
Should the Maximum Length and Weight of Trucks be Increased? A Review of European Evidence

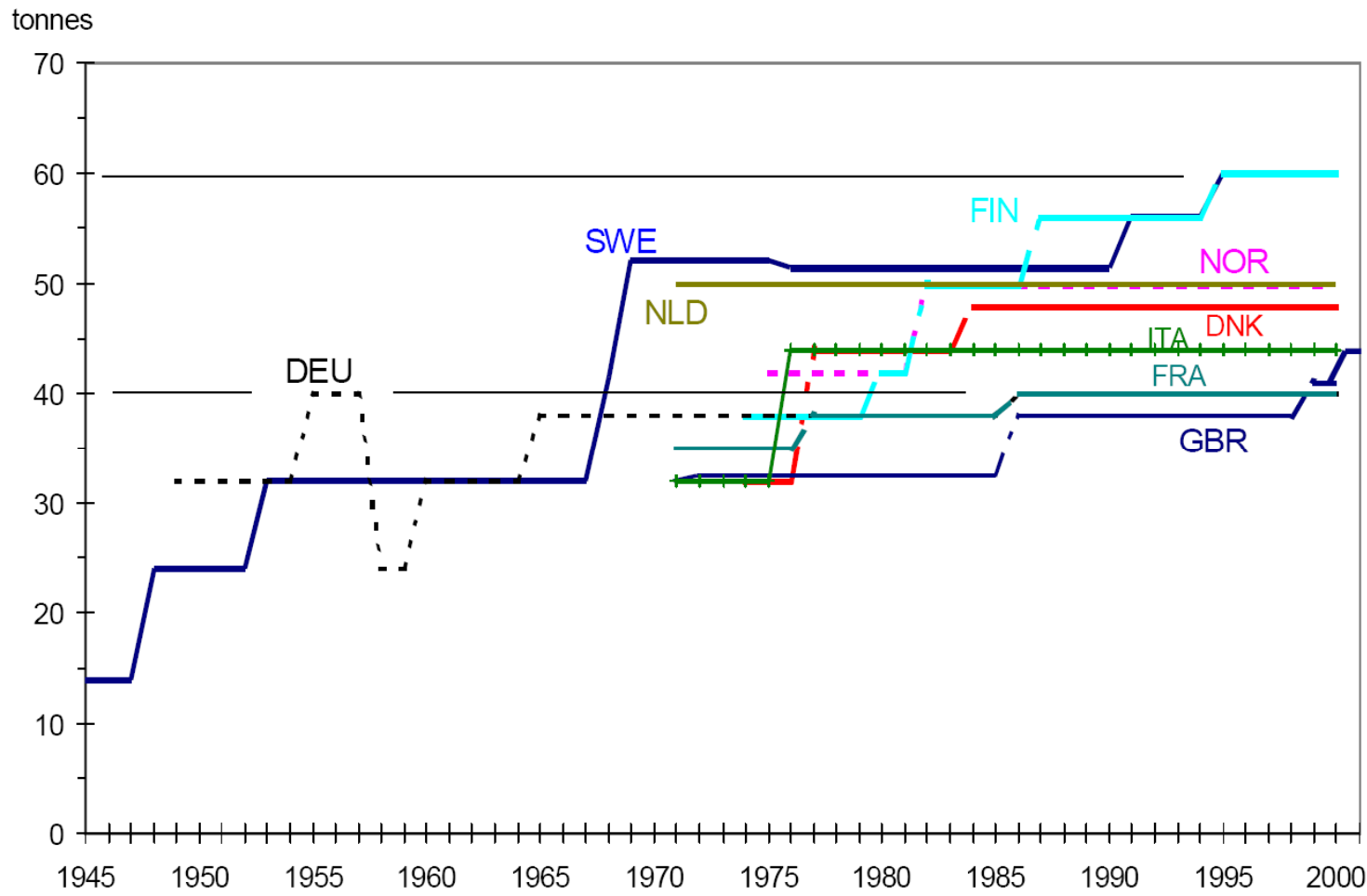
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Heriot-Watt University
EDINBURGH, UK*

- Longer and heavier vehicles: LHVs
- Supertrucks
- Megatrucks
- Gigaliners
- Load efficient vehicles
- Monster trucks
- F***** B** T*****

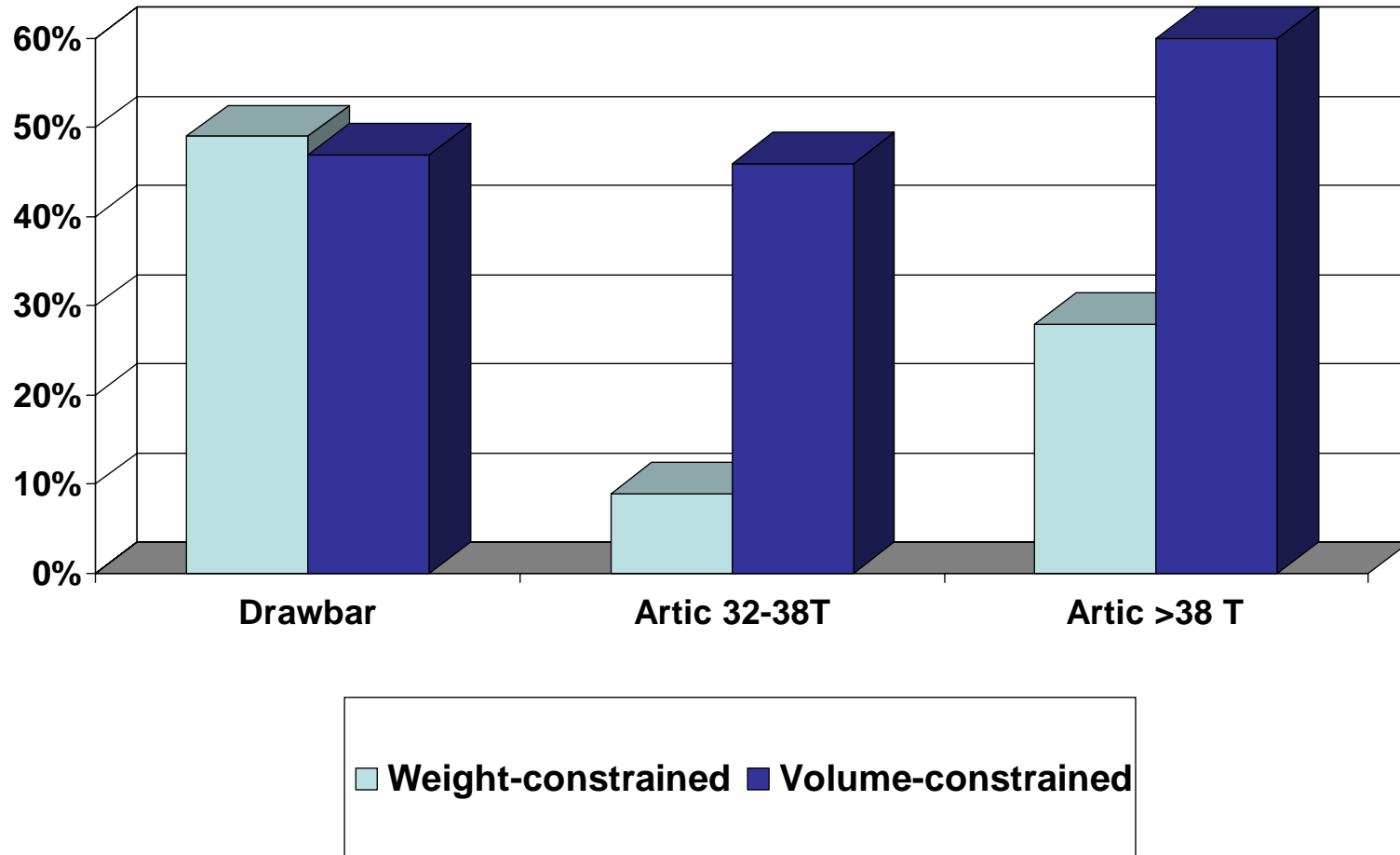
- History of longer and heavier vehicles in Europe
- Review of different LHV options
- Outline of the analytical framework
- Focus on three key issues:
 - degree of load consolidation in LHVs
 - modal shift from rail and water to LHVs
 - possible generation of additional freight movement

Increases in Maximum Truck Weight since 1945

Weight limits for domestic road freight operations

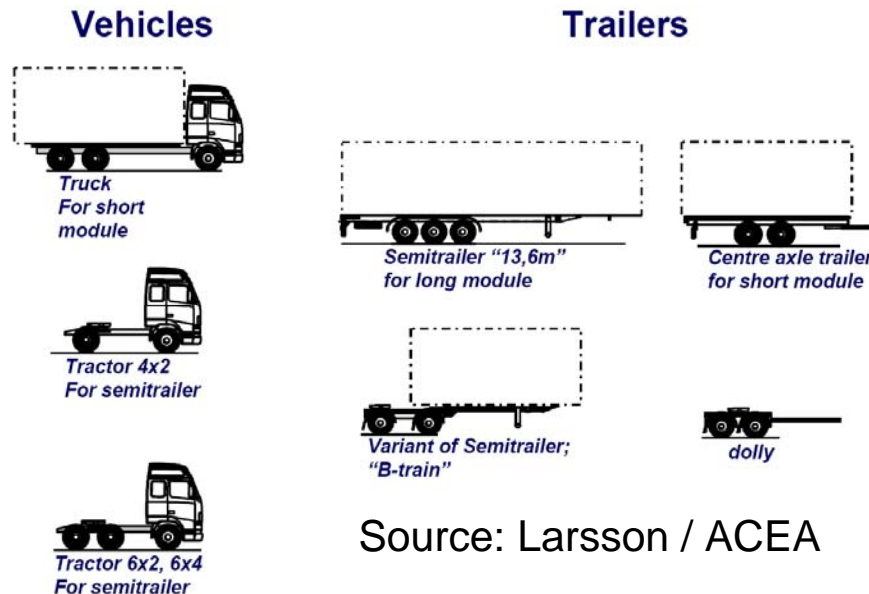


% of Loads Constrained by Volume and Weight in the UK



Development of Longer Vehicles

- LHVs operate in US, Australia, New Zealand, Sweden, Finland etc
- EU Directive 96/53/EC granted derogation for 'modular concept' vehicle to satisfy Sweden and Finland at time of EU entry

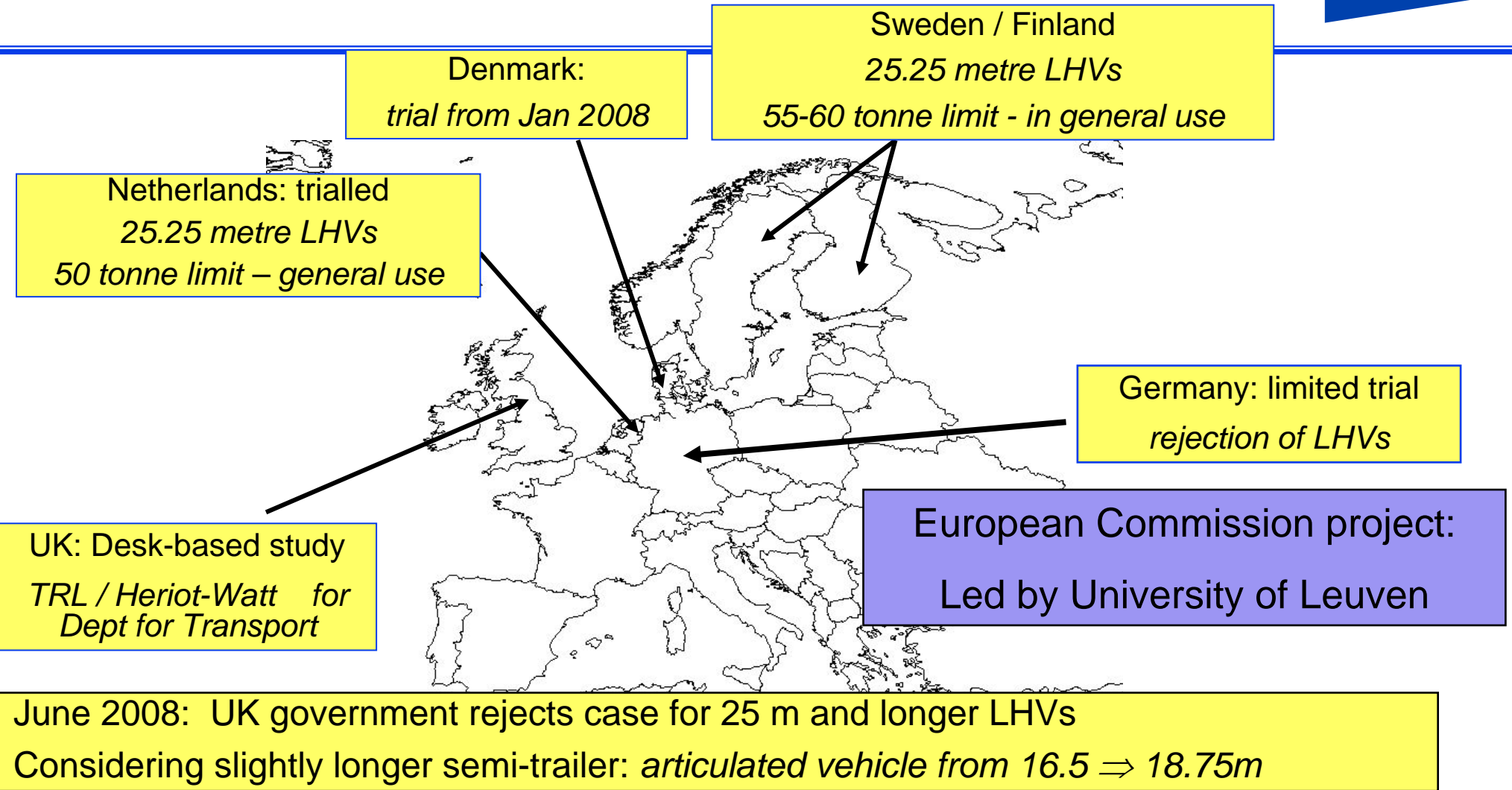


Modular units

Source: Larsson / ACEA

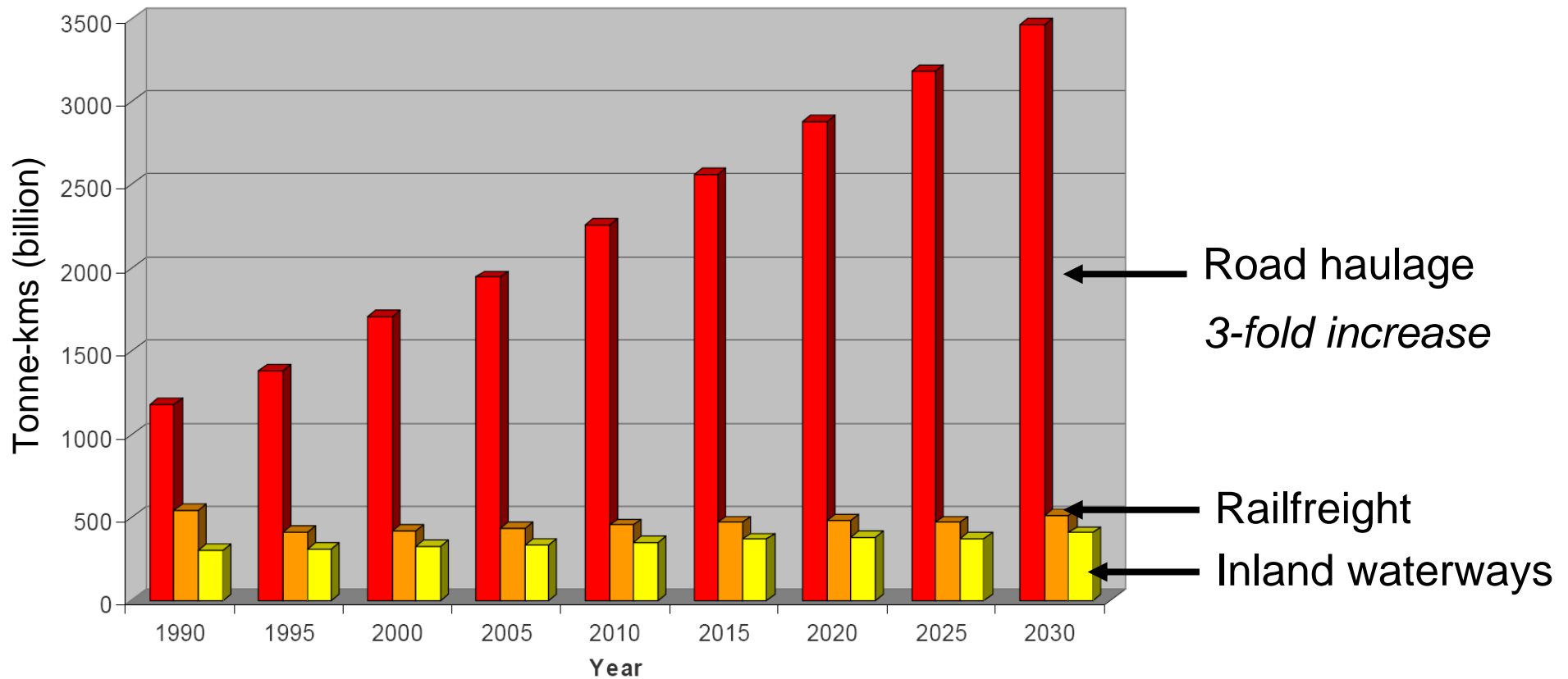
- In principle other EU countries allowed to operate similar vehicles
- Strong interest in LHVs among shippers and carriers in the Netherlands

Longer and Heavier Vehicles in Europe



Projected Growth of European Freight Traffic

Growth to 2030



Positive claims for 25m LHV

- Replace 3 trucks with 2
- Reduce vehicle-kms and accident involvement
- Achieve fuel and CO₂ savings 7%-25%
- Cut operating cost by 15-20%
- Ease the current driver shortage

Excludes diversion of freight from other modes
and possible traffic generation effect

Variety of Longer and Heavier Vehicles



Truck + dolly/semitrailer



B-train

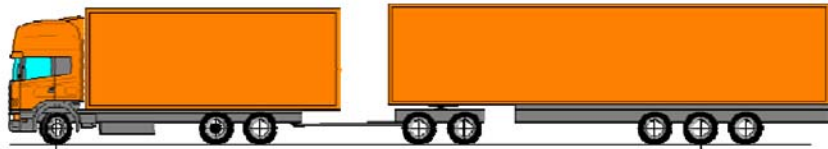


Semitrailer + center axle trailer

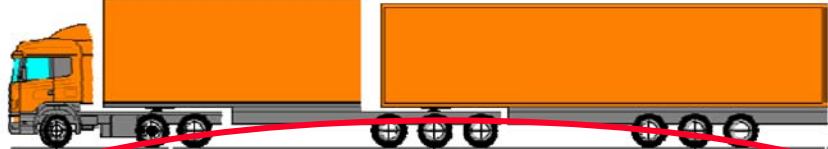


National Differences in the Classification of LHV's

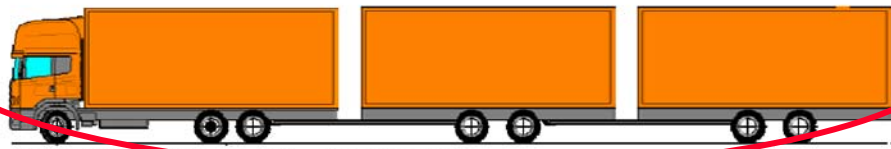
Netherlands



Truck plus dolly plus semitrailer



B double: Tractor + short semitrailer with 5th wheel + semitrailer

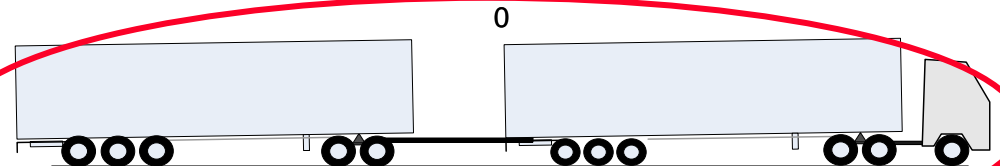
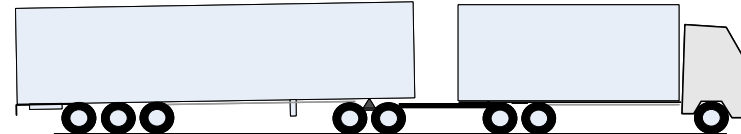
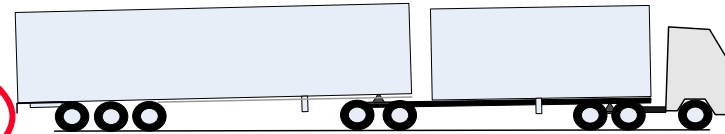
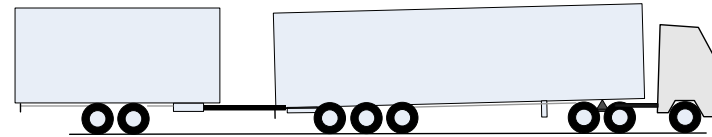
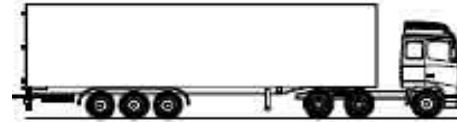


Truck plus two centre-axle trailers



Tractor plus semitrailer plus centre-axle trailer

UK

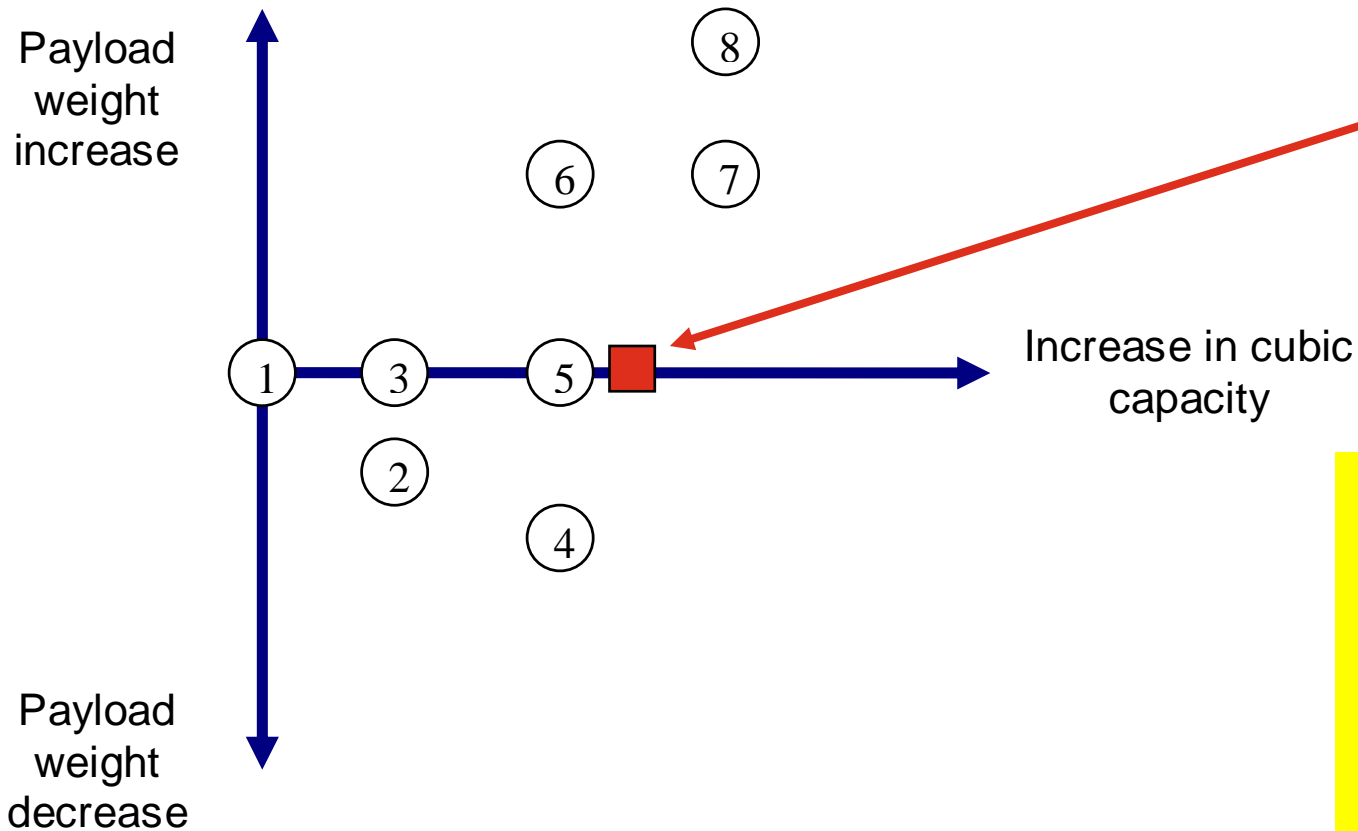


UK: Regulatory Scenarios for LHVs

Scenario	Configuration	Regulation	Capacity	Axles
1	baseline	Current regulations	Scope for increase on DDs and 44 t lorries	6
2	Longer semi-trailer 18.75 metres	Increased length No gross weight increase	Increased cube current weight	6
3	Longer semi-trailer 18.75 metres	Increased length Payload neutral weight increase		
4	Increased load length 25.25 metres	Increased length No gross weight increase	Increased cube less weight	8
5	Increased load length 25.25 metres	Increased length Payload neutral weight increase	Increased cube current weight	8
6	Increased load length 25.25 metres	Increased length Gross weight increase to 60 t	Increased cube increased weight	8
7	Increased load length 34 metres	Increased length Payload neutral weight increase	Increased cube same weight as 6.	11
8	Increased load length 34 metres	Increased length weight increase to 82 t	Increased cube increased weight	11

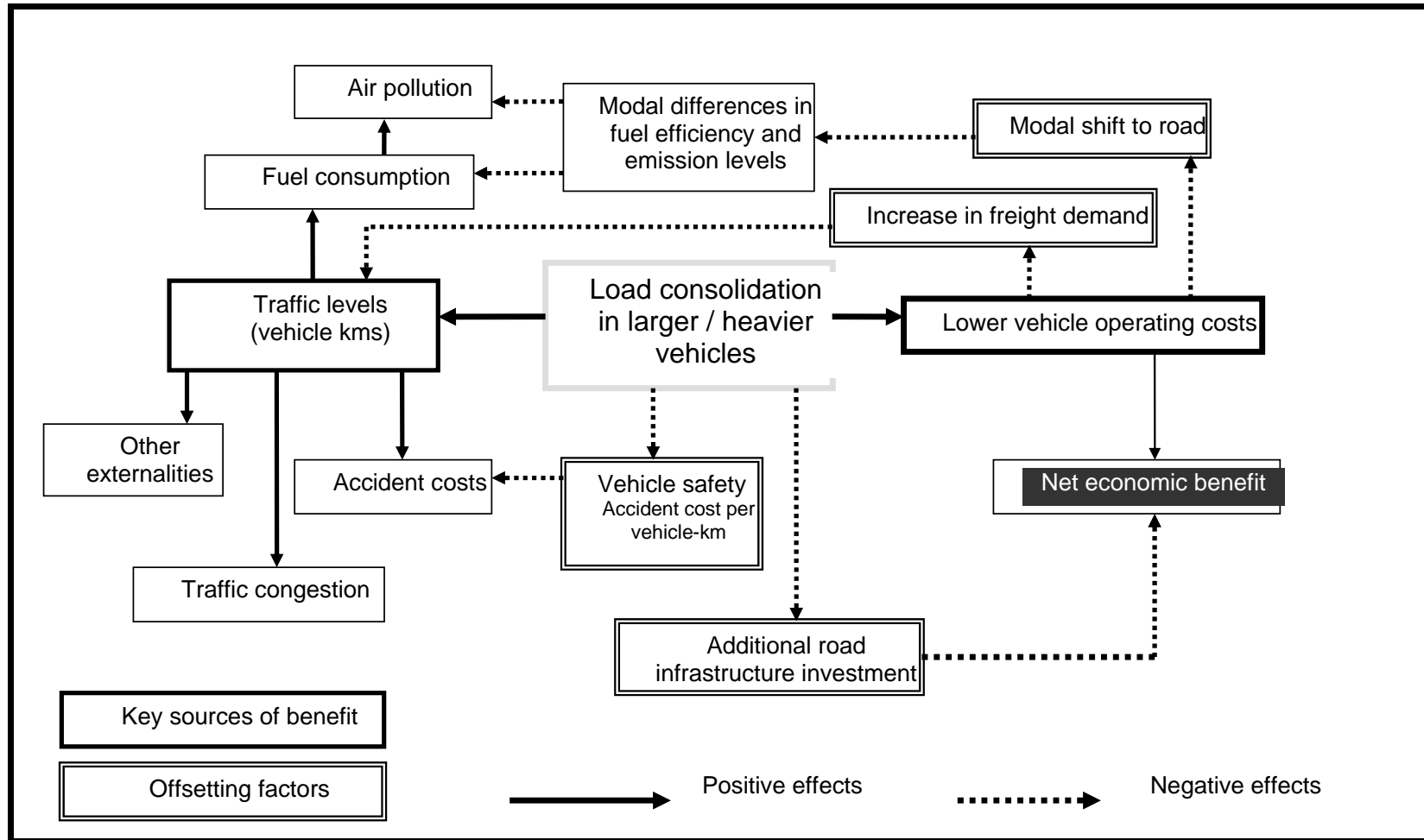
Payload neutrality

UK Regulatory Scenarios: *Impact on Carrying Capacity*



In the UK:
No height limit
Up to 5 metre heights
Many double-deck trucks
Less need for LHV's ?

Analytical Framework



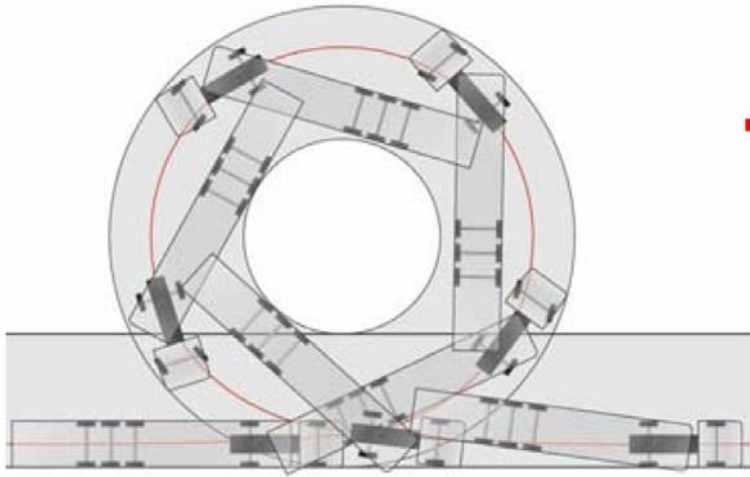
Degree of Load Consolidation

- Migration of loads from vehicles at current maximum size and weight
- Dependent on: *combination of new size and weight limits*
statistical distribution of load densities
- Likely to be niche vehicles with particular applications
- Load factor on LHVs:
 - *additional investment in LHVs \Rightarrow only use on high volume routes with good backloading opportunities*
 - *need 75% loading to yield environmental benefit – much higher than average loading on current maximum size/weight trucks (German Environment Ministry)*

Adoption Dependent on Network Restrictions

Concerns:

- Turning circles
- Overtaking – dynamics of traffic flow
- Safety
- Public reaction



Dutch LHV route network



Source: Dutch Ministry of Transport and Public Works

Road Network Restrictions

- Only motorways
- Motorways and other trunk roads
- Motorways, trunk roads and other A roads
- All roads except non-trunk road in urban areas

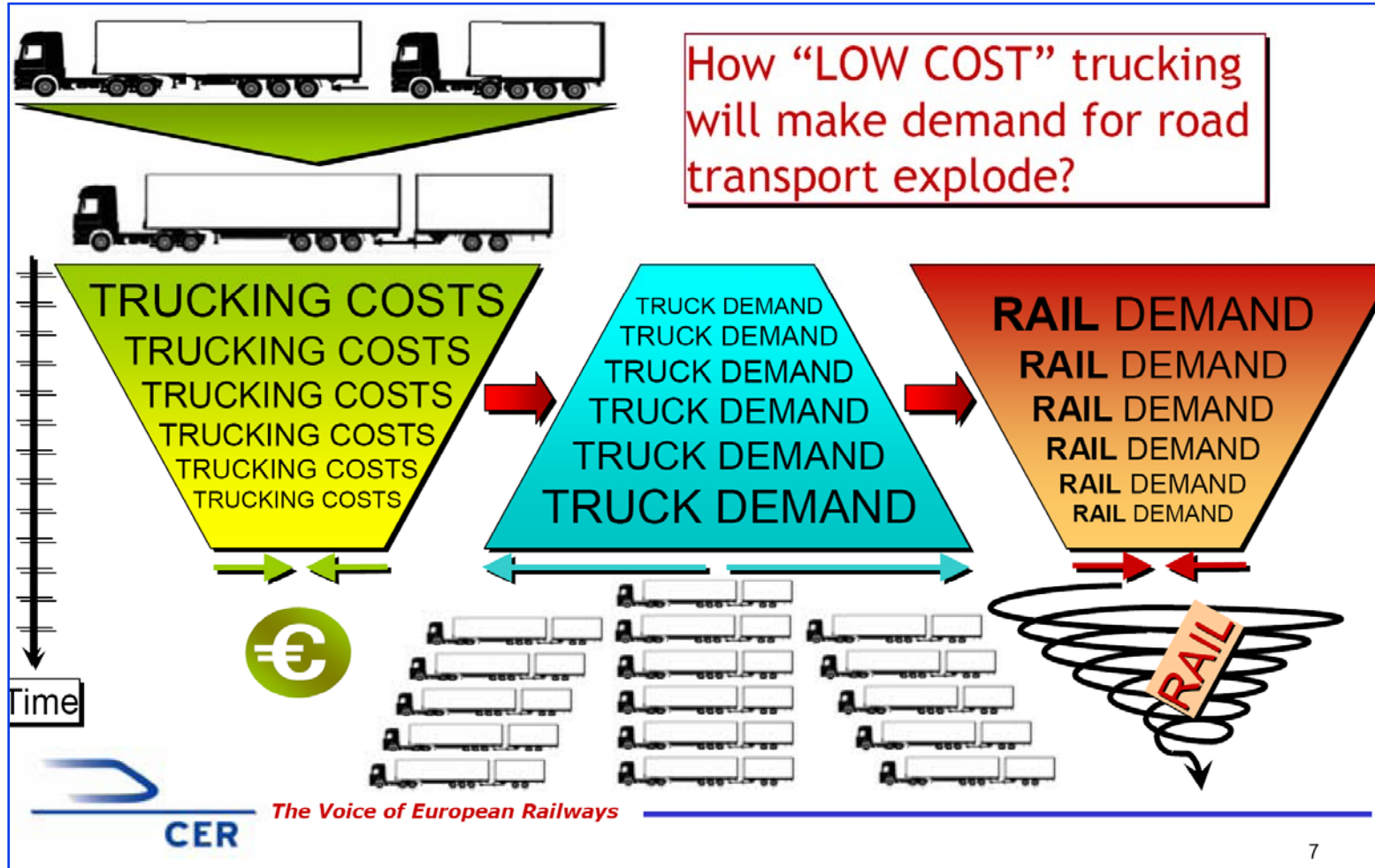
Very bureaucratic process to restrict particular vehicles to particular roads

How would network restrictions on LHVs be enforced?

To what extent would these restrictions create a demand for trailer coupling / decoupling points?

Could the existing road infrastructure meet this demand?

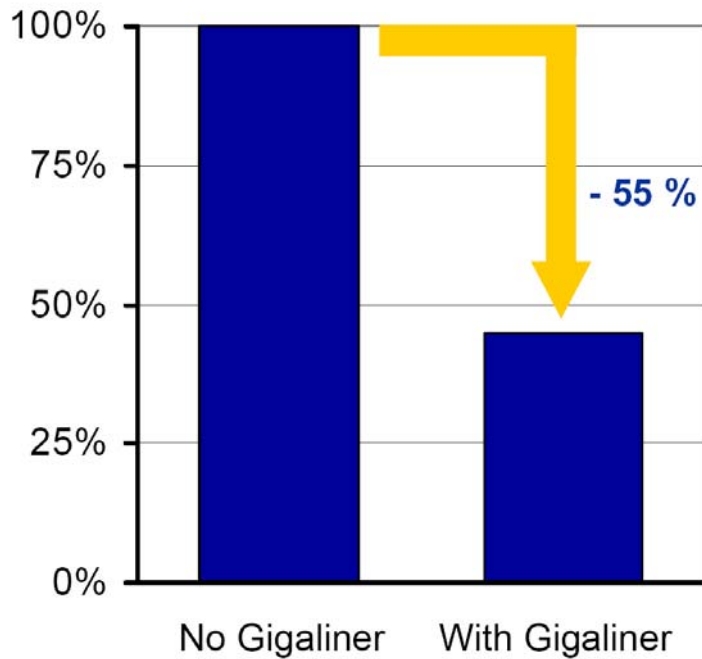
A Rail Industry Perspective on LHVs



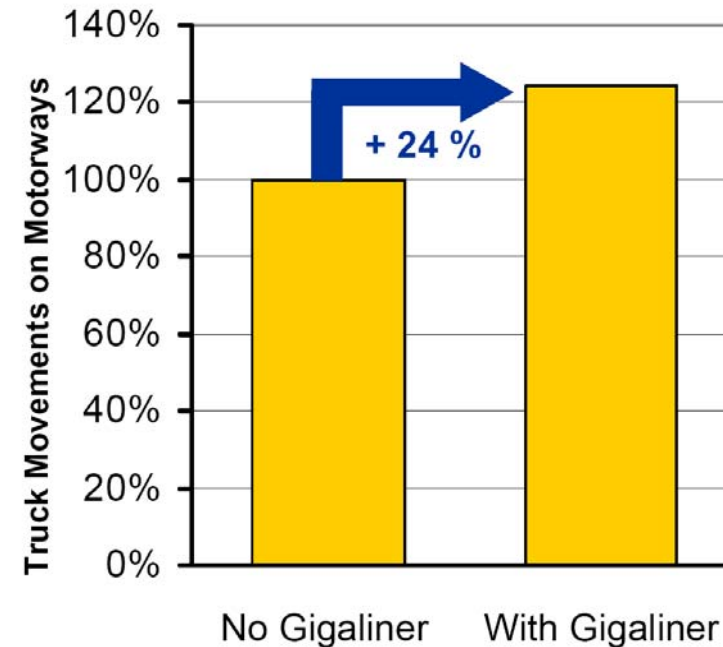
Large Transfer of Freight from Rail Predicted

German study for intermodal operator

**Change of
Combined Transport Volumes**



**Impact of Gigaliners
on Truck Movements on Motorways**



Private Eye April 2008

NO Megatrucks!



CER – European Rail Association

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ROAD RAGE



Trucking hell

DESPITE pisspoor operating standards in road haulage, with satnav-guided lorries getting stuck on unsuitable roads or hitting bridges, civil servants in London and Brussels are doggedly trying to get even bigger trucks on to public roads.

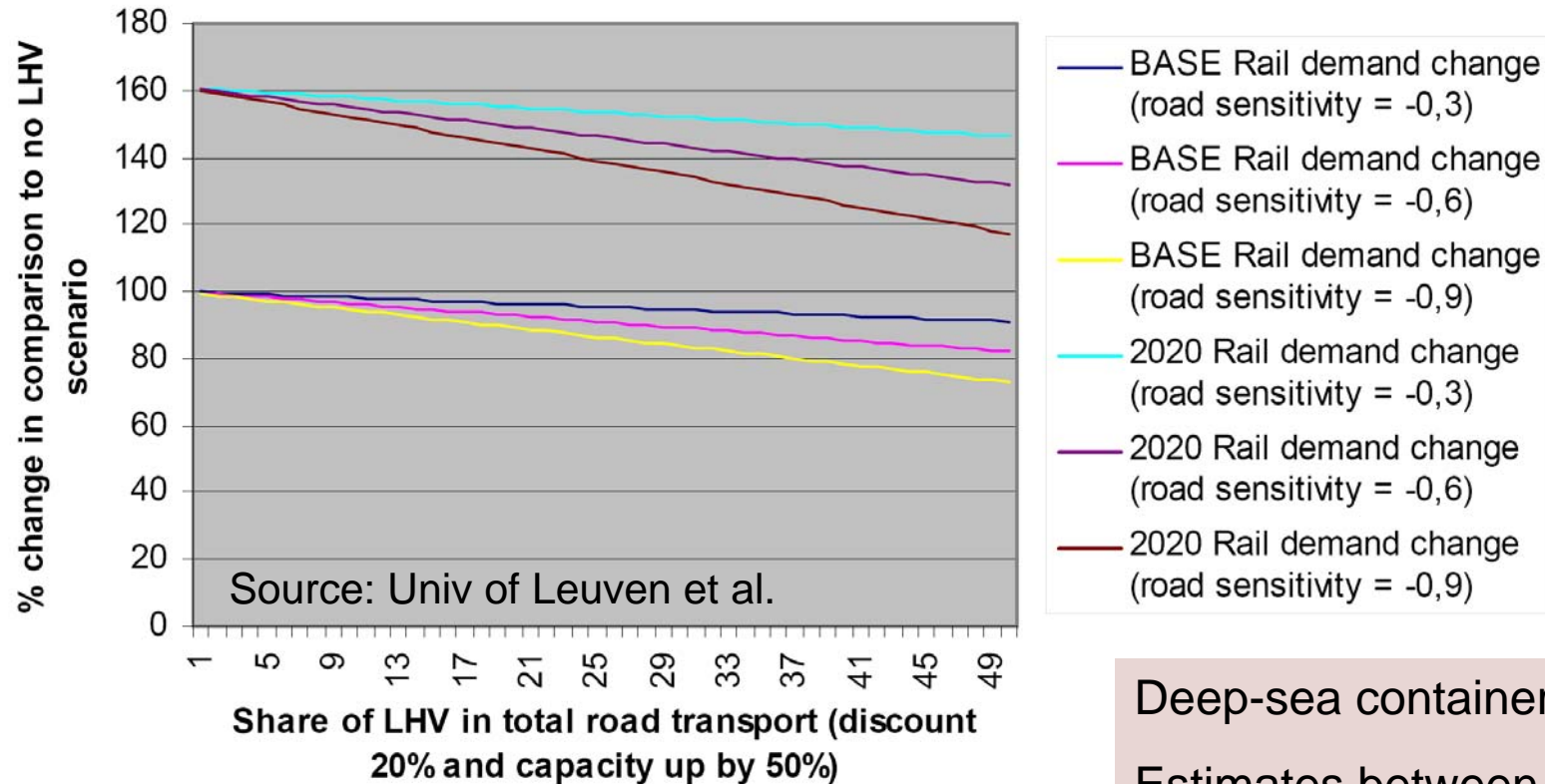
In 2005 Stephen Ladyman, then a transport minister, blocked UK trials of 60- and 84-tonne trucks consisting of a tractor unit and two trailers (up to 101ft long). But mandarins still commissioned Prof Alan McKinnon of Heriot-Watt University and the Transport Research Laboratory to help produce a feasibility study.

average: 20 years later they were percent full. Haulage firms acquire possible lorries, in case the odd of those vehicles; but the overall res unused capacity trundling around roads.

A key official at the Armitage John Berry. He's now a senior tra at the European Commission, who drive forward consideration of int of monster trucks – using the sam that proved fallacious after the Ar The commission doesn't like to be bigger trucks have previously fail traffic: when it held a seminar on in Brussels on 4 March, opponent sidelined and Germany's rejection trucks after trials was ignored.

So how realistic will Prof McK monster-truck study for the gover 2000 the government's Commissi Integrated Transport (CfIT) predic maximum lorry weight to 44 tonn traffic "by around 100m vehicle-k year". In 2001 the government pe tonne trucks and between 2001 an

Modal Shift Estimates depend on Demand Cross-elasticities



Deep-sea containers by rail in UK
Estimates between -2.5 and - 6.0

Lack of accurate and reliable cross-elasticity values for freight transport

Estimating a Traffic Generation / Rebound Effect

Uncertainty about price elasticity of demand for road haulage

One UK attempt to quantify the traffic generating effect.....

Impact of LHVs on the external costs of UK freight transport	
Change	Cost (£m/year)
Switch from HGVs to LHVs	-44
Switch from rail to road	+71
Road freight generation	+907
Net overall impact of LHVs	+934

Source: OXERA for EWS

Pure econometric analysis

No indication of where extra traffic would come from

Experience following increase in max truck weight to 44 tonnes + company responses in focus group discussions suggested minimal traffic generation

- At national level, differing LHV research results and government decisions
- No standard EU policy on LHV emerging
- Cannot simply extrapolate results of LHV studies between countries
- Desk-based studies lack accurate values of key parameters
- Trials have been very small scale – limited basis for formulating policy
- Railway lobby has mounted very effective anti-LHV campaign
- Little informed public consultation on this issue
- Aesthetics rather than economics and science may determine policy

Contact Details

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UK LHV study by TRL and Heriot-Watt University:

http://www.trl.co.uk/store/report_detail.asp?srid=6309&pid=220

