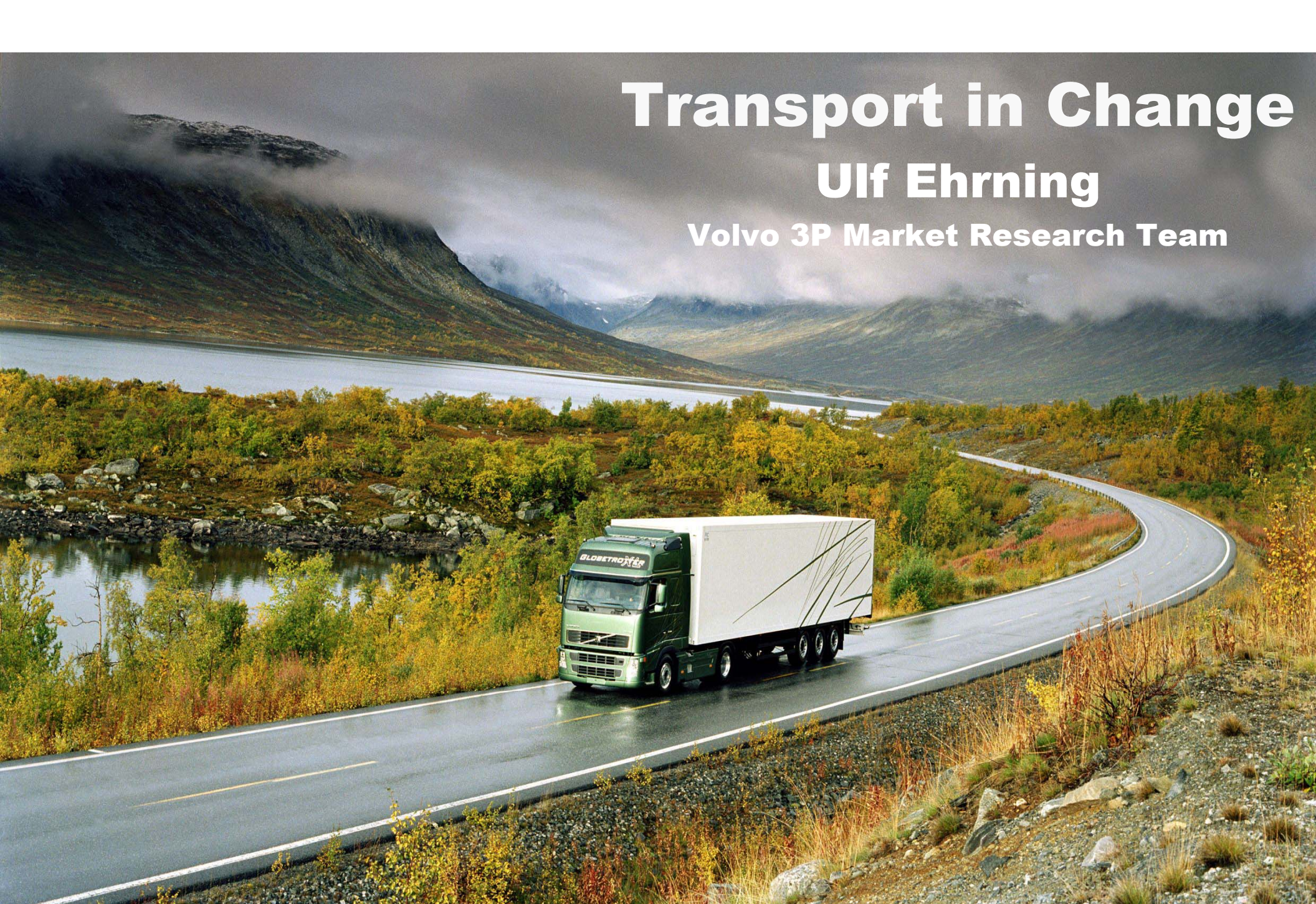


Transport in Change

Ulf Ehrning

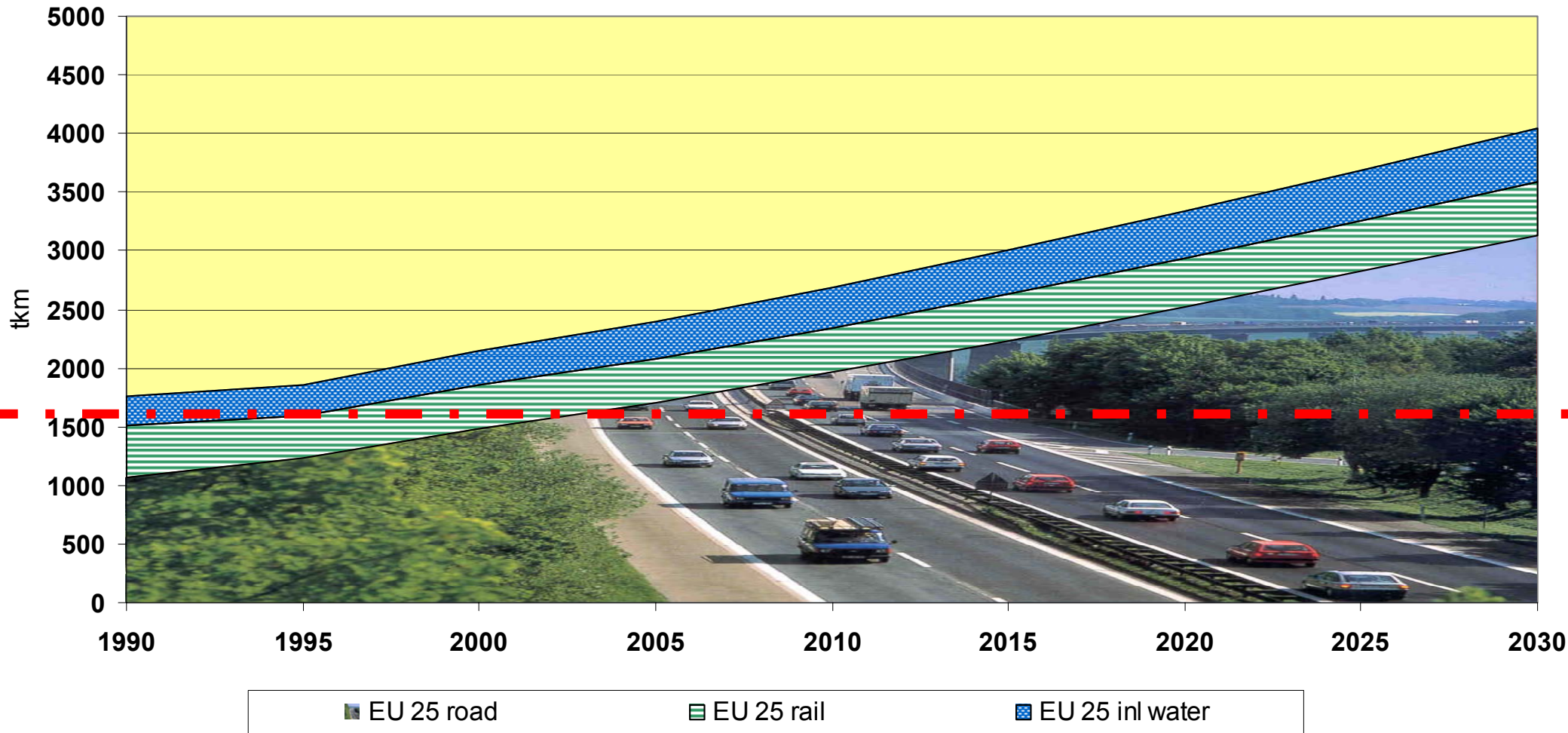
Volvo 3P Market Research Team



EU enlargement – moves the center of Europe eastwards

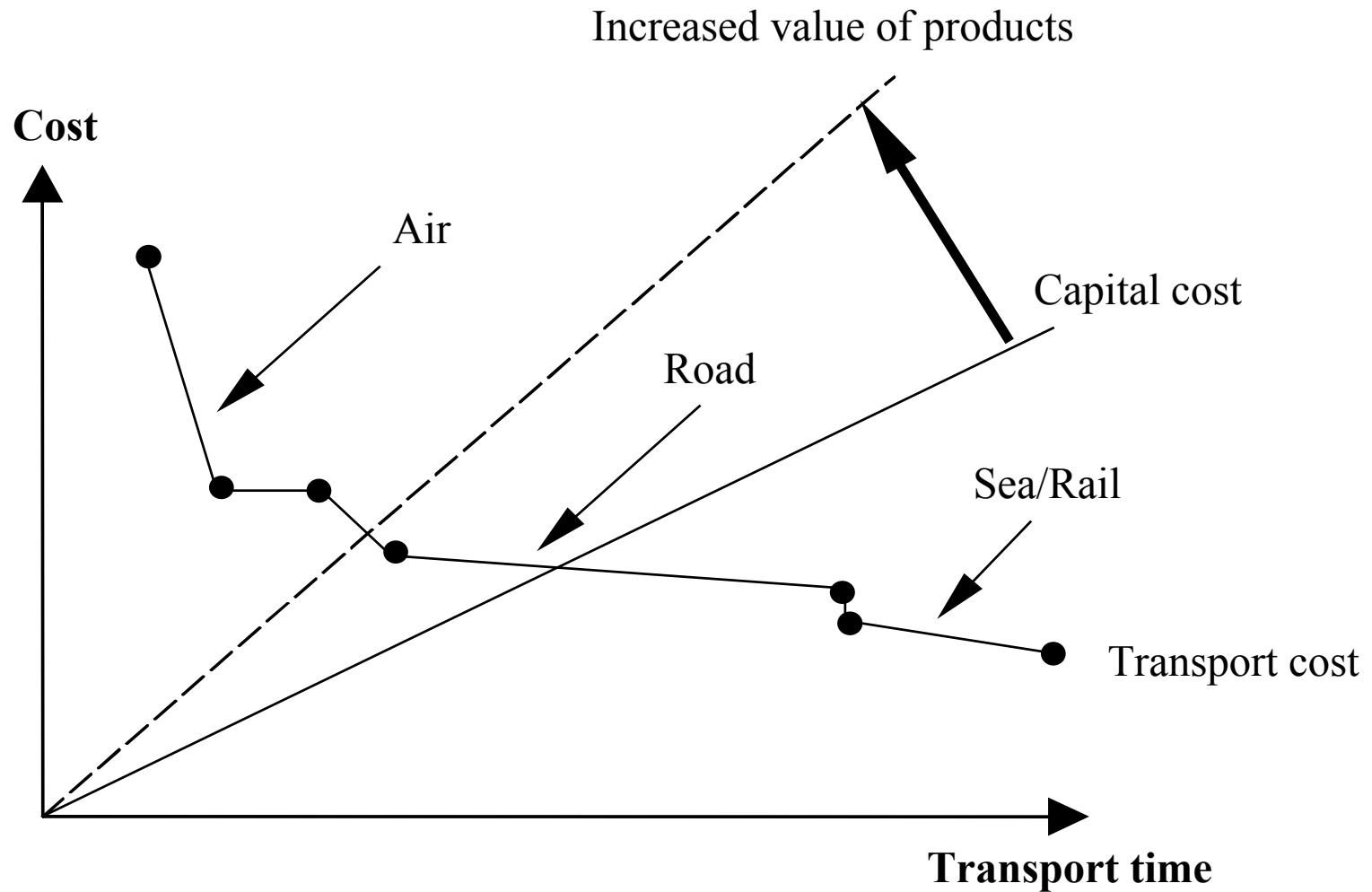


Transport development EU 25 1990 - 2030



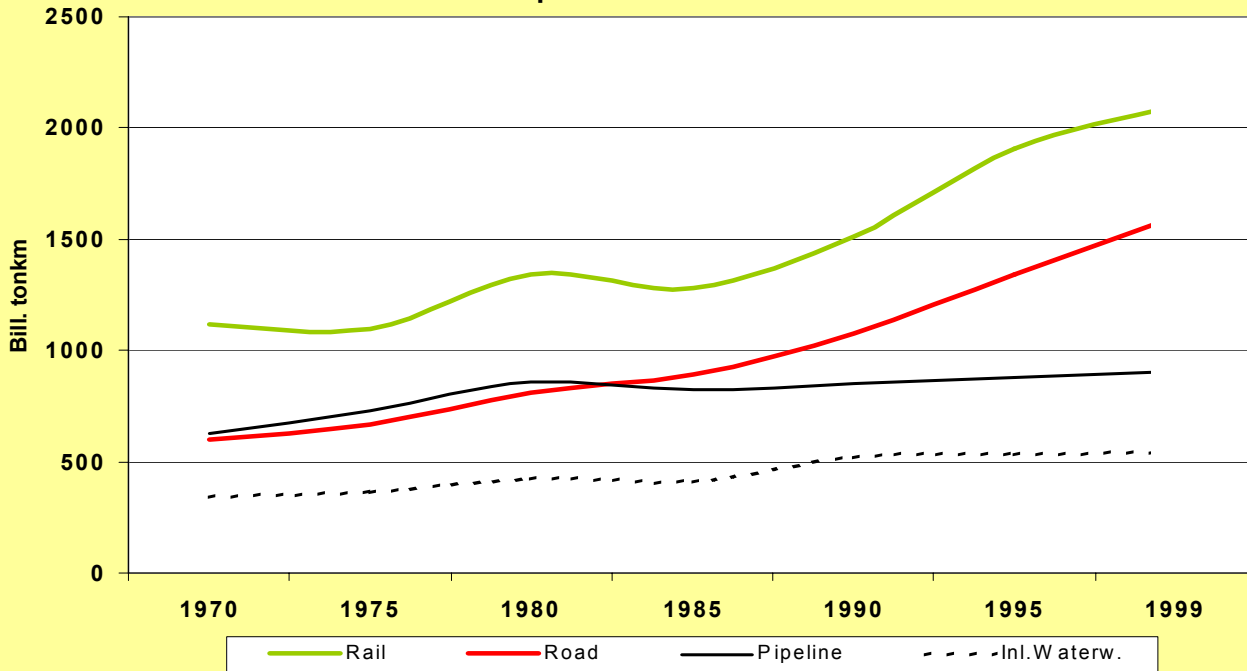
Source: DG-TREN Statistical pocketbook 2003

Vehicles Basic Changes

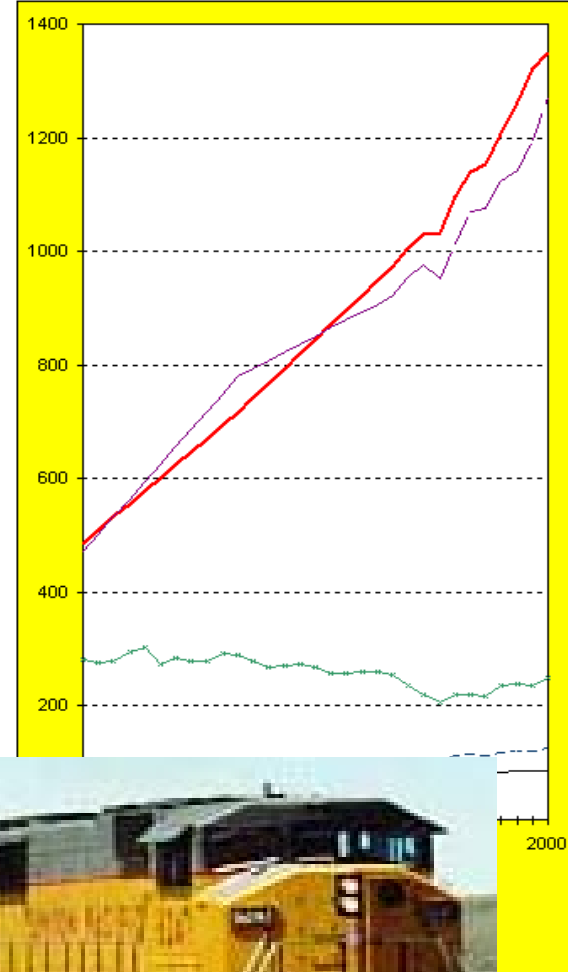


Transport mode USA & EU

Modal split USA 1970 - 1999



Transport mode EU15 1970 - 2000
billion tkm

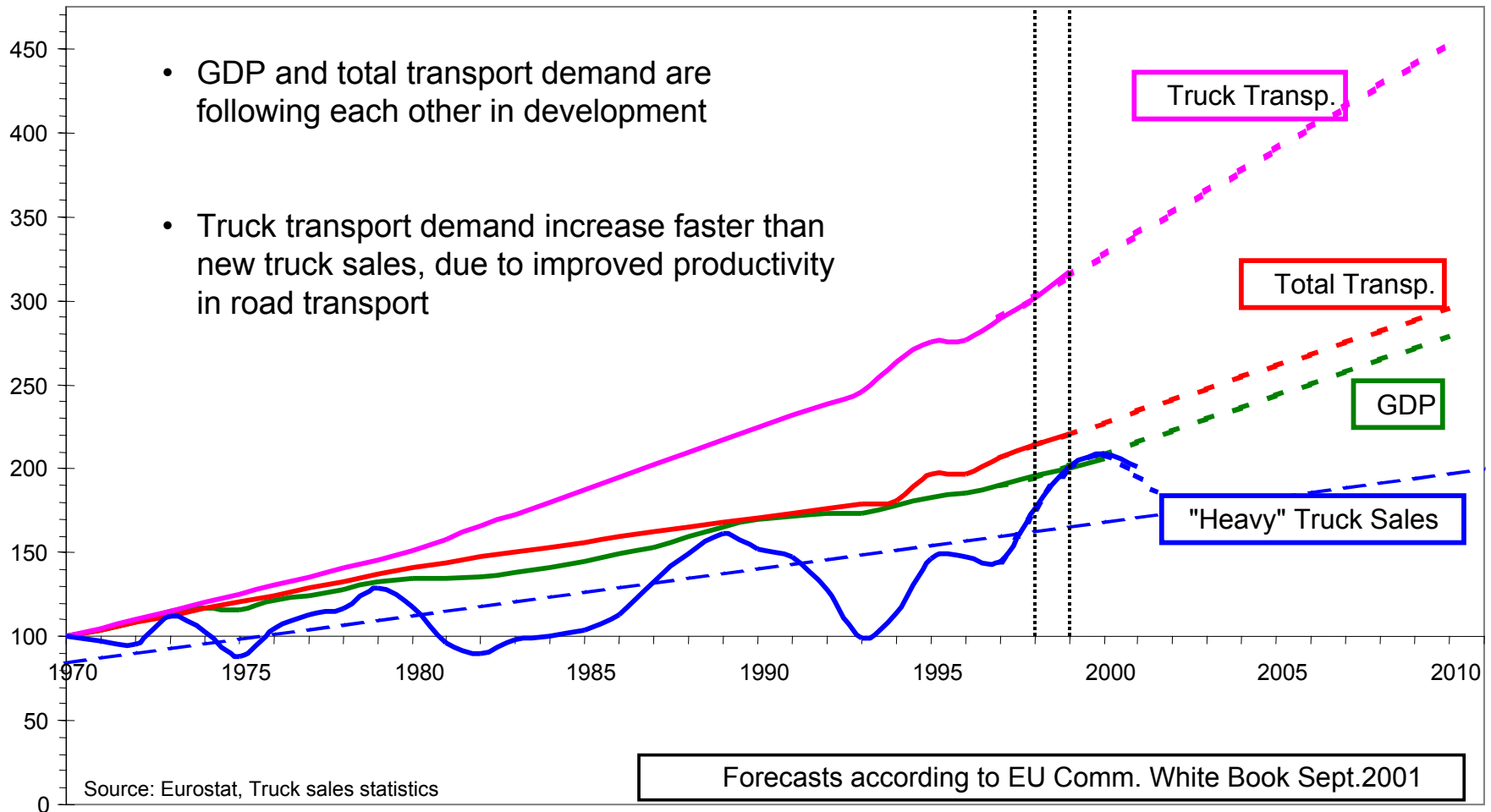


Rail – in Europe

- Rail is not uniform in Europe today. Several different electrical systems (e.g. currency, frequency), safety systems, signal systems etc.
- The only borders today with exactly the same technical systems on either side today are Sweden-Norway and Germany-Austria.
- Several national organisations that must cooperate.
- Rail infrastructure was historically formed, by military reasons, to prevent cross-border traffic.
- Huge investments needed, but also a large potential. However it will take long time to make the improvements.
- Needed improvements for rail will take long time.
- Rail is for large volumes of goods with lower value, and goods that is easy to load/reload.
- Intermodality is the common denominator.

Comparison of development within GDP, Transports and Heavy Truck Sales

INDEX (1970=100)



How to handle this situation?



Are these the solutions?



**My conclusion: There is no competition between road, rail and sea,
They are complementary - we need all capacities
INTERMODALITY IS THE KEY**

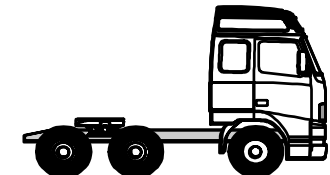
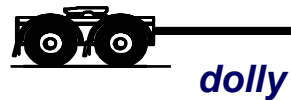
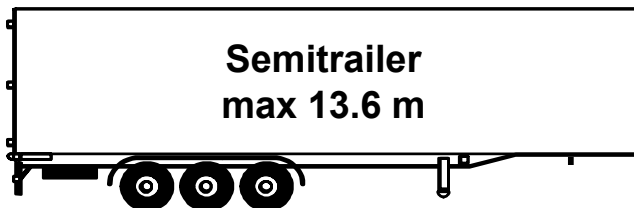
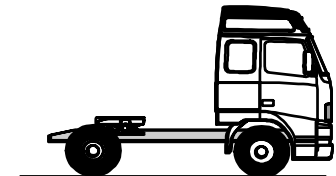
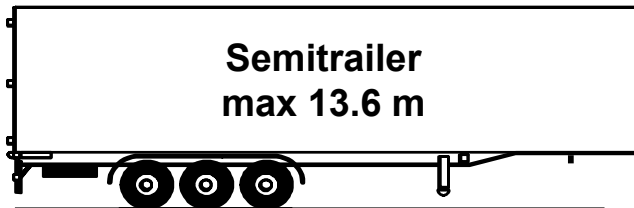
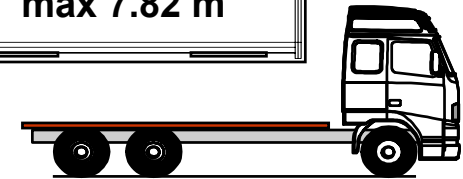
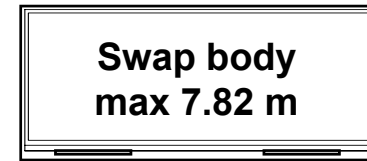
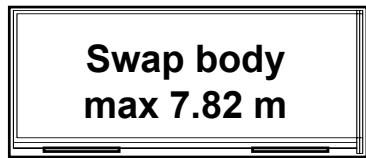
The Modular Concept – Based on Three European Standard Vehicles



Converting to two module vehicles - The Modular Concept

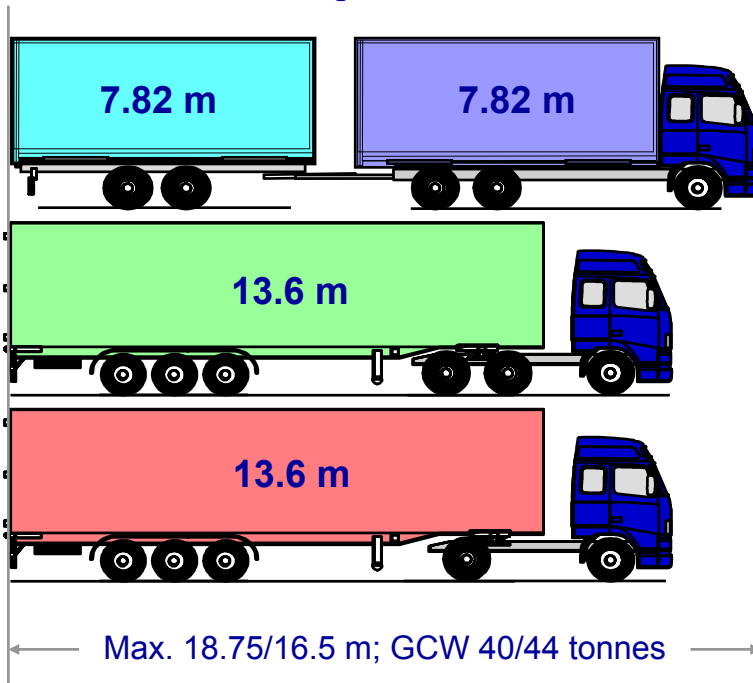


Euro Module System - Standard components for combining vehicles of max. 16.5 / 18.75 m or max. 25.25 m length (fulfilling EU Directive 96/53/EC)

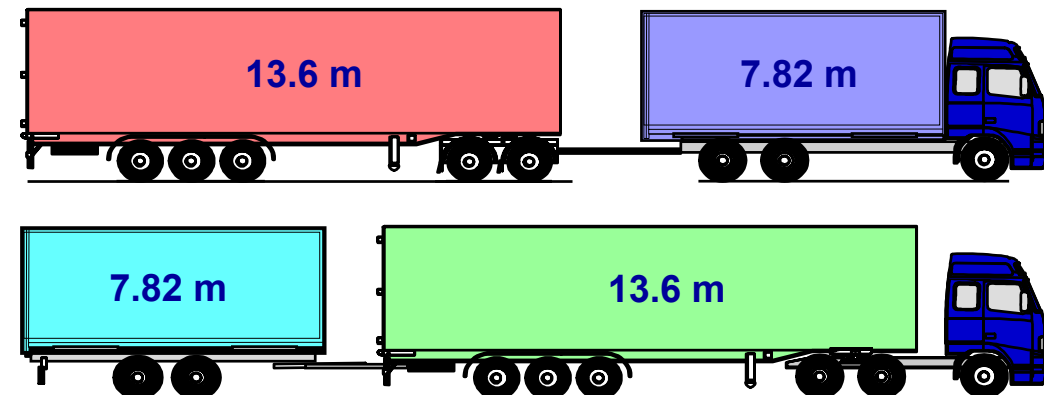


Modular Concept Vehicles vs. 16.5 / 18.75 m vehicles

Legal in EU



Legal in SWE & FIN, tests in NL but
also in the Directive 96/53/EC



Two vehicles instead of three

- Possible to recouple to shorter combinations
- Same volume of cargo
- Standard loading units
- Promotes Intermodality
- Less total fuel consumption
- Less emissions per tonkm
- Less total room on road
- Lower cost per tonkm
- Less road damage

Standard Vehicles for Different Road Classes

The components can be combined in different ways, depending on what kind of roads they are intended to be used on.

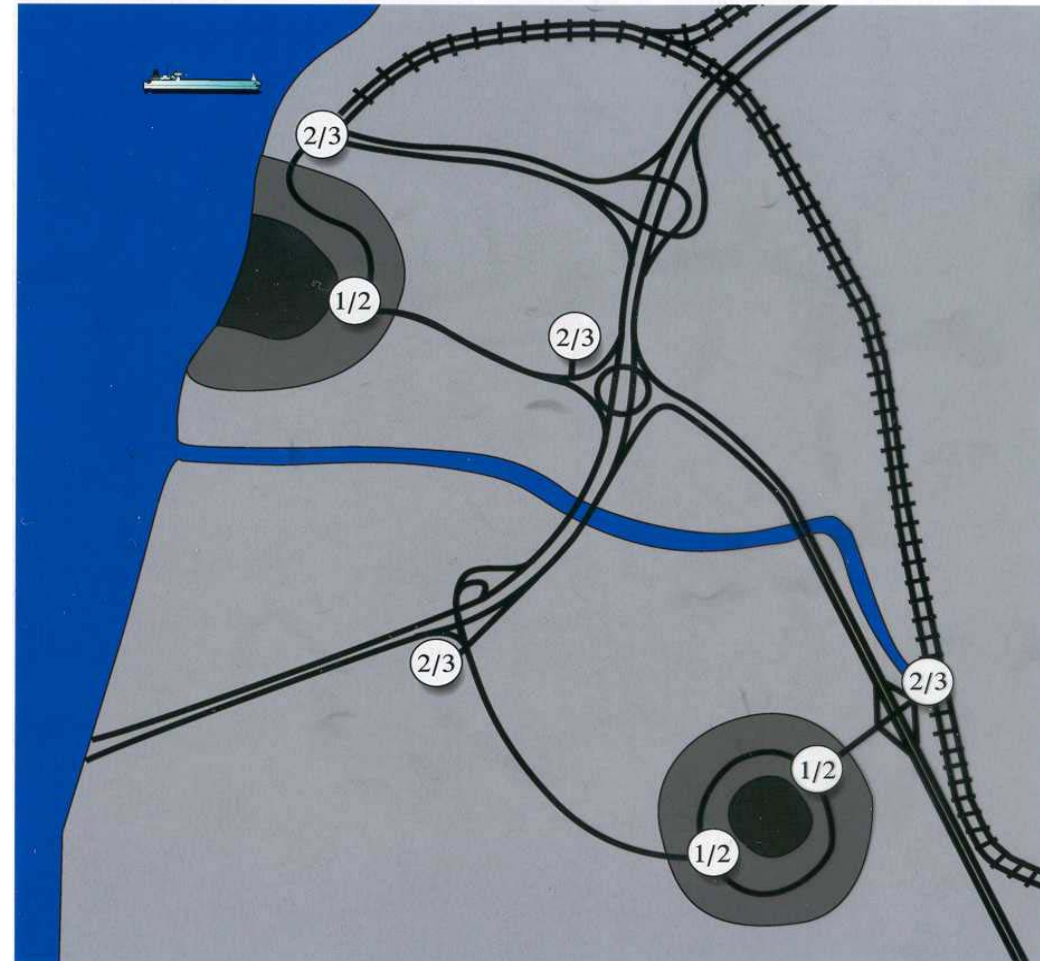
The Euro Module System thus needs to be connected with a Road Class System:

Road Class 1 (City streets)

Road Class 2 (Normal Roads)

Road Class 3 (Primary Road Network)

and terminals / breakpoints where large combinations can be recoupled into shorter combinations and vehicles



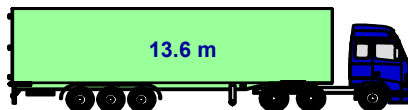
The Modular Concept and a Road Class System

The idea is to adapt vehicles to the local infrastructure

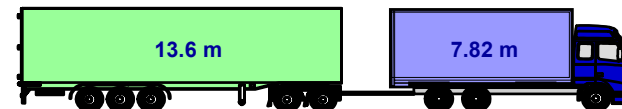
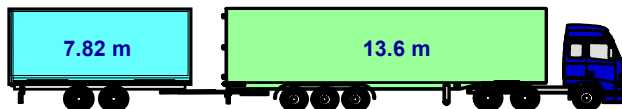
- Use small vehicles when needed
- Use the largest vehicles when possible
- Use a modular system that provide possibility to rearrange and adapt vehicles to different kinds of infrastructure
- Use vehicle “modules” that are standardised



Road Class 1



Road Class 2



Road Class 3

Rearranging of a modular vehicle



Transport Segments and Truck use

Transport Industry	Long Distance (> 250 km)	Regional (50 - 250 km)	Local (< 50 km)	Sum %
1 General Cargo 2 Transport of containers & trailers 3 Industrial transports	28,1%	4,1%	0,9%	33,1%
4 Consumer goods/retail, wholesale 5 Daily commodities, grocery & food	14,5%	3,0%	0,7%	18,2%
6 Agricultural products & material	7,1%	3,4%	1,0%	11,5%
7 Building & Construction	6,4%	7,6%	5,5%	19,5%
8 Forest Paper & Cork	6,4%	3,7%	1,3%	11,4%
9 Petroleum & Chemicals				
10 Ore, coal, mining				
11 Service transports	1,3%	2,4%	2,6%	6,3%
12 Waste & recycling				
Sum	63,8%	24,2%	12,0%	100,0%

Potentials for larger trucks:

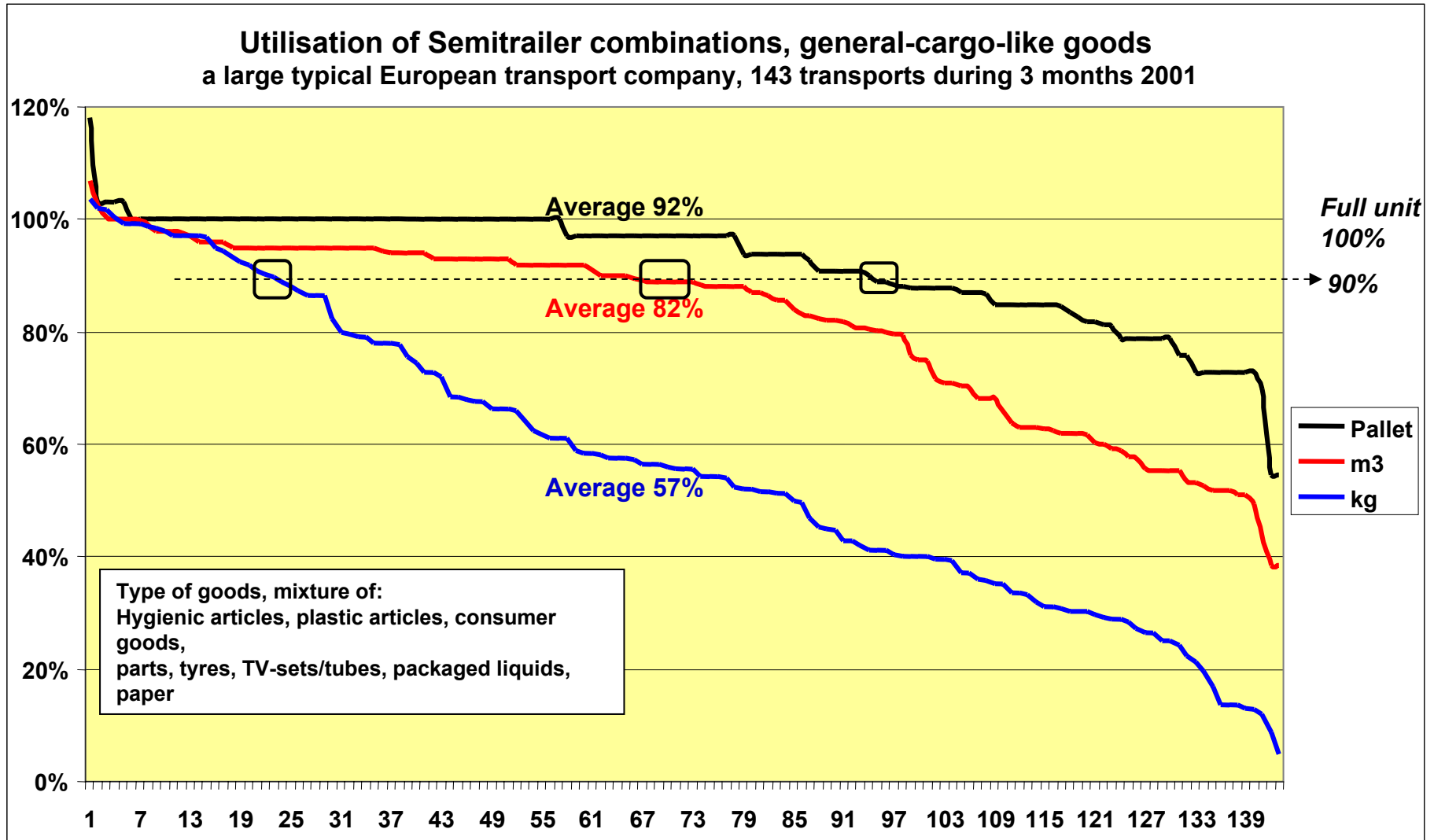
- Long distance transports in segments 1 - 5
- Part of long distance transports in segments 6 – 7

Today around 2 mill heavy trucks in Europe (EU 15) whereof around 800.000 are used for long haul operations where the Modular Concept could be used

(compare 184 mill cars)

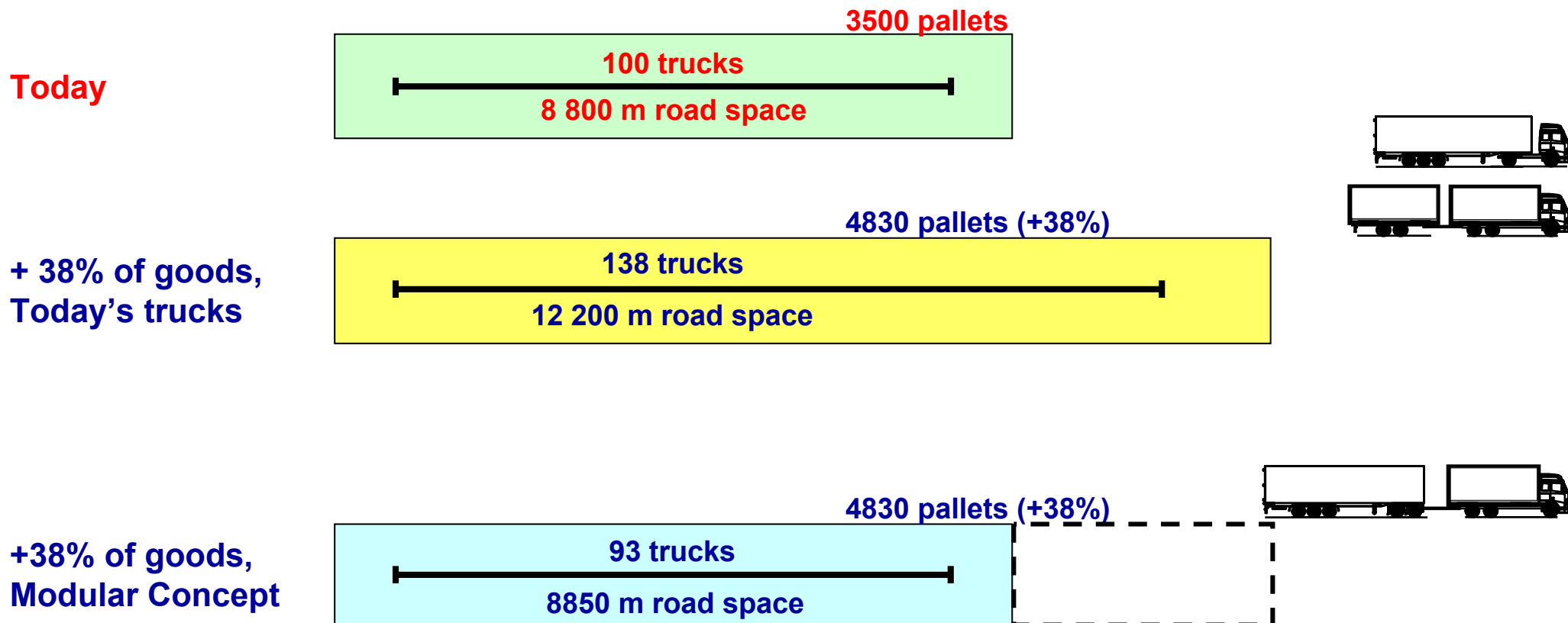
Around 42-45% of Europe's trucks are used in transports where there is a potential for the use of larger combinations

General Cargo is Volume Sensitive



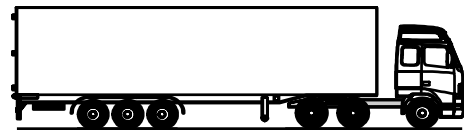
Effects of 38% transport increase (EU White Paper)

When looking at the work of 100 trucks today



Driving stability - Rearward amplification

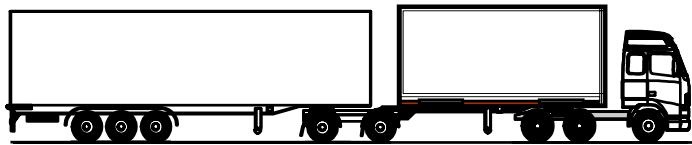
yaw damping according to ISO 14791



RA = 1.26 Tractor & Semitrailer

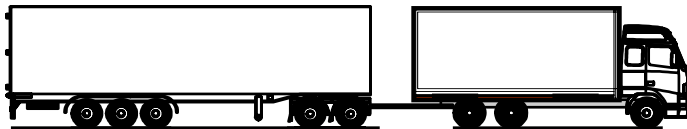
Ranking

1



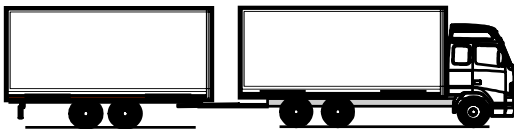
RA = 1.55 Tractor & B-double

2



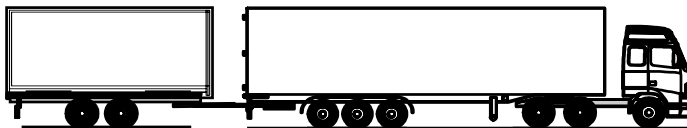
RA = 1.77 Truck with dolly & semitrailer

3



RA = 2.17 Truck with center axle trailer

4



RA = 2.59 Tractor & semitrailer
with center axle trailer

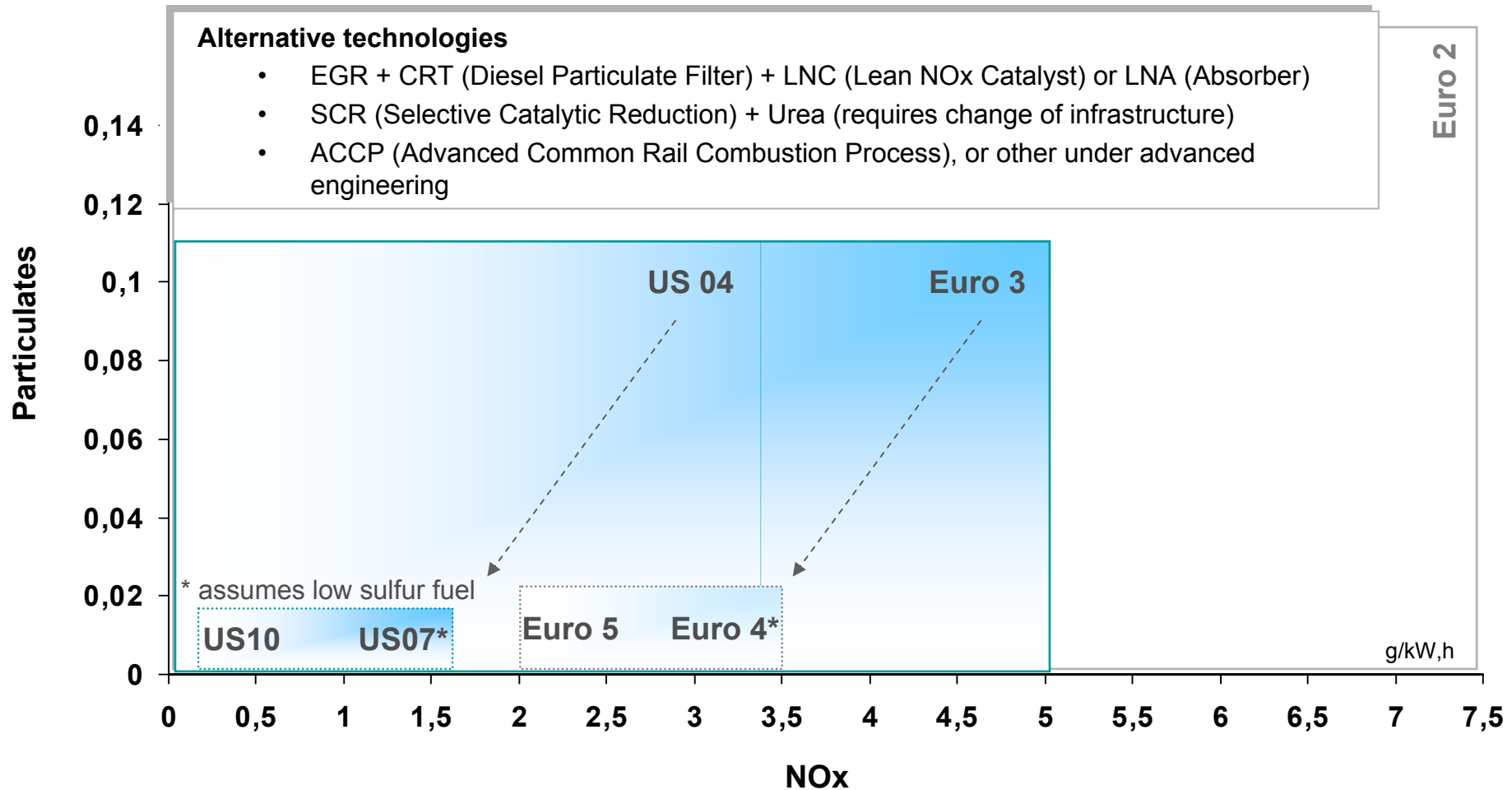
5



RA = 3.59 Truck with drawbar trailer

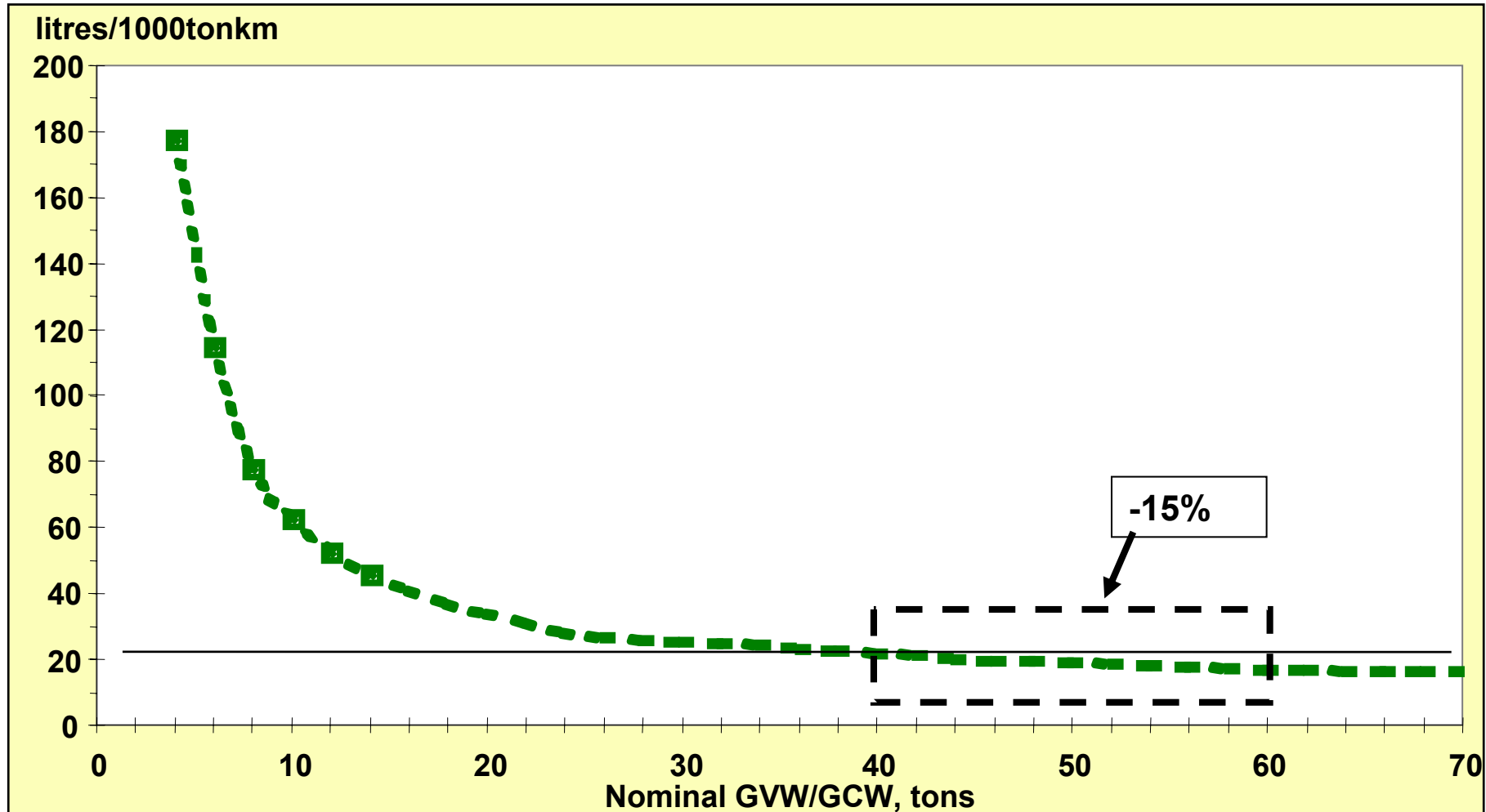
6

Legislative Demands Emission Standards



Larger Combinations

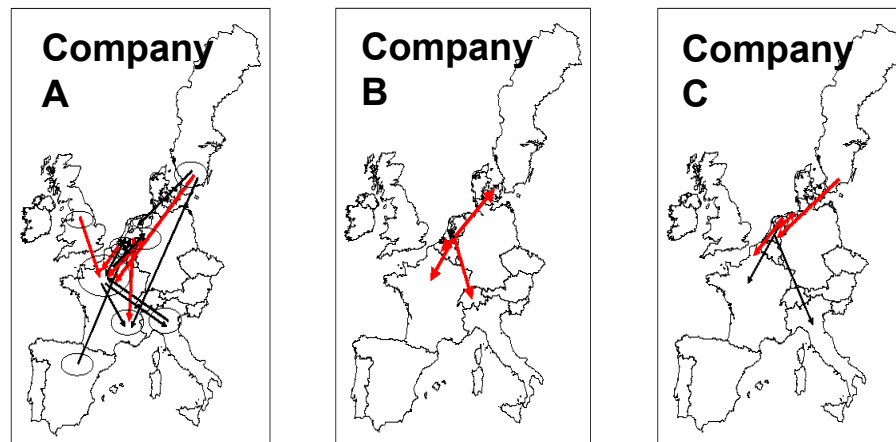
... to reduce fuel consumption





Improved Performance of European Long Haulage Transport

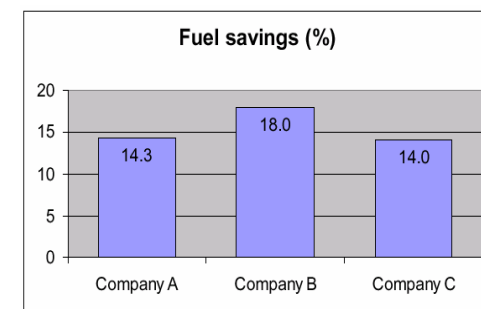
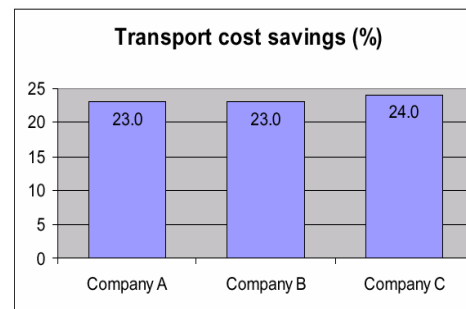
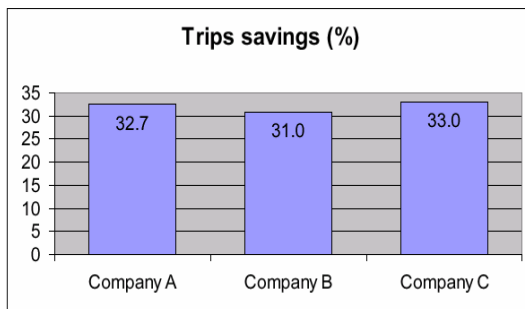
Authentic transport data from three companies analysed, General Cargo only



<http://www.tfk.se/publik/index.asp#2003>

Publication 2002:6E

Results of study, Actual trips over three months



Conclusions

➤ The Modular Concept....

- ✓ Is included in the Directive 96/53/EC, used in SWE, FIN and also NL (limited)
- ✓ Has lower axle pressure – thus less road wear than a standard semitrailer combination
- ✓ Has lower fuel consumption per tonkm – thus better for both economy and the environment
- ✓ Increases transport efficiency – thus reducing the number of trucks
- ✓ Is in favour of safety (main risk is related to number of trucks, not truck size)
- ✓ Can be rearranged to normal EU combinations
- ✓ Promotes Intermodal transports

➤ It is up to the individual countries to accept it – a chance for Poland

➤ Poland is in a phase of upgrading road infrastructure – an opportunity to adapt to a modern road transport thinking

The Modular Concept is an opportunity for Poland

A Volvo truck is driving on a road at dusk. The truck's headlights are on, illuminating the road ahead. In the background, a lighthouse is visible, and a line of utility poles stretches across the horizon. The sky is a mix of blue and purple, indicating twilight.

Thank you for listening to me