



# Key Messages and Recommendations

## **Workshop OECD/ITF International Study on Truck Safety, Productivity, and Sustainability**

**Transportation Research Board 89<sup>th</sup> Annual Meeting**

**Washington DC**

**10 January 2010**

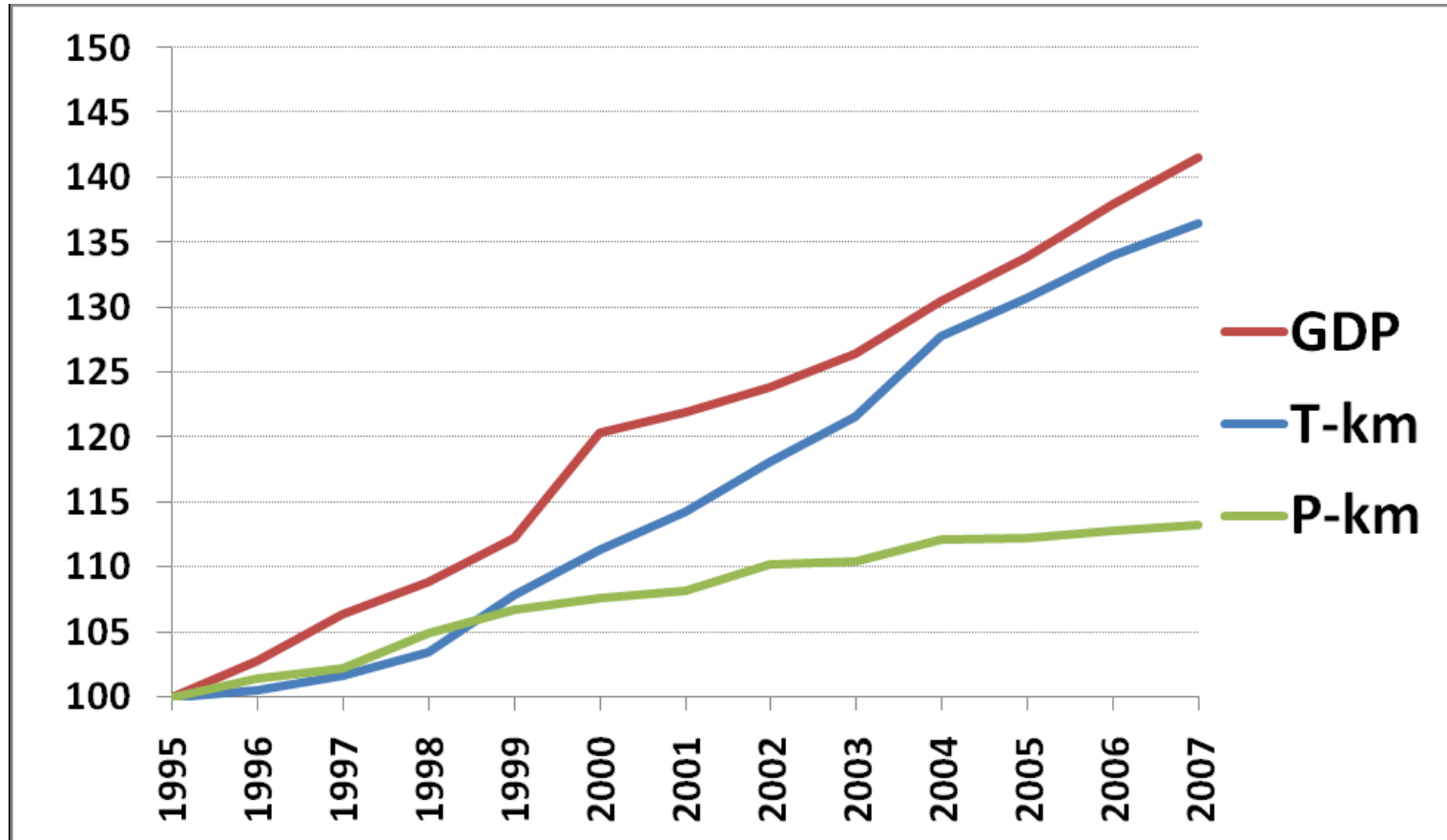
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## Key Message 1

- **The freight transport task is growing rapidly in most regions and requires the most effective utilisation of all modes of transport.**

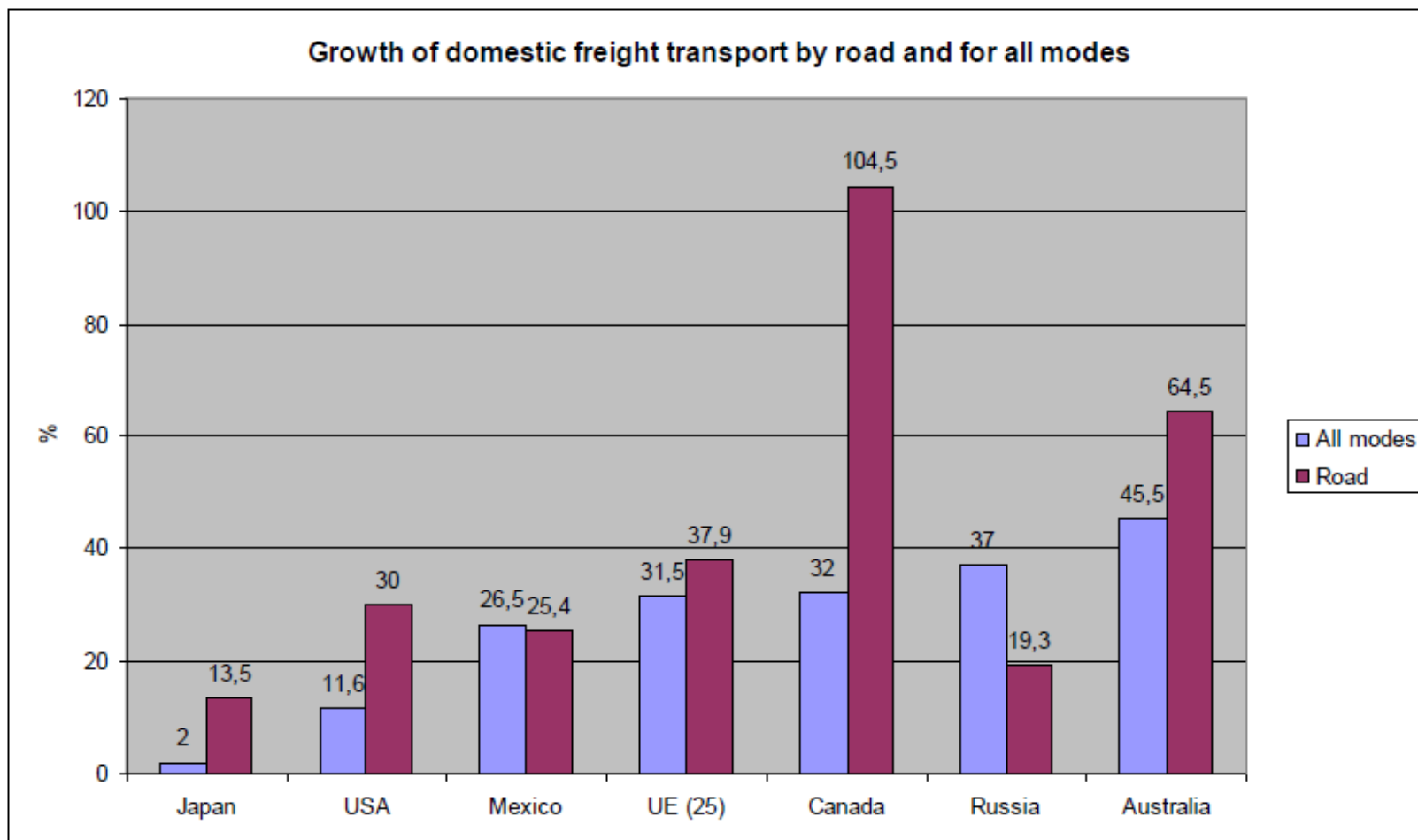
*The regulatory and pricing frameworks for each mode need to be designed to promote efficient use of existing infrastructure and provide opportunities and incentives for innovation to improve productivity and reduce environmental and safety costs across freight transport as a whole.*

### GDP and Rail and Road Freight and Passenger Transport Growth in ITF Member Countries (*GDP in 2005 Euros - 1995=100*)



Source ITF, excluding Canada, Liechtenstein, Malta and Montenegro

# Growth in freight transport 1995-2005



## Key Message 2

- **Trucks are here to stay for the major part of the freight transport task.**

*No other surface transport mode has the network and capacity needed to meet the demand for freight transport.*

*Road haulage is also most suited to serving much of the growing demand for transport, particularly over short and medium distances.*

*Intermodal transport options exist and provide competitive services on some freight corridors but cannot provide universal service.*

## Key Message 3

- **The safety and environmental impacts of road haulage require regulatory and pricing intervention for optimal outcomes.**

*This includes controlling access to the road network and prescriptive safety and emission standards.*

*Regulatory systems can be improved both through more effective compliance regimes and*

*through standards that provide flexibility to enable technological innovations to deliver better safety and environmental protection.*

## Key Message 4

- **Compliance can be improved greatly through legislation that assigns responsibility**

*..... for respecting regulations to key actors across the supply chain and*

*grants powers to compliance agencies to use alternatives to roadside checks, such as inspecting the financial and loading records of shippers and receivers as well as transport companies.*

*New South Wales has perhaps the most far reaching chain of responsibility laws and has improved compliance substantially.*

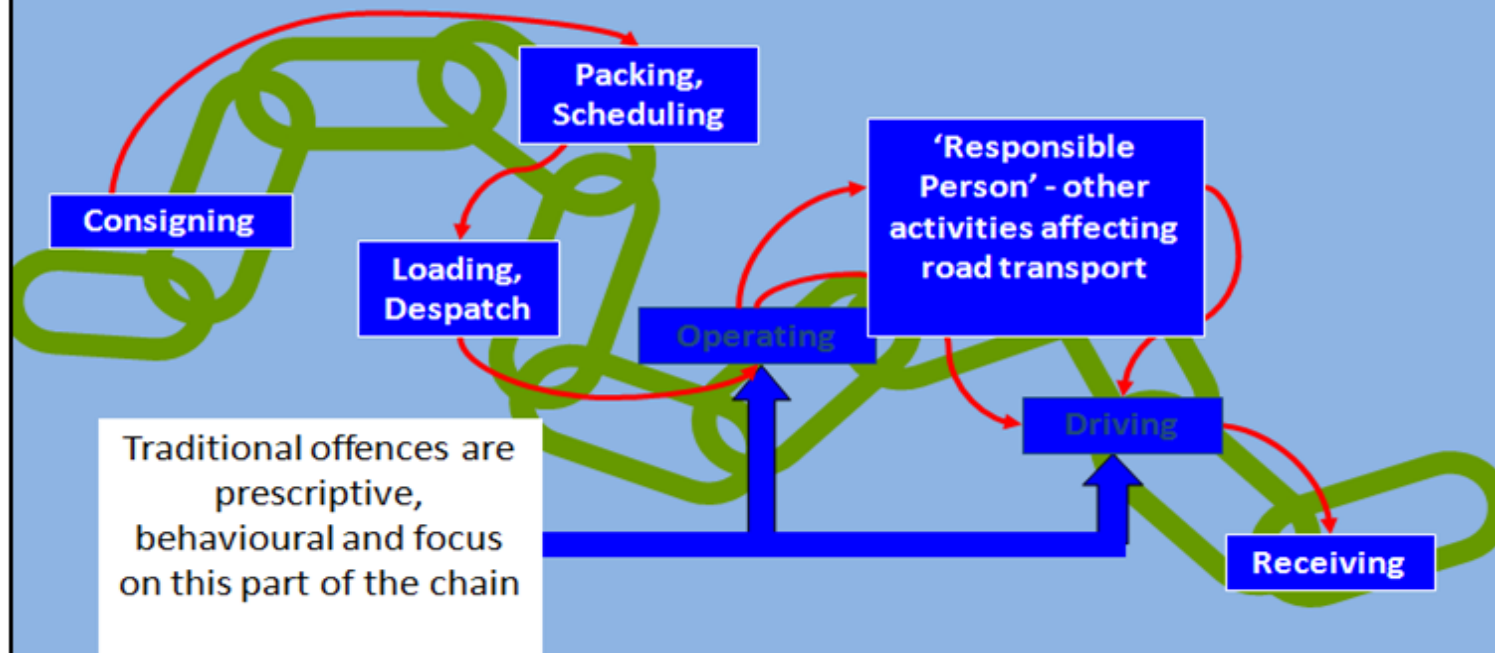
## Key Message 4

The following 3 slides illuminate the “chain of responsibility” concept.

## Chain-of-responsibility concept and procedure

- *“all who have control, whether direct or indirect, over a transport operation bear responsibility for conduct which affects compliance and should be made accountable for failure to discharge that responsibility”*
- Records identify carriers, transport types or industry sectors with high propensity for breaches
- Warrants to inspect and search vehicles for documents
- Warrants to inspect and search premises of carriers, consignors and customers
- Compulsory acquisition of business records from responsible parties
- Enforcement along the entire chain of responsibility

## Compliance assurance: Chain of Responsibility



## NSW Grain Harvest: Impact of Sector-wide Investigations

	Legal	Minor Overload (up to 5%)	Substantial Overload ( 5% to 20%)	Severe Overload (more than 20%)
<b>2005 Grain Harvest</b>	<b>67.6%</b>	<b>12.0%</b>	<b>17.4%</b>	<b>3.0%</b>
<b>2007 Grain Harvest</b>	<b>82.5%</b>	<b>17.1%</b>	<b>0.3%</b>	<b>0.1%</b>

## Key Message 5

- **Enhanced compliance regimes can be developed to exploit technological innovations**

*....such as GPS tracking for route access compliance and advanced weigh-in-motion systems to monitor truck loading without the need to stop vehicles at the roadside.*

*These innovations have been introduced in a number of countries.*

*Similar systems can monitor fuel consumption, tailpipe emissions and some vehicle safety performance characteristics with on-board diagnostic systems that can be monitored remotely.*

*Accreditation schemes can be used to promote the uptake of these systems.*

## Key Message 6

- **A performance based approach to regulation offers the potential to meet community objectives for road freight transport more fully.**

*Such an approach — adopted in a number of countries, including Australia and Canada — defines the environmental and safety objectives to be attained whilst leaving the means for achieving them unspecified.*

*This allows industry to innovate to increase productivity whilst meeting sustainability and safety goals.*

*In Australia performance based standards have been used to authorise access to suitable parts of the road network for unconventional vehicles that do not conform to current limits on mass or dimensions. The approach has potential eventually to replace some conventional standards entirely.*

## Key Message 7

- **Higher capacity vehicles deliver major productivity gains**

*...for freight operators that use them.*

*In competitive markets the benefits are passed on to customers and drive economic growth.*

*Wider use of such vehicles is therefore desirable where it does not compromise infrastructure assets or safety and environmental outcomes.*

## Key Message 8

- **Higher capacity vehicles can perform better on safety tests than many common workhorse trucks.**

*This is demonstrated by computer modelling undertaken for this report of 40 heavy truck types from around the world, and confirmed by a number of case studies of higher capacity vehicles on the road (e.g. in Canada, Sweden, Australia).*

*The dynamic performance of HCVs tends to be superior, their axle load distribution on greater number of axles can enhance brake capacity with shorter stopping distances and less brake fade. Driver selection and higher levels of factory fitted safety equipment, also contribute to generally better safety records for these vehicles.*

*Some safety issues remain to be fully investigated in regard to impacts on safety barriers and bridge piers and on consequences of accidents when higher capacity vehicles are involved.*

## Key Message 8

*The next slide defines the vehicle categories used in the benchmarking analysis of the 40 trucks.*

*It is followed by a slide which exemplifies the type of output obtained from the computerised test of critical vehicle dynamic performance.*

## Truck categories

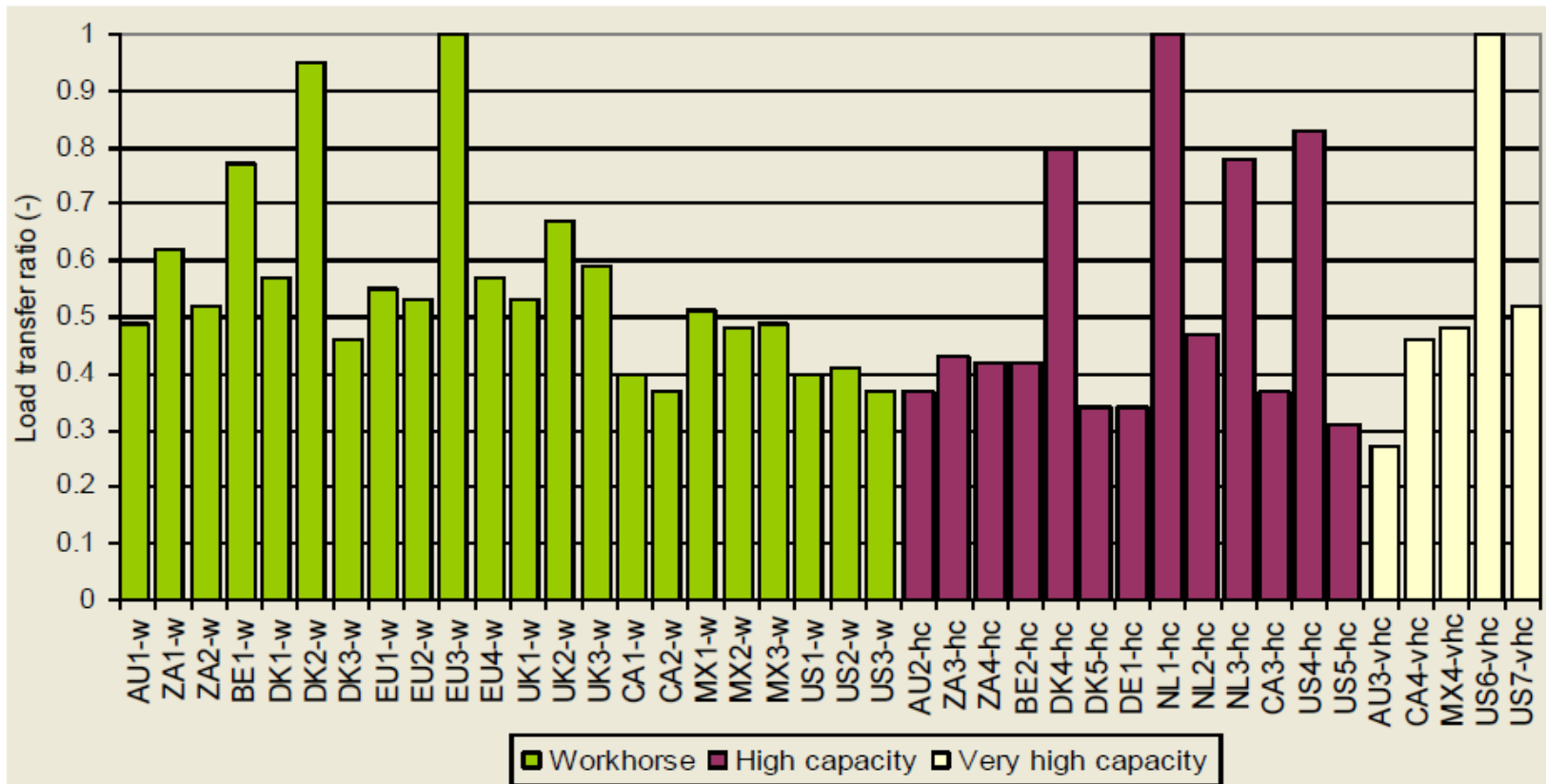
- **Each of the 40 trucks in the benchmarking analysis was classified in one of the following three general categories:**

***Workhorse vehicles:*** - the trucks most commonly used for long haul transport, with a gross combination mass of less than 50 tonnes and a length of less than 22 metres.

***High capacity vehicles:*** - with a GCM of up to 70 tonnes and a length of up to 30 metres, typically operated under limited access conditions dependant on the road network.

***Very high capacity vehicles:*** - with a GCM of at least 52 tonnes and a length of at least 30 metres and typically operated under permit conditions and often in rural and remote areas.

# Load transfer ratio



## Key Message 9

- **Higher capacity vehicles have some potential to improve fuel efficiency and reduce emissions.**

*Basic aspects of truck design such as length, wheelbase, width, height, axle loads, axle spacing and gross vehicle weight are limited by size and weight regulations.*

*These factors directly influence fuel consumption and the fuel and emissions efficiency of transporting freight by road.*

*Computer simulations of the performance of vehicles shows that in many instances higher capacity vehicles performed equally if not better than workhorse vehicles in terms of fuel consumption*

## Key Message 10

- **Higher capacity vehicles can result in fewer vehicle-kilometres travelled for a given amount of freight.**

*This is particularly true in relation to the volume of goods that can be carried per truck.*

*Load volume rather than weight now most often determines the number of trucks required for transport and from the vehicles examined in this study it is apparent that the higher productivity vehicles in use around the world are delivering greater increases in cargo volume than cargo mass.*

*Case study results (Alberta, Saskatchewan, Sweden, Australia) suggest that the use of higher capacity vehicles has reduced the amount of truck travel in these cases, with benefits for safety and environment as well as reduced transport costs.*

## Key Message 11

- **The lower unit costs offered by higher productivity trucks could result in increased overall demand for road freight transport and a transfer of freight**

*....away from railways, inland waterways and short sea shipping.*

*This has not so far been the case where higher capacity trucks have been introduced but the potential for modal transfer introduces a critical intermodal component to truck regulation.*

## Key Message 12

- **Intermodal competition makes it important to price the use of all transport infrastructure efficiently**

*... including in relation to environmental and safety costs.*

*Coherence in the cost recovery level applied to road and rail freight use is important if these modes are to compete on an equal footing.*

*On corridors where there is a risk of a shift of freight from other surface modes to high capacity vehicles, road access restrictions might also be considered where governments adopt policies to transfer freight from road to rail or waterways.*

## Key Message 13

- **Optimising the use of higher productivity trucks will in most regions involve limiting their access to the network**

*...to links where their performance is compatible with strength and geometry of the infrastructure.*

*Technology is available to monitor and control access.*

*Higher capacity vehicle access to the road network needs to be based on a balance of productivity benefits, infrastructure costs and safety and environment costs and benefits.*

## Key Message 14

- **Road infrastructure and trucks need to be developed in concert.**

*The benefits from the higher productivity of HCVs sometimes justify investment in parts of the main road network to accommodate them.*

*In these cases the productivity benefits might provide resources to finance these investments.*

*Bridges are often the weak points, but appropriate regulation of vehicle design, targeted bridge strengthening programmes and intelligent truck traffic management can provide the necessary protection for bridge assets.*

## Key Message 15

- **Appropriate road pricing systems can become a flexible tool for managing the use of the network**

*....with a potential for incentivising multimodality where this is a practical option.*

*Fixed road network access charges, tolls and electronic km charges can be differentiated to link them to truck road-wear, safety and environmental characteristics and provide incentives for the use of low impact vehicles.*

*Electronic km charges can also be varied to manage congestion, if they are applied to passenger cars as well as heavy vehicles.*

*Incremental charges applied to HCVs might be used to finance investments in trunk road networks to accommodate them.*

## Recommendations

- **Periodic review of the regulatory framework to ensure it optimises safety, environmental and economic outcomes. In particular, regulators need to consider:**
  - *Revising regulations for heavy vehicles in order to exploit the full potential of innovation in delivering improvements in terms of productivity, road safety and environmental protection.*
  - *Developing a performance based approach to supplement or replace some existing regulations in order to improve the effectiveness of regulations.*
  - *Authorising higher capacity vehicles where they can deliver the largest productivity gains and, where necessary, controlling road access to maximise net benefits (where, truck types, protecting rail, <sup>27</sup>promoting intermodality)*

## Recommendations (continued)

- *Exploiting technological innovation and innovative targeting techniques for more effective enforcement of regulation as part of a chain- of – responsibility approach to compliance.*
- *Continuing research on the interaction of high capacity road freight vehicles with infrastructure and competition with other modes of freight transport.*

**Thank you for the  
attention**