|-------------|------------|------------------|------------|--------------|
| EU-15 | 19.00 | 6.0 | 3.4 | 2.6 | 21.6 | 17.8 |
| EU-10 | 40.4 | -3.5 | -15.8 | 15.0 | 21.7 | 19.9 |
| EU-25 | 21.5 | 2.7 | 2.7 | 6.0 | 21.6 | 18.1 |

EU-15 are those 15 Member States who were the members of the European Union up to 2004; EU-10 are the 10 Member States that acceded to the EU in 2004; EU-25 are all member States bar Romania and Bulgaria who acceded to the EU in 2007.

2. Objectives for future

The future EU transport policy needs to provide the mobility for economic growth and social welfare while, in parallel, tackling the negative effects that the increasing transport causes.

These wide objectives may be addressed via four complementary directions: (1) developing and improving economic and resource **efficiency** of transport modes and systems; (2) ensuring high level services and **protection** to users and their environment, while integrating the social dimension of the transport industry; (3) increasing the deployment of new **technologies**; (4) and strengthening the role of EU at the **international** level.

Developing and improving economic and resource efficiency is the key objective of the Lisbon strategy. A higher economic efficiency will enable a reduction of transport costs and the resources used. Freed resources, e.g. in work time and energy savings, may thus be put to better use in other sectors of the economy or in improved transport services. More and/or better mobility will foster the productivity of the European economy and the Union's global competitiveness.

The use of the existing infrastructures has to be reconsidered. Better network management and the intensive use of the new technologies are required in order to improve the quality of the services rendered, and to reduce, if necessary, the needs for new infrastructures.

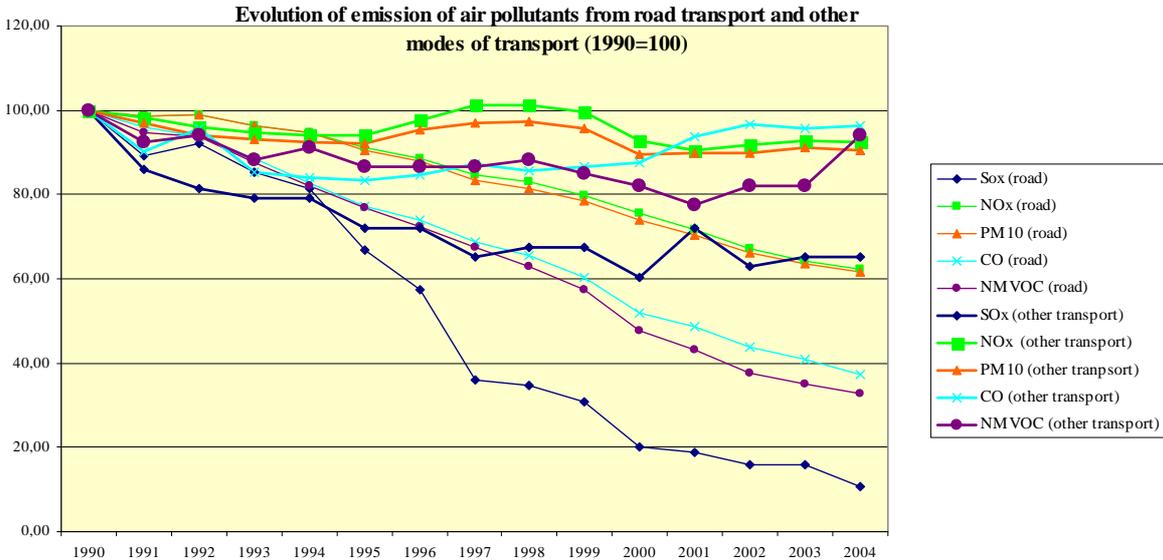
Also, a comprehensive and pragmatic transport policy introducing a variety of organisational and technology using measures, ranging from logistics to ITS deployment, will contribute to reducing the costs of freight and passenger transport in terms of time, money and environmental impacts.

3. Transport's 'externalities'

Although the benefits of transport services are widely acknowledged, transport activities generate nuisances/costs to other transport users, but also to society in general, including the local population and future generations. More specifically, transport growth may lead to the need to increase infrastructure capacity of several modes and is continuing to exert pressure on air quality, the climate and land use. Furthermore, noise is still a nuisance for many people, and fatal and serious accidents (in road transport) remain at an unacceptable level.

Transport produces external effects that have an impact on most of the population notably in urban areas. The total social cost of road provision and use (excluding vehicle operating cost) amounts on average to some 4% of GDP in Western Europe. The social costs are divided as follows: infrastructure costs 1.5%, congestion around 1%, external costs of accidents 0.5%, air pollution 0.6%, noise 0.3% and global warming 0.2% (UNITE study 2004).

Although efforts have been made to reduce pollution (Figure 1), gas emissions and noise, some environmental damages continue to increase, affecting a large number of citizens (health) and the ecosystem (biosphere, soil, water...).



Source: Eurostat

Figure 1 – Evolution of emission of air pollutants from road and other modes of transport.

Noise emitted by transport has detrimental effects on health with the WHO recently showing that the magnitude of health effects from exposure to traffic noise is very significant. Although several Community measures have been taken to reduce noise pollution, there is no evidence that the exposure to transport noise has been substantially reduced. Air pollution still remains a challenge in dense and high traffic areas.

More worrying are the trends of greenhouse gases emissions. Global warming imposes costs to future generations and should be tackled from now as transport is a large and soon to be the largest contributor to greenhouse gases emissions. Currently, 26% of CO₂ come from transport of which 85% are from road transport. CO₂ emissions from transport have increased by 29% from 1990 to 2004 while CO₂ emissions in other sectors of the economy (industry, households etc.) have been reduced or stabilised. However, the evolution is not homogeneous across modes of transport and inland navigation and rail have reduced emissions of CO₂ over the past decade (Figure 2).

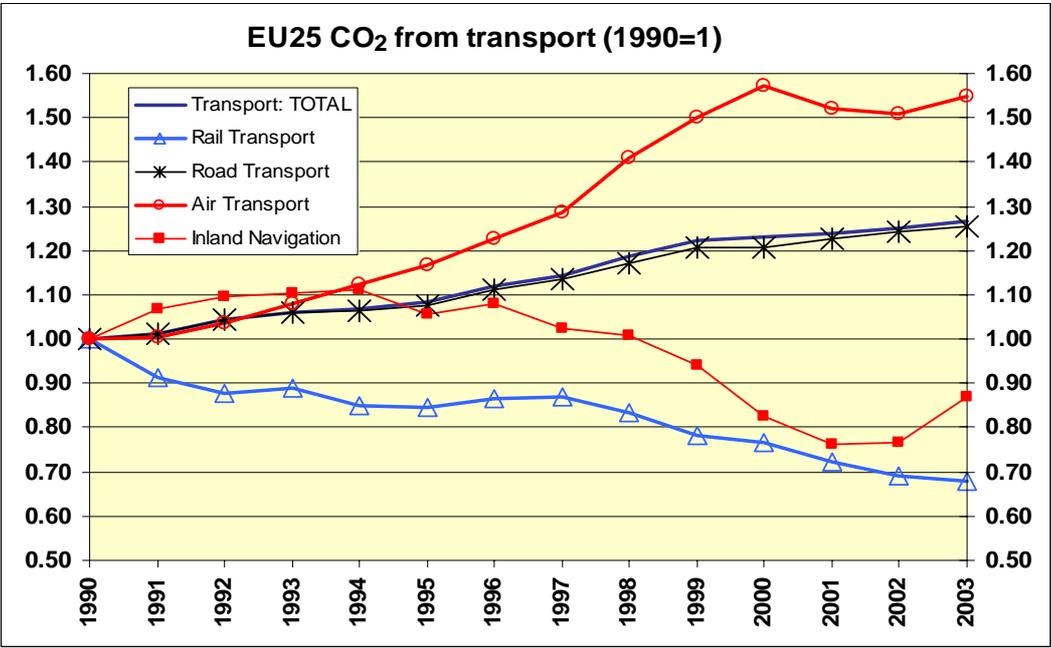


Figure 2 – EU25 CO₂ from road transport (1990-2003).

Road fatalities are unacceptably high although they have decreased by 21.4% between 2000 and 2004 in the EU as a whole (Figure 3). In 2005, there were still 41 274 persons killed in EU25. Besides high private costs due to loss of relatives or friends, accidents impose costs to society (medical costs, police costs, material damages...), which are only partially covered by existing insurance systems. Furthermore, accidents may also imply non recurrent congestion problems when traffic is dense, increasing travel time spent for other users.

Heavy goods vehicles (HGV) account for around 1/3 of the external costs of road transport and the road transport level of internalisation is between 0.5 and 0.6. However, a more disaggregated perspective highlights the disparities of the situation. More specifically, passenger cars are already paying for the social costs of their use which is not the case for heavy goods vehicles.

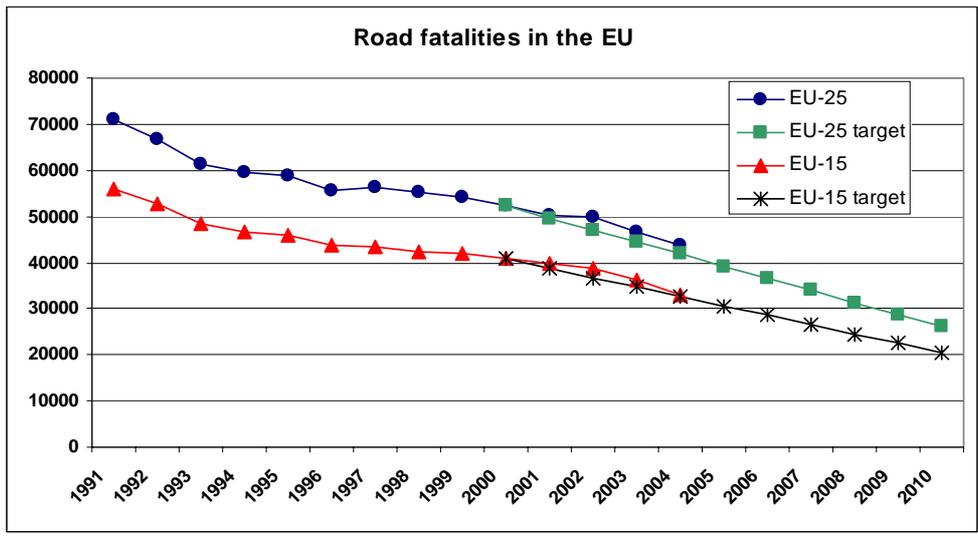
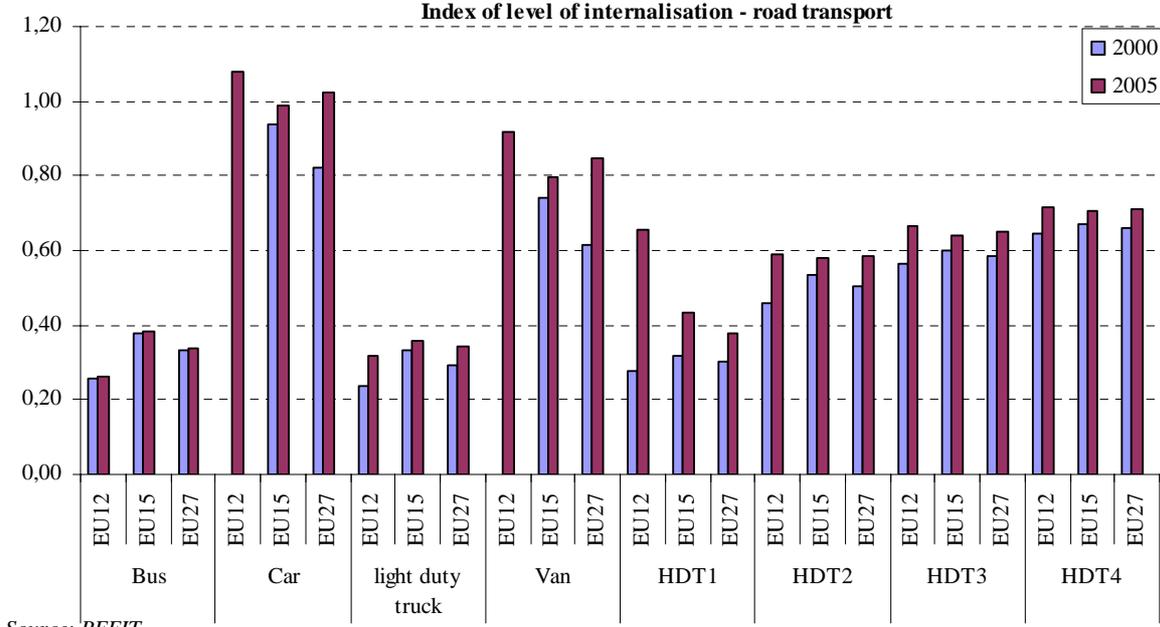


Figure 3 – Road fatalities in the EU (1991-2010).



Source: REFIT

* Data on taxes not available for new Member States before 2004
 **HDT1: heavy duty truck 3.5-7.5t; HDT2: heavy duty truck 7.5-16t, HDT3: heavy duty truck 16-32t, HDT4: heavy duty truck > 32t. EU12 are the 12 Member States of the EU up to 1995, EU15 included the accession of the 3 new MSs in 1995, and EU 27 is how the EU is today

Figure 4 – Index of level of internalisation – road transport (2000-2005).

The level of internalisation also differs between countries (Figure 4). For example, in countries such as Luxembourg or Austria, the index might be negative for trucks. Rapid growth of freight transport by road with consequential congestion, road accidents and pollution caused by heavy road transport are amongst the economic, social and environmental problems that need to be tackled by increasing the share of intermodal transport operations. European competitiveness needs to be maintained and transport is an essential part of this process. Advanced and integrated logistics solutions would allow freight transport operations to be carried out optimally in all circumstances thereby giving Europe a competitive edge.

4. Co-Modality

The 2006 revision of the Transport White Paper "Keep Europe Moving" (COM2006a) concluded that the EU needs to establish a framework that encourages improvements to the individual modes of transport as well as their combinations in multi-modal transport chains for a sustainable transport system. Better utilisation of transport infrastructures, protection against fossil fuel-induced price increases and a reduction of the negative environmental and social effects should be the principal objectives of such a policy. For the more remote regions of the European Union, competitively priced access to the major markets remains an important concern. The key to achieving these objectives lies in the notion of co-modality: the efficient use of transport modes operating on their own or in multi-modal integration in the European transport system to reach an optimal and sustainable utilisation of resources.

The European Commission issued a Communication on Freight Transport Logistics in Europe (COM2006a) in June 2006. The document highlighted the economic importance of the European logistics sector and identified a number of areas for possible action at European level, suggesting that these should be further developed in a logistics action plan.

5. A review on the size and weight of heavy goods vehicles

The Commission's Action Plan on Logistics, launched on 17th October 2007 included, as one of some thirty action areas, the need to examine whether an update of Directive 96/53/EC is warranted, in particular in relation to the modular concept's use in international traffic and subject to any necessary qualifications, to review the conditions under which current vehicle weight and size limitations should be maintained.

5.1 Background

The 2006 revision of the Transport White Paper "Keep Europe Moving" (COM2006b) in introducing the concept of Co-Modality concluded that the EU needs to establish a framework that encourages improvements to the individual modes of transport as well as their combinations in multi-modal transport chains for a sustainable transport system. Better utilisation of the transport infrastructure and a reduction of the negative environmental and social effects are the principal objectives of such a policy.

5.2 Freight vehicle weights and dimensions legislation

The Commission considers that "the rules on the dimensions of vehicles and loading units should match the needs of advanced logistics and sustainable mobility" (COM2006a).

Directive 96/53/EC sets out the maximum allowable vehicle and loading dimensions in national and international road transport in the EU. However, while the Directive harmonises across the EU the maximum dimensions of road vehicles and sets agreed levels for weights that would permit free circulation throughout the EU, it permits different national rules on the maximum weights. Member States may deviate from the maximum dimension limitations in national transport in certain pre authorised circumstances, the 'modular concept' or as it has been called, the 'gigaliner' or the 'Euro-combi' being the most relevant example. Also, various industrial sectors have argued for an easement in the weights and dimension restrictions to accommodate more efficient loading (i.e. more pallets or passenger cars) or to carry a heavier payload.

The Commission is examining the option of adapting Directive 96/53 to take account of technological developments and changed transport requirements, in particular as regards:

- The potential for heavier two vehicle combinations, perhaps allowing 44 tonnes on six axles for general cargo or for carrying all types of Intermodal Loading Units (ILUs) in combined transport operations. Currently, the possibility of using the 44 tonne two vehicle combination in international transport is limited to a three axle motor vehicle with a two or three axle semi-trailer carrying a 40-foot ISO container as a combined transport operation (Directive 96/53/EC Annex 1, point 2.2.2);
- Operation of the modular concept or a variation thereof in international transport (by the adaptation of Directive 96/53/EC-art. 4(4(b)), subject possibly to strict criteria on the vehicles and their equipment, on drivers, on the roads permitted and subject to weight limitations. The modular concept is a vehicle combination composed from vehicle units that are themselves within the statutory dimension limits but in combination could be longer than the maximum authorised length of the usual two-vehicle combination of a tractor/semi-trailer (16.5 m) and the truck/trailer combination (18.75 m). In its 25.25 m version currently used the modular concept's load space is therefore around 50% greater. The feasibility of non-modular combinations within the overall limitations shall also be examined;
- The use of 45 foot (13.72m) long containers in cross-border transport operations;
- Introduction of harmonised loading dimensions such as the overhang for car transportation.

Directive 85/3 (the first to set standards for international transport) and the consolidated Directive 96/53 have served Europe well. By establishing rules in international transport the Directives have been vital for the EU's transportation policy: this fact is recognised by both the logistics and the vehicle manufacturing industry (both motor and trailer/semi-trailer). However, the Directive was not capable of harmonising the maximum weight limits within national transport or the maximum dimensions of a fully loaded vehicle. Both impede free circulation.

Today, as against twelve and more years ago when the freight vehicle aspects of the Directive were last adapted, there is an array of road safety and axle/tyre/suspension improvements that can mitigate the negative effects of bigger and/or heavier vehicles and vehicle combinations. Trials have been done, are ongoing or are planned that aim to assess and quantify the effects of the modular concept's use in both international as well as national transport. These trials, together with the experiences of Sweden and Finland who already operate the modular concept, have assessed the modular concept's effect on: the likely reduction in the number of freight journeys, congestion, fuel efficiency, business efficiency, CO₂ emissions, road safety, road damage, modal shift, impact on bridges and roads, adaptation and classification of the infrastructure, traffic flow etc.

Allowing the modular concept into international transport is a key objective for a number of freight shippers and commercial businesses. It is also the most prominent concern of the combined transport operators who fear the modular concept will adversely affect their industry and hence the potential for shifting road freight to rail through combined transport operations. Several Member States are showing enthusiasm for the concept while some others are hostile but most are, like DG TREN awaiting the results of the trials and their evaluations. The request for change comes from equipment suppliers and logistics operators that are concerned about the capacity of the transport system.

5.3 Purpose of the study

DG TREN has sought external expertise to assess the trials that have been done or are ongoing and provide technical assistance to gather key stakeholders opinions and to present recommendations as to whether the Commission should support the adaptation of Directive 96/53. If so, then recommendations are needed on whether any adaptation regarding larger or heavier vehicle configurations should be supported by imposed restrictions on their use (e.g. restricted to designated routes), the driver's qualifications and aptitude and the vehicle's particular technical standards and maximum weight and which matters can be left to bilateral agreement between adjacent Member States who wish to operate these vehicles.

The study will gather and synthesise the data on various studies and experiments on bigger and heavier vehicle and vehicle combination limits, including the use of the modular concept in Europe as well as the use of similar, longer and/or heavier vehicle combinations by third countries, e.g. USA, Australia. The project should in addition gather a sufficiently broad collection of experience (national administrations, police and traffic enforcement departments, commercial vehicle manufacturers, freight forwarders, shippers, combined and Intermodal transport operators, road safety organisations, environmental groups, other road users, infrastructure specialists, transport economists, scientific institutes as well as potential users) and should assess and provide technical documents for discussion of the various scenarios. It shall also provide quantitative and qualitative data to help the Commission carry out its impact assessment on any proposed adaptation.

The Study will focus on the effects, both positive and negative, of the use of bigger and/or heavier vehicles, including the modular concept in its various forms and at various maxima weight levels in and between adjacent and consenting Member States. The effects will be on:

1. Road safety - the effect of bigger vehicle combinations in traffic, albeit on designated routes in isolation and as a comparison with equivalent conventional two-vehicle combination movements;
2. Energy efficiency and CO₂ emissions per tonne-km and per vehicle-km and then overall for the Member States involved with likely projections for the EU as a whole;
3. Noxious emissions (effect on PM and NO_x levels) and the contribution the concept has towards meeting or transgressing the statutory emission levels;
4. Effect on road infrastructure, bridges, parking, loading, transportation;
5. Effect on Combined Transport and other Intermodal transport operations;
6. Effect on meeting current and future freight transport demand.

The task of the contractor will be to:

- (1) Review available, relevant literature
- (2) The study shall assess the economic, environmental and social effects of any policy change and produce relevant transport and market scenarios for a short to medium (2015/2020) timeframe preferably by modelling or by adapting existing transport demand models.
- (6) Organise a set of targeted interviews with experts from industry, combined and Intermodal transport operators and users and member State representatives;

5.4 Policy options

Assessment will be on the impact of increasing conventional vehicle and vehicle combination weights and dimensions limits. The policy options that are to be considered are:

- Option A: "business as usual"-no adaptation of the Directive with the modular concept only permitted in National transport, restrictions of 40 tonnes on the maximum weight limit of two vehicle combinations in international transport, 44 tonnes allowed only on combined transport when carrying the 40ft ISO container, the standard 45ft container overhanging the rear of the semi-trailer by around 12 cm and only permitted in national transport, no harmonised requirements on the size of a fully loaded vehicle
- Option B: adapt the Directive to: permit the modular concept to circulate between Member States with harmonised restrictions and maximum limits defined in the Directive. Those restrictions could include some or all of the following: the combination's use, i.e. on designated routes only, the level of road pricing, the vehicle combination's technical standards, standards for the driver and limitations regarding the concept's maximum load. The contractor shall stipulate what those requirements may be and what is reasonable and assess the impact of different scenarios; permit the 44tonne two vehicle combination in international transport when using a six-axle combination or for carrying all types of Intermodal Loading Units (ILUs) in combined transport operations; permit the maximum dimensions of a loaded vehicle or vehicle combination to increase albeit provided certain technical characteristics and/or vehicle safety equipments are utilised
- Option C: as option B but with some or all specification limits and/or restrictions defined by Member States individually or by adjacent Member States together. The Directive would therefore allow Member States room for manoeuvre as to what restrictions they place on the use of the modular concept and any bigger or heavier vehicle or vehicle combination.
- Option D: as option B but including certain non-modular vehicle combinations.

The study shall assess the cost implications and the benefits and consequences of these options. In particular assessment shall be made of the effect of adjustments to the Directive on modal shift from other transport modes. The consortium will critically assess and evaluate all the factors that must be taken into account. The range of factors to be considered is not limited to those described above but can include others that the consortium thinks are relevant. However at least the factors described must be fully evaluated.

The consortium will generate likely options for the development and application of the modular concept and the other features described above. The study will be completed before August 2008.

6. References

- COM(2006a), Keep Europe Moving – Sustainable mobility for our continent; Mid-term review of the European Commission's 2001 Transport White Paper, 314 final.
- COM(2006b), Freight Transport Logistics in Europe – the key to sustainable mobility, Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, 336 final.