

# Transport efficiency - where next?

- **Answer (a) minimise environmental costs**
  - Emissions, Pollution, Waste ...
- **Answer (b) maximise economics**
  - Efficiency; Reliability; ...
- **Answer (c) balance track costs**
  - Pavement design vs axle loads, tyre scrub damage...
  - Bridge design and road layout vs imposed loads and turning circles

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- **How: OPTIMISE via Performance Based Standards (PBS)**
  - Permit longer semi-trailers
  - Trial more efficient combinations

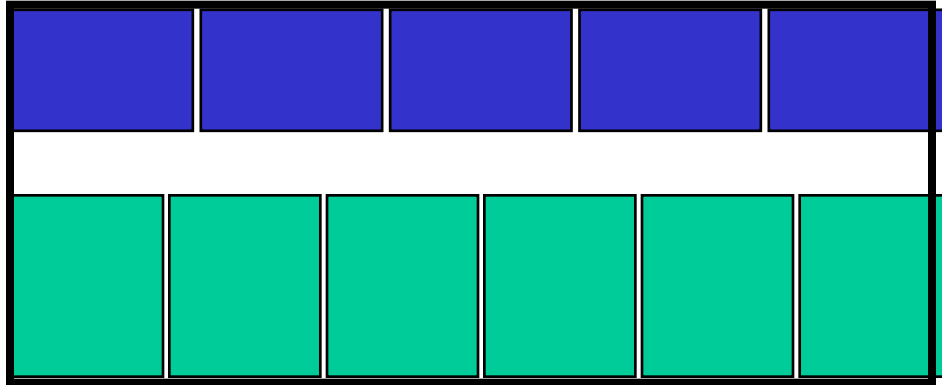
# Loading Units - a short history of containers

- **1960: *Competitive systems***: ISO Series 1 vs. palletised cargo  
Political, Operational, Technical → geographical, modal, economic bias
- **1970**: Paradigm shift from 'space' to *handling considerations*

**Converging gateways: OUTER (handling/transport), INNER (pallets)**

- **1980**: ISO regulatory change - *pallet compatible containers* ✓
- **2000**: EU new generation of 'swap bodies' ✓
- **BUT Today**: Institutional asymmetries & UNCTAD/ISO *rivalry* ✗
- **Future?: *Convergence and Interoperability* - NEED to OPTIMIZE!**  
(road dominant EU + import/export ISO + Combined Transport Chains)

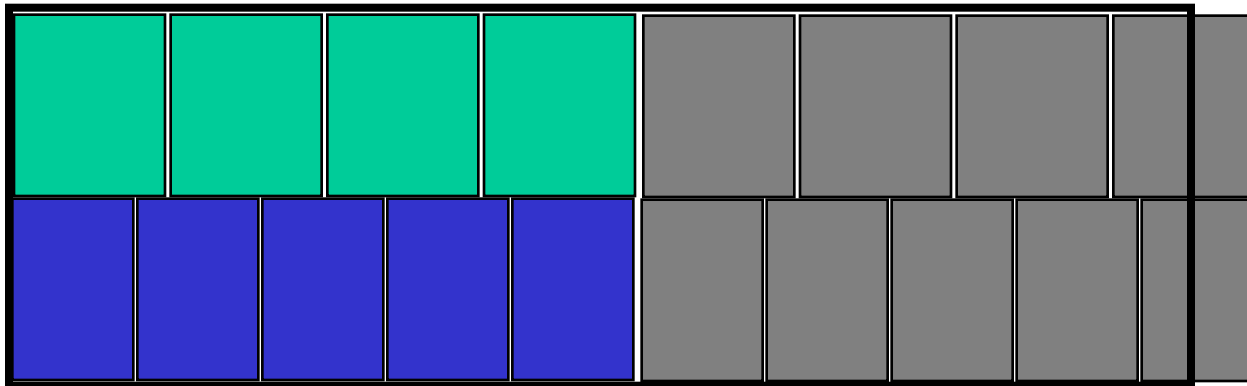
# CEN - Intermodal & Interoperable Workshop



**How to OPTIMISE**  
a) 6.25m & 12.5m?

~~Economic~~

Ref. 20' ISO box

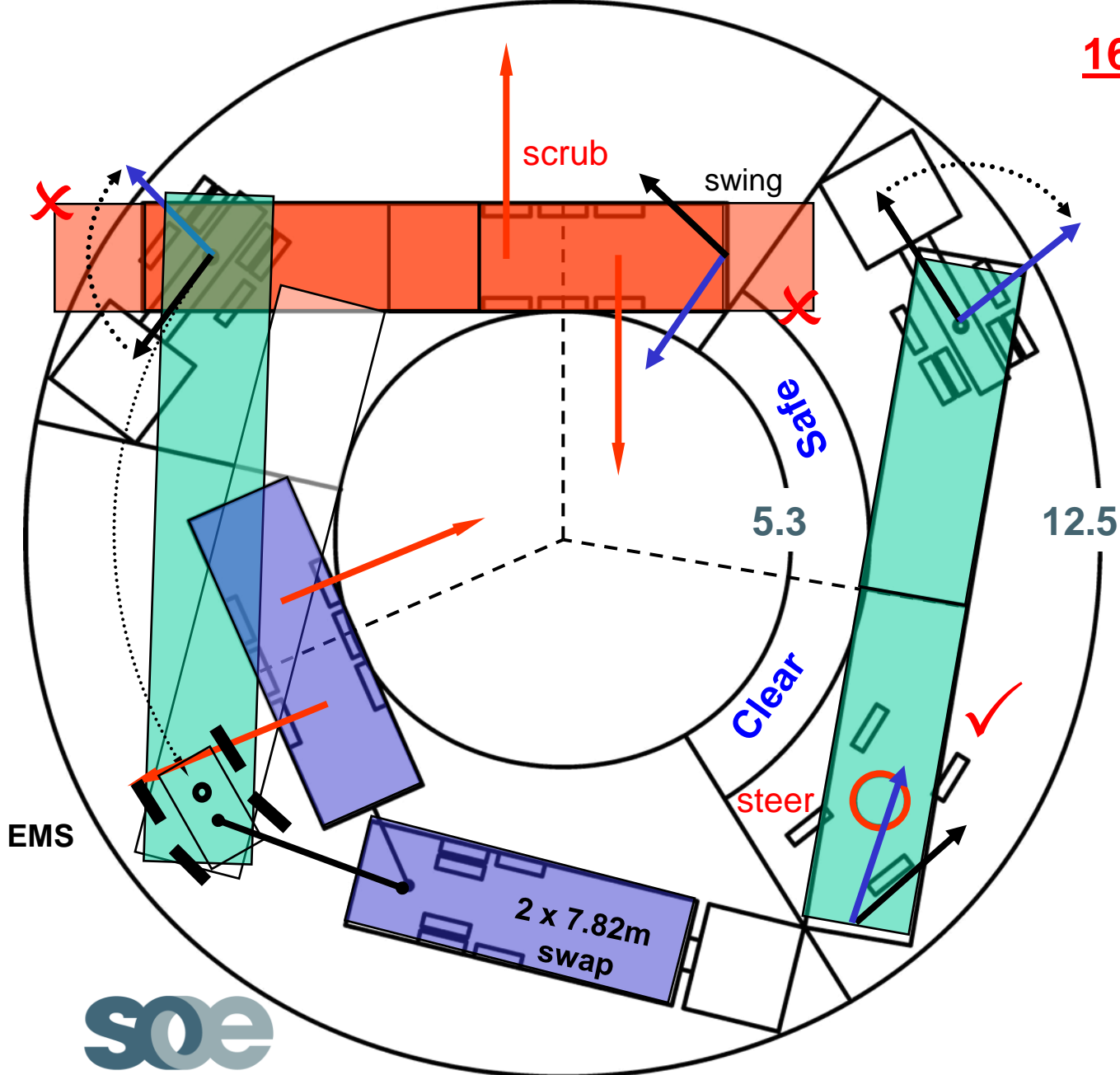


b) 8.3m & 16.6m?  
**High?ways**

NOW "Second best"  
C745 & A1360  
which is not modular!

Ref. 7.82 m  
'swapbody'

## 16.5m semi-trailers



- ✓ *Modular C782*
- ✓ *Modular C825*
- ✓ *Manoeuvrable*
- ✓ *Narrow corridor*
- ✓ *Tractive effort*
- ✓ *Yaw Stability*
- ✓ *Roll Stability*
- ✓ *Fuel efficient*
- ✓ *Tyre life*
- ✓ *Consolidation*
- ✓ *Collaboration*
- ✓ *Lean transport*
- ✓ ...
- ✓ *Road trials?*

**New** generation of loading unit -  
*optimised* for general freight (pallets)

## Draw-bar combination



**16.5 m Semi-trailer**

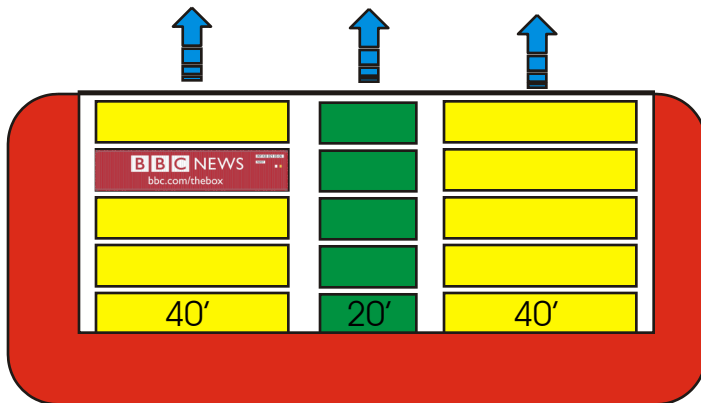


# 54-ft Next Generation



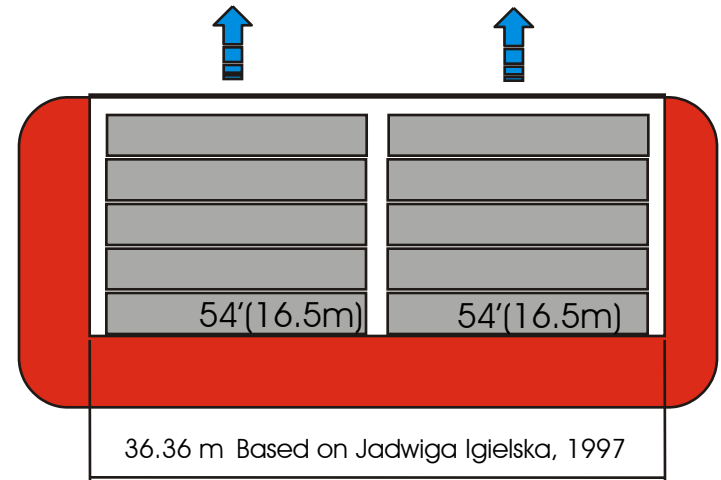
Save 12 hours/trip

36 hours

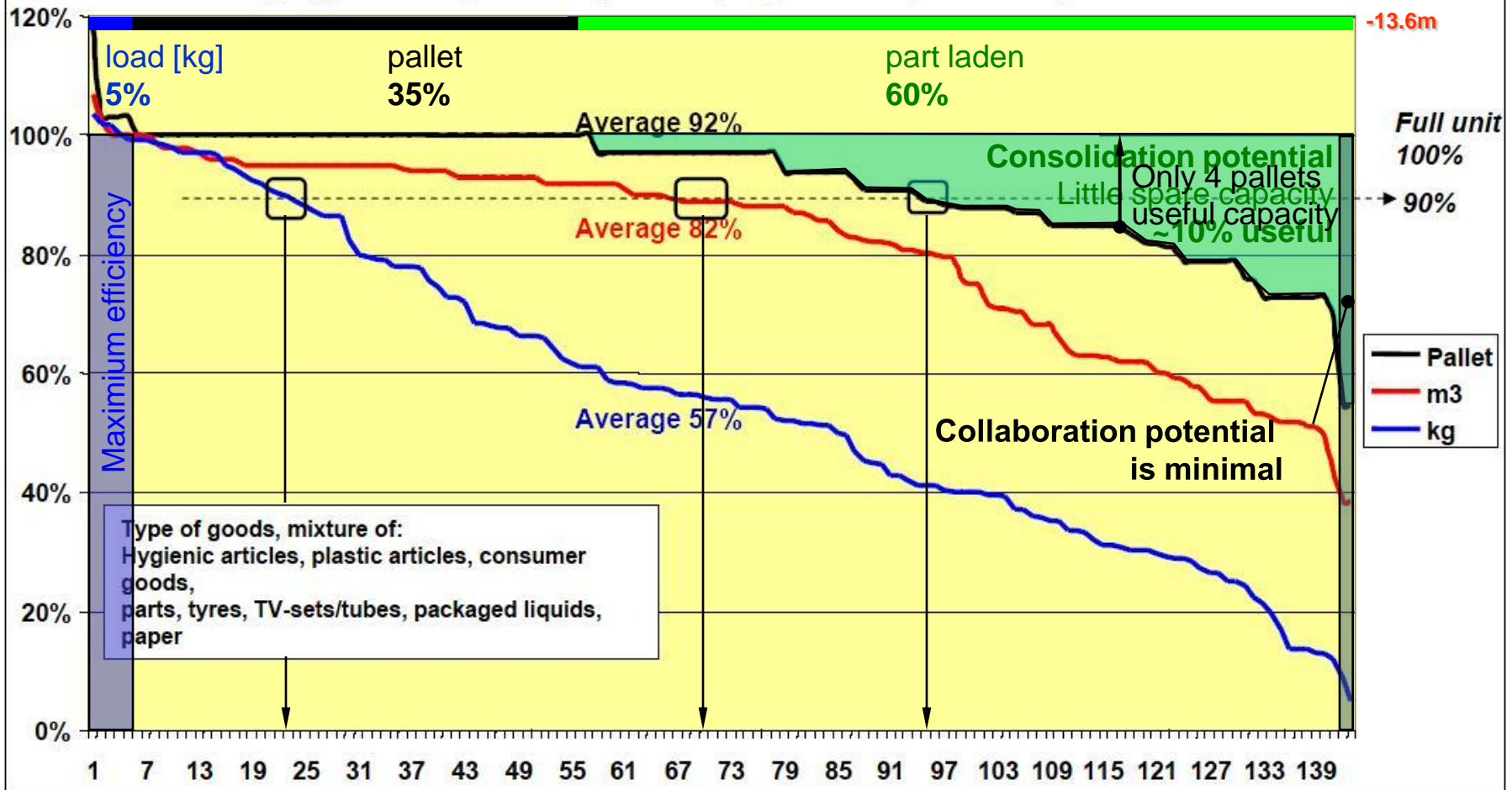


Present Generation

24 hours

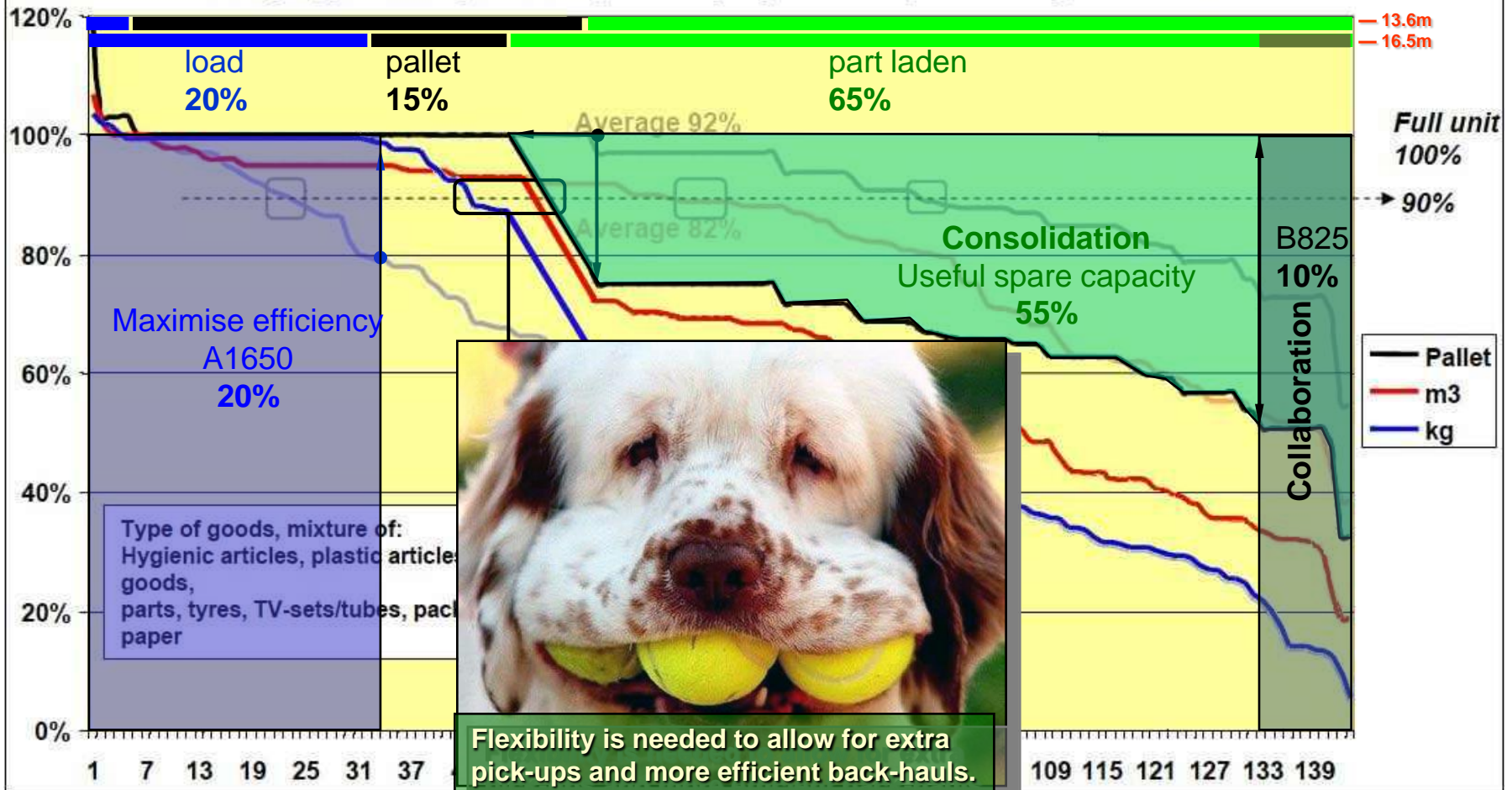


## Utilisation of Semitrailer combinations, general-cargo-like goods a large typical European transport company, 143 transports during 3 months 2001

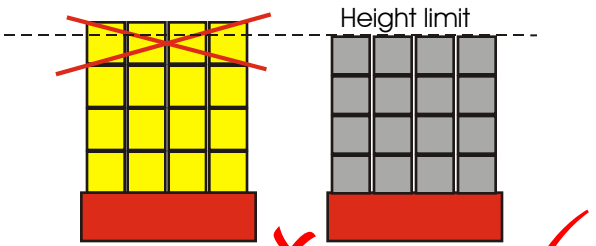




# Utilisation of Semitrailer combinations, general-cargo-like goods a large typical European transport company, 143 transports during 3 months 2001







**High cube?** X **Hi cube** ✓  
**(with lower, longer units)**

- **33% greater capacity on river barges**
- **Clear access to rail corridors**

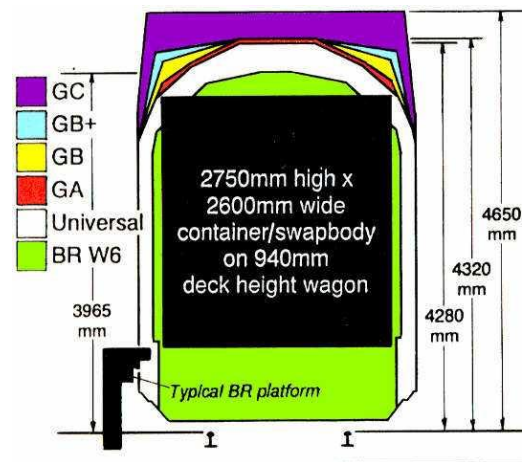
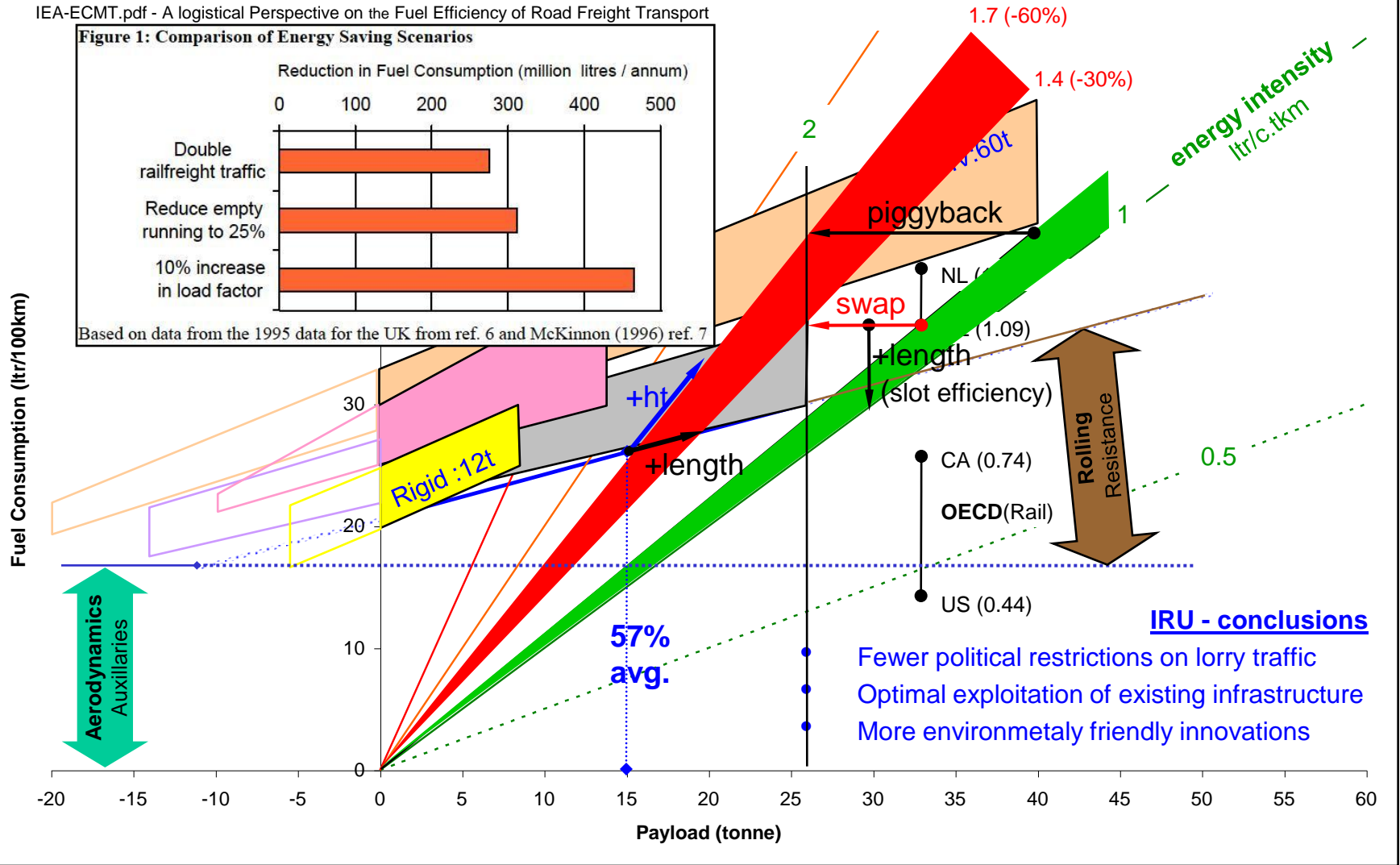
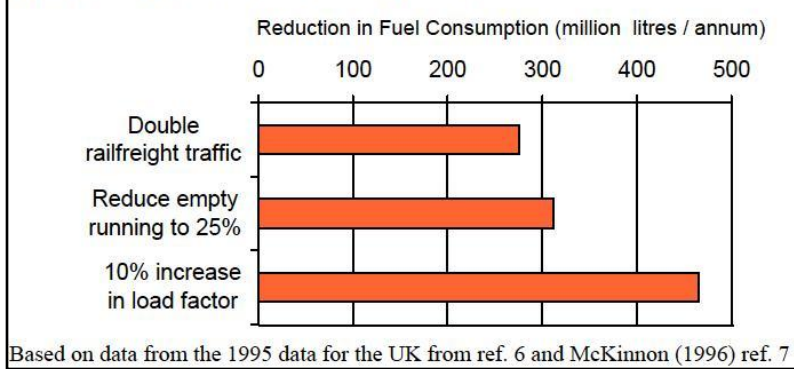


Figure 1: Comparison of Energy Saving Scenarios



**IRU - conclusions**

- Fewer political restrictions on lorry traffic
- Optimal exploitation of existing infrastructure
- More environmentally friendly innovations

**BIC Study team (UIRR ..) - recommendations**

Refuse requests for greater road vehicle dimensions  
 "If such pressures render successful, all those who organise common European standards based on current legislation will be dis-encouraged!"



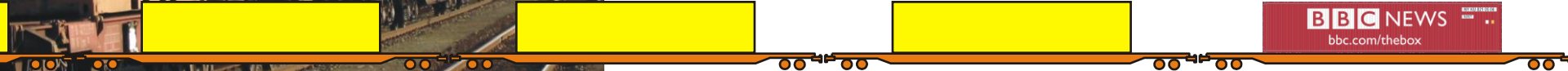




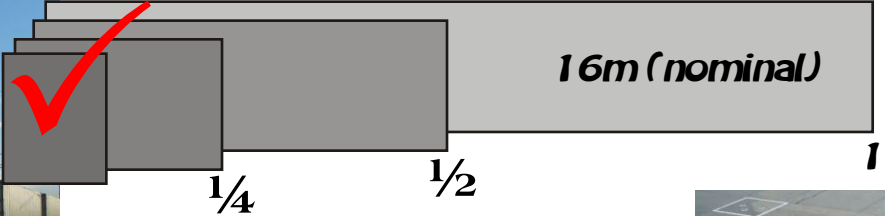
Divisible by one?



1



**3 x 40-fts pack into just 2 x 16.5 metre units**



**33% greater capacity on rail**

- improved slot efficiency
- reduced dead length
- lower aerodynamic drag
- lower fuel intensity

**New Generation of loading unit**

- divisible and modular
- door-to-door deliveries
- Consolidation
- Collaboration





ROAD

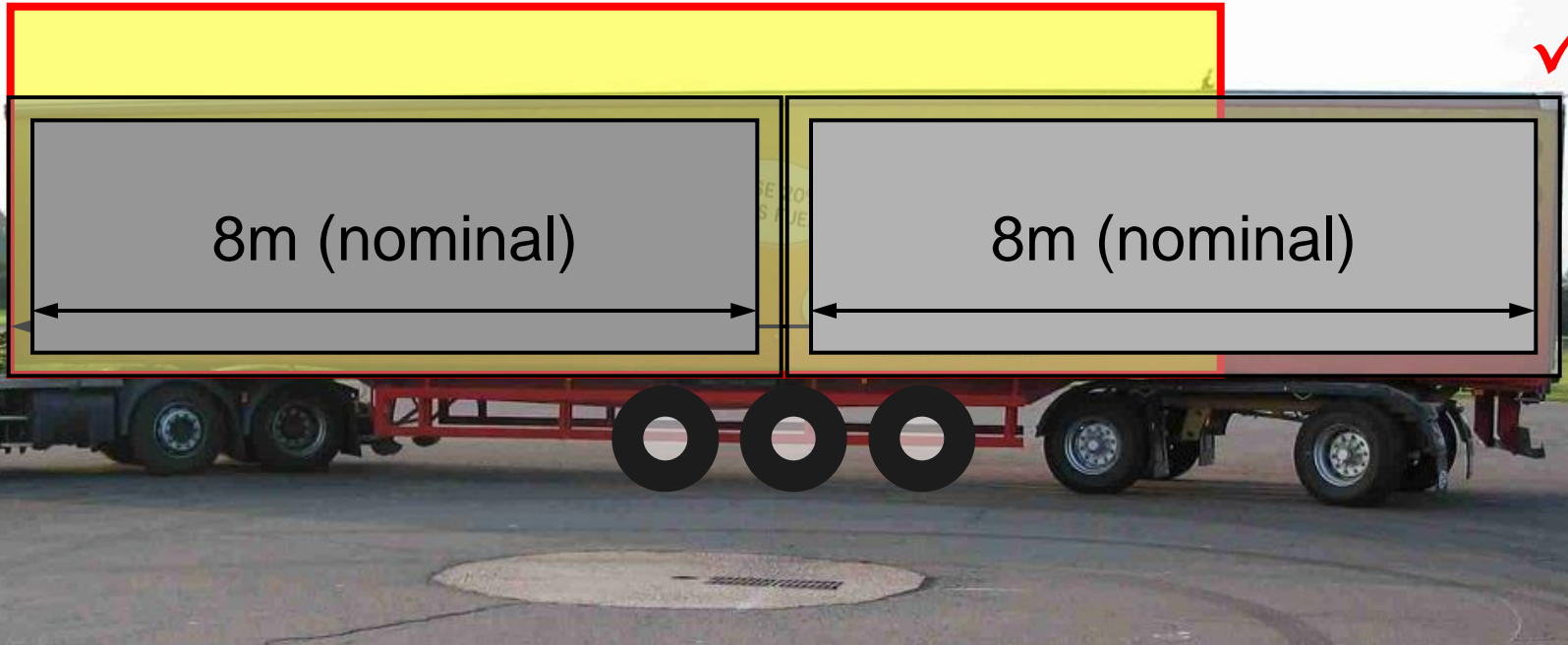


RAIL



SEA

x



- **Generic 'grey box'**

- ✓ No **geographical** bias!
- ✓ No **modal** bias!
- ✓ No **economic** bias!

